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ANDOCIDES, the son of Leogoras, of a noble Athenian family, was born about B.C. 468. We find him, during the war of the Corcyreans and Corinthians, commanding, jointly with Glaucon, an Athenian squadron which was sent to aid the Corcyreans (Thucyd. i. 51). After this he appears to have been employed as ambassador on numerous foreign missions. During the Peloponnesian war (about B.C. 416) Andocides was involved in the charge of mutilating the Hermes, (see ALCIBIADES) and, according to Plutarch, he saved himself by accusing his real or imaginary accomplices, and among them his own father, whom however he succeeded in rescuing from capital punishment. But the history of all this transaction is obscure. After this event Andocides went abroad and visited Sicily, Italy, the Peloponnesus, and Thessaly: he also visited Asia Minor and the island of Cyprus, where he contracted on good terms with the king of Cilium, to whom he is accused of delivering up his own cousin, a female, whom he had carried off from Athens. The story rests on doubtful authority; but the king and the Athenian adventurer appear to have quarrelled, and Andocides made his way back to Athens. The Four Hundred at this time (B.C. 411) directed the administration of affairs, and Andocides, who was always in trouble, was accused apparently on frivolous grounds, and thrown into prison. On being released he set out again to Cyprus, and attached himself to Evagoras, king of Salamis. But he quarrelled with this new acquaintance also, and again returning to Athens after the restoration of the popular government, he was again, as is said, banished to quit the place and to retire to Elis. On the overthrow of the Thirty Tyrants by Thrasybulus, (B.C. 403,) Andocides returned to Athens, and recovered all the influence which talents and eloquence naturally gave an unprincipled man in the Athenian democracy. The remainder of his life is obscure. The life of Andocides, attributed to Plutarch, speaks of his being sent to Locri to conduct the subject of the peace (ῥήμα αἰφνίδιον), in which affair he conducted himself in such a way as not to venture back to Athens. This peace has been conjured to be that of Antalcidas, B.C. 387, but at this time Andocides was eighty-one years of age, if the date of his birth is correctly given, and not likely to have been employed on such a mission.

It is unfortunate that the events of this orator's rambling life are not better known. The times during which he lived were full of important occurrences, and a minute account of his life and adventures would have thrown great light on the internal history of Athens and of other states also. There is little doubt that he was a man of ability, but without any principle. Four extant orations are attributed to Andocides: On the Mysteries: On his (second) Return to Athens: On the Poets with the Locriemonians; and Against ALCIBIADES. The authenticity of the third and fourth are disputed, that of the third at least, perhaps, with good reason. The orations of Andocides are found in the collections of the Athenian orators, by H. Stephens (1875), in that by Reiske, and in the later edition of Bekker. They are also in Dobson's collection (1828), with the Lectiones Andocides of Stuiver, Sc. They were translated into French by the Abbé Auger, 1792. The oration on the Mysteries was pronounced when Andocides was about seventy years of age, in reply to an accusation brought against him by Callias of violating a law respecting the temple of Ceres at Eleusis. The oration contains, besides the immediate subject of the defence, much information on other parts of the orator's life. It is an admirable specimen of simple and perspicuous language, and equally remarkable for the skill with which the defence is conducted.

ANDORRA, a valley on the southern side of the central Pyrenees, situated between two of the highest mountains, the Maladeta and the Moncal, the former 3908 and the latter 3570 yards above the sea. The extent of this valley is forty miles in length, and twenty-four in breadth; it is bounded on the east and south by the territory of Puigeorde, by Talmont on the west, and on the north by the Pyrenees that form the county of Foix, in France. The rivers Balar, Odiso, and Os irrigate its grounds, and flow into the main stream, the Segre, which is a branch of the Ebro. The territory is mountainous, but abundant in pasture. At Càdes, as its name imports, are abundant thermal springs. Its forests produce a great quantity of timber, which is carried down the rivers Balira and Segre into the Ebro, and thence to Tortosa. The mountains abound in bears, wolves, wild boars, goats, and other species of game. Besides Andorra it contains five other villages; Encamp, Massanet, Ordino, San Julian, and Camillo, the latter remarkable for its iron mines. The capital, Andorra, is situated on the river Balira, and contains 2000 inhabitants. Andorra is an independent republic, and though double in extent, is less known than that of San Marino, in Italy. It is governed by a syndic, who presides in the council of the valley, and by two Figurers, one appointed by the king of France and the other by the bishop of Urgel. Lewis le Debonnaire gave the sovereignty of this valley to Sisberia, the first bishop of Urgel, in 819, and from that time it has maintained its independence between France and Spain. Andorra, the chief town, on the Balira, has about 2000 inhabitants. The people of the territory speak a Catalan dialect.


ANDOVER, a borough and market in the N.W. part of the county of Hants, and on the border of the down which stretches into Wiltshire. It is on the left bank of the river Anton, (a branch of the Test, or Test, which falls into Southampton water,) and from its situation, gets the name of Andover, (Saxon, Andefaran,) i.e., ferry, or passage over the river And. It is 63 or 64 miles W.S.W. from London; 51° 12' 30" N. lat., 1° 29' W. long. from Greenwich.

The three principal streets are well paved, but not lighted; the houses are well built, and the town is well supplied with water. The church is near the north end of it, and is a spacious structure, of very great antiquity, having existed as far back as the time of the Conqueror. At the west end is a fine semicircular, arched doorway, with zigzag mouldings. The living, a vicarage, with the chapel of Forcote annexed, is in the patronage of Winchester College. There
AND

are meeting-houses for Baptists, Quakers, Independents, and Methodists; a free grammar school, with a school-house built and kept in repair by the corporation; and an almshouse for six poor women, was built with funds bequeathed by Catherine Holyoke. This school-house and almshouse was erected and endowed by John Pollen, Esq., one of the members for the borough in the time of William III. Another almshouse, for six poor women, was built with funds bequeathed by Catherine Holyoke. This school-house and almshouse was erected and endowed by John Pollen, Esq., for educating twenty poor children. This establishment is now incorporated with the National School, supported by additional subscriptions, in which 200 children are educated.

Andover first returned members to Parliament in the time of Edward I.; but the right was lost, or disused, from the first year of Edward II., to the twenty-seventh year of Queen Elizabeth, when they were again seat, and have since been regularly returned. Before the passing of the Reform Bill, the right of election was in the corporation, which was considered to be under the influence of the Earl of Portsmouth. By the Boundary Act connected with the Reform Bill the number of electors of the town of Andover, which had previously included the parishes of Andover and Knighton's Enham. The population of the town was, in 1831, 4,966.

The chief business of the town consists in malting, and in the manufacture of silk, which has lately superseded that of shalloon, the former staple. A considerable quantity of timber is forwarded from Harewood Forest to Portsmouth, by means of the canal from this town, through Stockbridge, to Southampton water, which is marked on Saturday; and there are three fairs in the year.

About three miles west of the town, at the village of Weyhill, is held one of the largest fairs in England. This fair begins on the 10th of October, and continues for six days, and is known as the Weyhill Fair. "Magna Britannia Hibemia," a survey of Great Britain, published in 1750. This fair is reckoned to be as great an one as any in England, for many commodities, and for sheep, indisputably the biggest, the farmers coming out of the south, north, and east, to buy the Dorsetshire ewes here. It is also a great hop and cheese fair, the former being brought out of Sussex and Kent, and the latter out of Wilts, Gloucestershire, and Somersetshire. The above account of the chief articles of trade, with its description of the fair, is from a paper printed about the sale of sheep, though the favourite breed may be different, is still great: more than 140,000 have been sold on the first day. The Farnham hops, the choicest of any grown in England, and the best churned butter, are in such request, that their sale, bears the name of Farnham Row. Many horses, particularly cart colts, are also sold.

During this fair, assemblies are held in the town-hall at Andover. Near Andover, there are the remains of some Roman encampments, especially one on the summit of Bury Hill, a mile or two south-west of the town; and some beautiful specimens of Roman pavement have been found in the neighborhood. (Warner's Hampshire: Beauties of England and Wales.)

ANDOVER, a town in the state of Massachusetts, United States, about twenty miles direct distance N. by W. of Boston, and about two miles from the southern bank of the river Merrimack; and the most populous town in the State.

Andover is divided into three parishes, and has some considerable manufactures. The north parish contains the Franklin Academy, and the south parish the Thacher School. The Theological Seminary opened in 1808; it has four professors and (in 1831) 139 students, with a library of 16,000 volumes. The whole number that has been educated here was (in 1831) 314. This establishment was celebrated by the celebration of a festival given for the study of Hebrew in the United States. The population of Andover in 1820, was 3889. (Encyclop. Am. ; Journal of Education, No. 2, xl.

ANDRÉ (ST.), or ST. ENDREY, the capital of a lordship, since 1189, in the county of the Hereford Danube, and in the department of Ponth; the number of its inhabitants scarcely exceeds 3000. Their chief support is derived from the cultivation of the vine. The eastern Christians, who are in number about 1000, have seven churches in the town; which gives an average of scarcely more than one church to each of the 177 persons. The overpopulation originated in the immigration of the Berrians under Leopold I., each sect of whom founded their own place of worship.

ANDREWS (JOHN), appears to have been a native of Lichfield, and to have been born there in 1751. In 1769 he met at Buxton a Miss Honoria S——, and the consequence was an immediate attachment, which became one of remarkable devotedness on his part, and which would have kept them to have been united but for the untimely death, in 1769, however, interfered, and she was induced not only to discontinue her correspondence with André, but some years after to give her hand to another. Meanwhile André had become a clerk in a wine-house in London. But on receiving intelligence of Miss S.'s engagement, he determined to quit both his profession and his country, and having procured a commission in the army, he proceeded with his regiment to North America, the seat of war between Great Britain and her colonies. In this country, by his talents and accomplishments, soon raised him to distinction; and he attained the rank of major, with the appointment of adjutant-general to the North American army. In the year 1776 he commanded the troops which occupied the town of New York under the command of General Sir Henry Clinton, when the infamous Arnold, who had been entrusted by Washington with the important position of General Sir Henry Clinton, when the infamous Arnold, who had been entrusted by Washington with the important position of West Point on the Hudson, about 60 miles above New York, was taken, and conveyed to the British shore for poems for delivering that fortress into his hands—a scheme which, if it had succeeded, might not improbably have put an end to the war. On Arnold's overtures being accepted, André was appointed to the negotiation with him. After some correspondence under assumed names, André and Arnold met on the banks of the Hudson on Friday the 29th of September, when everything was arranged for the execution of the plot on the following Monday, and the necessary information to be given to Arnold was put into the hands of André and delivered to General Clinton. Unfortunately for André, the boatmen who had brought him on shore from the English sloop of war in which he had come up the river, having had their suspicions or fears awakened, refused, although he bore a flag of truce from General Arnold, to convey him back, and he was obliged to determine upon attempting to make his way to New York by land. Arnold, to whom he returned, insisted, in these circumstances, that he should exchange his military uniform for a civil dress, and André reluctantly consented. A person of the name of Smith was then sent away with him as his guide, and they set out together; but when they reached the next post, they heard that the persons expected to follow the advice of the commanding officer, and to remain there for the night. Next morning they proceeded on their journey, and Smith having conducted his charge till they had come within view of the English lines, left him a little below Pine's Bridge, a village on the Croton. André rode on alone for about four leagues farther, when, as he was entering the village of Jarrytown, his horse was suddenly taken hold of by three men, who turned out to belong to the New York militia. With unaccountable imprudence, André assumed that they were of the English party, and instead of producing his passport desired them not to detain him, as he was a British officer. When he found his mistake, he endeavoured to induce them to let him go by the offer of his watch, but they were not satisfied, and would not be bribed, and having found the important papers of which he was the bearer concealed in his boots, they immediately conducted him to the nearest station. His first anxiety now was for his safety, and he continued to endeavour to follow the officer in command, who must have been a person of very little perspicacity, to forward a notice of his capture to that general, by which the traitor obtained the opportunity of escaping. The officer, however, who was, as it now appeared, in the person who was, on which he was conducted to the presence of General Washington at Tappan or Orange Town. On the 28th, his case was submitted by the American general to the consideration of a board of fourteen general officers, to whom the persons whom he had been sent were sent, and, after some debate, it was determined to pardon him. For this transaction, André urged that he had come on shore under the sanction of a passport, or flag of truce, transmitted to him by Arnold,
who was, at the time of granting it, a major-general in the American army, and of course had sufficient authority so to act. But the circumstance of his having been found dis- 
guished as taking from him the benefit of this plea, although he proved handsomely in both these points he had acted in obedience to the com-
mands of Arnold, under whose orders he was while he bore his flag of truce. The decision of the court-martial, though they did not, however, believe it to be true, and that he was sometimes asserted, was that the prisoner ought to be consid-
ered as a spy; and he was accordingly sentenced to be executed. Both entreaties and remonstrances were em-
ployed with great success by General Clinton; but so far the retaliation was not taken by the execution of any American 
prisoner, it may be inferred that it was felt even by the English that his sentence was according to the rules of martial-law. He himself exhibited the most perfect re-
signation to his fate, and does not after his condignation appear to have disputed the justice of the decision under which he was to suffer. He only begged that his death might be that of a soldier. He was kept in ignorance of the determination of the court-martial upon this point; but when upon being brought to the fatal spot, on the morn-
ing of the 9th of October, he perceived that he was to perish on a gibbet, he exclaimed, 'It is but a momentary pang,' and exclaimed, 'I die.' He bore himself with the respect even of those who had found themselves obliged to execute him. André, said Washington, in a letter to a friend, 'has met his fate, and with that fortitude which was expected from an accomplished man and a gal-
lant officer.' Andral was erased from his memory, at the public expense, in Westminster Abbey. 

Whatever the books which are considered the standard authorities upon international law may say in reference to such a case, that of André, there is no good ground for our conduct. To say that he acted under the orders of an officer whom he knew to be playing the part of a traitor, cannot be considered as any exculpation. There would be no security for an army or a government if it were not to be at liberty, when it had them in its power, to punish persons detected in devising such plots as this of Arnold and André, under whatever subterfuge they might attempt to shelter themselves. The having recourse to the use of a flag of truce, in such circumstances, must be regarded as a mere trick. General Clinton and Arnold were the great culprits, of whom the latter only has received his due share of opprobrium.

To his last moment André had cherished the hopeless passion which had driven him from his country and his early pursuits. In a letter written after his capture, which has been printed, he states that when he was strip of every-
thing, he had concealed the picture of Honoria — in his mind, he considered that his wife had been informed of the event, had died of consumption only a few months before.

This unfortunate officer was a person of cultivated mind and elegant taste. He collected books, music, and was also no despicable writer of verse. His humorous poems, entitled the Oooh-oohase, which appeared in three successive portions at New York, in 1786, the last being published on the very day on which its author was taken prisoner, is a production of decided talent. It is in the style of Cowper's John Gilpin, which celebrated poem was not written till some years later. For further particu-
lar respecting the subject of this notice, see Miss Sargeant's Letters; also, Letters of the late General Gates, New York, 1781, from the letters and notes attached to which we have taken most of the facts of his private history; a pub-
lication by Joshua Hatt Smith, Esq. (the person who acted as his guide on his return to New York), entitled An Authentic Narrative of the Causes which led to the Death of Major André, etc., London, 1803; and an elaborate article in the Encyclopaedia Americana, under the head of 'Arnold, Benedict.'

ANDREA VANNUCHI, called DEL SARTO, from the occupation of his father, a tailor at Florence, was born in that city, in the year 1485. He was initiated in the principles of design by Giovanni Bartle, and he studied sub-
sequently with the master of Pietro Costanzo. He learned little more from these masters than the mechanical practice of his art, but in the frescoes of Marsacch and Ghirlandajo, and in the cartoons of Michelangelo and Leonardo da Vinci he found the principal elements of whatever excellence he afterwards attained. His powers were first developed in some works executed in conjunction with a friend and fellow-student, called Francesco Bigio, for the churches and convents of Florence, but the great picture of St. John the Baptist, preaching, exhibited at Gubbio, was an independent production, and it was considered that the work which immediately followed, the life of Filippo Benizi, in ten compartments, for the church of the Servi, entitled the artist to rank among the greatest men in his country. In spite of this success, Andrea felt anxious to try his strength with his great contemporaries at Rome, and accordingly made a visit to that city. Vasari relates, that on seeing the paintings of Andrea, Alberti turned immediately to Florence, without staying to investi-
gate the great works which had impressed him with so painful a sense of inferiority. Other authorities affirm that he remained in the imperial city a considerable time, divin-
ing his attention between the studio of Michael Angelo, Raffaelle, and the Antique; this account is by far the more probable, especially as the first works which he executed after his return to Florence manifest an obvious improve-
ment in style. Among these, the most conspicuous were the Descent of the Holy Ghost, the Birth of the Virgin, and the Last Supper, painted for the monastery of the Salvi. Of the last picture Lanzi relates, that during the siege of Florence, in 1530, when general commotion reigned in the suburbs, and having demolished the church and part of the monastery, on entering the refectory were struck with such reverence at the sight of the painting, that they remained awhile motionless, and then returned, without committing any further damage. The increasing reputation of Andrea del Sarto procured him an invitation from Francis I. to visit the court of France, and that monarch expressed a wish to retain him altogether in his service. The political troubles of his own country, which rendered the pursuit of art a precarious and unprofit-
able employment, induced Andrea to embrace with eager-
ess the proposal of the French monarch, and he set out for his court, where he was received with the most flattering demonstration of respect and regard. He arrived at the court with such a per-
fomance as a portrait of the Dauphin, for which he was paid the sum of 300 gold crowns; he painted also for the king the superb picture of the Charity, which is now in the French museum. A multitude of commissions poured in upon him from the principal nobility, and every circum-
stance seemed to conspire for his honour and advantage. He was engaged on a picture of St. Jerome for the queen-
mother, when in an evil hour he was induced by earnest solicitations, sent by his wife and friends from Florence, to return to that city. He obtained permission from Francis I. to depart, on the assurance that the sole purpose of his journey was to transport his family to France; and the king, being among the first to visit him, saluted him with the warmest judgment in the acquisition of works of art, intrusted him with large sums for the purchase of pictures and statues.

Andrea was perhaps, originally, neither profligate nor un-
principled; he was guilty of certain errors of judgment, of

moral firmness, which, beginning in weakness, too often end in vice. His wife was improvident, and he was sur-
rrounded by dissipated acquaintances; and he expended in a round of expensive pleasures, not only the money with which Francis I. had liberally rewarded his services, but also that which the monarch had consigned to him for the purpose of selecting objects for his museum. Of course, he never returned to Florence. Indignance came upon him, and the remorse consequent upon it, which was increased by the consciousness of ingratitude towards his royal benefactor, was aggravated, not only by the desertion of his gay friends, but also by that of his wife also, who fled from him, leaving him a prey to despondency and distress. His affections were terminated by the plague which visited Florence in 1530, and carried him off in his forty-second year.

The genuine productions of Andrea del Sarto are not frequently seen in Florence, since the city itself is almost famous for the churches, convents, and palaces of that city. His style is so various that it is difficult to say what was the natural bent of his mind. He was not incapable, when the subject de-
manded it, of impressing his works with an air of stern grandeur, which he acquired by the use of the chiaroscuro effect of chiaroscuro; but his more general character-
istics are those of harmony and suavity; his colouring is sometimes most delicately tender. He was so expert in mechanical practice, that a copy made by him of a portrait B 2
of Leo X, by Raffaella, deceived even Giulio Romano, although he had inspected the progress of the original, and had even assisted in the execution of it. One of the most puzzling of Andrea's paintings, although not explained by no means an example of his general style, is that of the Holy Family, now in the Louvre at Paris, in which St. Joseph reposes on a sack of corn. The panegyrists of Andrea have asserted that if his pictures remained longer in the air, they would rival the works of Raffaella and Michel Angelo; but without conceding such extravagant praise, it is quite enough for his reputation that he established it while those great artists were still living. It is not recorded that his pictures ever prevailed amidst all the revolutions of taste, during a lapse of three hundred years.

ANDREASBERG, (Mount of St. Andrew,) the second in importance of the group of islands of the Schiermonnikoog. It is situated in the province of Grubenhagen, in the kingdom of Hanover, and crowns an eminence which stands at an elevation of 1936 feet above the level of the sea. The neighbourhood is rich in mines, yielding silver, copper, iron, coal, and arsenic; and these, as well as the spinning of the yarn, lace-making, and the rearing of cattle, afford profitable employment to its inhabitants, who are about 4000 in number. It has a public school for the middle classes. In 1793, it was, however, only 1400 souls, and was found in one of the mines near the town, and presented to the Cabinet of Natural History in Göttingen, from which it was, however, stolen in 1783. Andreasberg lies about fifteen miles north of Goslar. The mountain of this name is that of St. Andrew, and was at one time the seat of a monastery.

ANDREEWA, (also called Enderby or Endri,) is a principality of the Kurnikian Tartars, lying along the Kasma, between the river Akasi and the Caspien; about 32 miles west of the last-mentioned sea. It presents one of the districts composing the government of Caucasia in Russia in Asia, and embraces the peninsula and gulfs of Agrachanokoi. Its surface presents an intermixture of fertile plains and arid wastes of sand; produces grain, in mineral waus, and springs of naphtha. Andrewea is likewise the name given to its capital, and is the mart to which the Lasgian tribes resort for the purpose of disposing of the produce of their depredations. It is an open town situated on the Akashe, at the foot of Mount Tahmouli, and contains upwards of 3000 houses, with a population, which is stated by some writers at 12,000, and by others at 15,000 souls. Andrews was, not long since, an araved asylum for all the vagabonds and freebooters in the Caspian region, and is to this day a thriving market for the sale of slaves. In this last respect it runs a miserable race of competition with the town of Akasi, on the river of that name and in the same province. At one of the gates of the latter city is a school, to which the Circassian Mollahs are sent for education. Though little deserving the name of education, yet the smattering of reading and writing which they here acquire, is sufficient to furnish them, upon their return amongst their fellow-countrymen, with the means of keeping the tenets and prejudices of Mohammedanism alive in their bosoms, and thus maintaining a wall of separation between the native and his heretic fellow-subject of the Greek faith.

ANDREWS, Courcoup, was born at Castelnau-d'oyard, in the province of Languedoc, in March, 1761. His family was of Italian descent. At the age of twenty he was made lieutenant of artillery. In the beginning of the French revolution he shared in the general enthusiasm for the new order of things. During the first part of the Révolution he was in the early Italian campaigns, where he distinguished himself at the siege of Mantua, in 1796. He next followed Bonaparte to Egypt, where he took a conspicuous part both in the military and political history of that expedition, being speedily appointed a colonel, and later a general. He was appointed a member of the Institute of Cairo, and wrote several memoirs, On the Lake Mencia, On the Valley of the Natron Lake, On the Waterless River, &c. When Bonaparte returned to France in 1801, Andrews, as one of the few officers who acknowledged his authority, even after he had proved devoted to the fortunes of his great commander, Andrews served in the so-called Gaillo-Batavian army under Augereau on the banks of the Mayne. After the peace of Amiens he returned to his native land. When Napoleon assumed the imperial crown, Andrews was made inspector-general of artillery, and a count of the new empire. He went afterwards as ambassador to Vienna, and having quitted his post when the war broke out again between Austria and France in 1809, he was present in the campaign of that year, and was appointed governor of Vienna after the taking of the town. He was for a time consul at the Ottoman Porte, in which important situation he won the general esteem of both Franks and Turks. After the abdication of Napoleon in 1814, Louis XVIII. recalled Andrews from Constantinople, and sent him at the same time with the cross of St. Michael and the gold ribbon of the Legion of Honour, when Napoleon landed from Elba, but he then appeared again on the political stage to assist his old master in his last struggle. He was created a peer during the hundred days. After the fall of the restored monarchy, he retired to private life, and busied himself in revising and publishing several interesting memoirs which he had written during his residence in Turkey. His work on Constantinople et le Magistrat de Thrace is deservedly esteemed. His memoir On the Springs of the Danube, as Supplied with Water, contains much curious information on the art of hydraulics as practised by the Turks. Andrews had written also in 1810 a History of the Canal of Langueudoc, in which he claimed for the French nation the inferiority of the English system.
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a long voyage, shipwrecked in his companion in the bay of St. Andrews in Fifeshire, then forming part of the territory of the Picts. Hungus, the Pictish king, received the strangers with great hospitality; and by their instrumentality, he and his subjects were soon after converted, when a Christian church was erected at the place where the missionary station was originally formed. There was a church dedicated to the apostle, the fragments of whose skeleton they had brought with them. Such is said to have been the origin of the city of St. Andrews, and of the assent of St. Andrews to the papacy.

Several of the fathers, but none earlier than the seventh century, cite a book called the Acts of St. Andrews, professing to be written by that apostle, but which they consider as containing one or two stories, not without historic foundation. There is still extant a narrative bearing this title, but professing to be written by the priests of the Church of Achang, and entirely different from the former. It may be found in the sixth volume of Sturme’s Vita Sacraeorum, and in other collections indicated by J. A. Fabricius in his Codex Apocrisius Nova Testamenti. Mention is also made in a decree of Pope Gelasius II., who flourished in the beginning of the twelfth century, of a Gospel of St. Andrew His homilies, address, and liturgical books, but no other book exists.

ANDREW, (ST.) [Isle of Bourron.]

ANDREW, (ST.), an ancient city of Scotland, on the coast of Fifeshire, and on the small bay of St. Andrews. The situation of the bay on which the city stands is an advantage. It is near the N.E. winds, which prevail greatly in April and May, and bring with them cold, unpleasant vapours, which load the air and check vegetation. The climate is, however, in general healthy, and is engaged in the cultivation of linen, hemp, and, to a slight extent, in the cultivation of hot baths, the city has been much frequented as a favourite watering quarter.

The town stands on a lofty cliff or rock, and on a sort of peninsula, formed by the bay and the "burn of Kinness," or the Nether Burn, a small stream which, skirting the town on the southern and eastern sides, forms, at its mouth, a harbour, guarded by piers, and capable of receiving vessels of 900 tons’ capacity. On the "Downs of Town Links," uneven downs formed by the sea, stretch away for nearly two miles to the mouth of the river Eden, and are used for the game of golf, which is much practised. There are similar downs E.E. of the town. The extremity of the peninsula on which the town stands is occupied by the ruins of the cathedral and by some other interesting remains of antiquity. From this part, the three main streets, North Street, Market Street, and South Street, which form the commercial heart of the town, extend nearly east and west. These three streets are intersected at right angles by the Lanes or Wynds. There was once a fourth street, called Swallow Street, which was the origin of the university, being chiefly inhabited by the merchants, but this has disappeared, and the site of it is occupied by a public walk called the "Scores." Before the Reformation, St. Andrews was an opulent and commercial city. To its annual fair, which commenced in the month of April, and lasted several weeks from 200 to 300 vessels from all parts of the commercial world resorted. When the town was in its most flourishing state, in the fifteenth and beginning of the sixteenth centuries, there were in its streets forty to seventy bakers, as many brewers. After the Reformation, it gradually decayed, and moreover suffered in the great civil war: so that Dr. Johnson, who visited it in 1773, thus spoke of it, "One of the streets is now lost; and in those that remain, there is the silence and solitude of inactivé indigence and gloomy depopulation."

By the exertions of individuals, however, a considerable revival has been effected, and many additional improvements have been driven on about the town, especially as it relates to the straight and broad; and in this, as in the other two, the houses, which are of stone, are commonly three stories high; while the lightness of the numerous modern edifices diminishes the appearance resulting from the general antiquity of the buildings.

The parish Church of St. Andrews is in South Street, and is a spacious structure, first erected in 1112, and repaired, or rebuilt in 1579. It is 162 feet long, and 63 broad, and will accommodate 2,000 persons; on the wall inside, is a monument to the memory of Archbishop Sharp, erected by his son, exhibited, in rude shaping, the murder of the unfortunate priest, and setting forth his praises in a long inscription. There is a spire to the church.

The chapel of St. Salvador’s college is a handsome edifice with a Gothic front, situated in North Street.

Within is the handsome memorial of Bishop Kennedy, founder of the college. It is the oldest church in the parish of St. Leonard, which comprises a few districts in the town and neighbourhood; and the ministry of which was for a long period held by the principal of the United Students College, but it is the only one now occupied. The building contains presenting seats of worship, one Episcopal, the others belonging to the Burghers and Independents. The town house, or tolbooth, is in the centre of Market Street; and contains besides the public gaol, a large room which is used for meetings, the most worthy of notice. St. Andrews was made a Royal Burgh in 1140: the magnificacy consists of a provost, a dean of guild and four bailies. The town, conjointly with Cupar, Anstruther Easter, Anstruther Wester, Craill, Kilrenny, and Fittenweir, sends one member to parliament. The trade of St. Andrews is small. In 1792, a factory for sewing and tambouring muslin was established, which gave employment to above 100 girls as apprentices; but as this branch of industry is now extinct, the town is probably extinct. The manufacture of sail-cloth was established about a year after, and promised to become considerable; but this has also been given up. A great number of golf balls are made. About 4000 annually are used in the sport, and about 8000 are used in the markets. About 3000 are sent to Edinburgh, Glasgow, and other places. Some 10 or 15 vessels belong to the port, and are chiefly employed in the coasting trade; and eight or ten boats are engaged in the navigation of the North Sea.

The population of the parish of St. Andrews, which extends about nine miles in length, was in 1831, 5621. There are five fairs in the year.

The university of St. Andrews consists at present of two colleges: viz., the Magdalen College, named after St. Leonard (formerly distinct), in which the several branches of general literature and science are taught; and the New College, or St. Mary’s, which is appropriated to the study of divinity, or of kindred subjects, and is attended solely by theological students. There is no medical or legal school connected with either college.

This university, the most ancient in Scotland, was founded in the year 1411, by Henry Wardlaw, then Bishop of St. Andrews, who granted a charter with the immunities and powers usually granted to universities, to an association of certain men of learning, who had about a year before commenced a course of public lectures on divinity, the civil and canon laws, logic, and philosophy; and had attracted considerable numbers of students. The college was recognized by Pope Benedict XII. in 1344, and the charter confirmed by Pope John XXII. in 1339, and the charter confirmed by Pope John XXII. in 1339, and the above twenty other benefactors, which considerably increased the funds of the college. Bishop Wardlaw was confirmed by the pope; and in 1431, further immunities were granted by King James I. of Scotland, and ratified by succeeding sovereigns. The seat of the college at this period was in St. Leonard’s College; but at the beginning of the sixteenth century the college now stands, and was called the Pedagogium.

St. Salvator’s College was founded in 1455, or 1458, by James Kennedy, nephew of James I., and successor of Wardlaw in the see of St. Andrews, and endowed with sufficient revenues for the maintenance of a proctor, six fellows, and six poor scholars. The buildings of this college in North Street, form a quadrangle of 230 feet long by 180 broad, into which quadrangle you enter from the south by a gateway, over which is inscribed in letters of white marble, a cloister, to the right of the gateway is the chapel already mentioned. The buildings of this college having gone very much to decay, a grant has been made by government, and a new structure has been erected on the east side of the quadrangle.

St. Salvator’s College is the seat of the United Students College. St. Leonard’s College was founded in 1512, by Prior Hepburn, and endowed by him from the revenues of an hospital for pilgrims, from the funds of the parish of St. Leonard’s, and by a grant from the Crown. This mentioned college is the seat of the college.

In 1747, it was found expedient to unite the two colleges. The joint establishment was accordingly transferred to the new building which had been erected on a high eminence, and was called the New College. A school had been taught on this spot even before the foundation of the university, but it was superseded by that institution.

Bishop Kennedy made return after his death for the college, and to have granted the first charter in 1455: the second charter is dated in 1458. The college is endowed with a large and liberal income.

Authorities vary here. In Sinclair’s Statistical Account it is stated, that the parish was probably formed about the time of the union of the college.
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St. Salvator's, and the buildings of St. Leonard's were sold, and converted into dwelling-houses.

St. Mary's College was formed out of the original seminary or pedagogy of Bishop Wardlaw, by James Beaton, Archbishop of St. Andrews (for the see had been made archiepiscopal in the time of Bishop Kennedy's successor). In 1587 the see was united to the See of St. Andrews, and the archbishop's nephew and successor in the see, and by Archbishop Hamilton, who succeeded the cardinal. The enlargement of the pedagogy by Archbishop Beaton appears to have been begun in 1587, when the college was remodelled under the direction of the celebrated George Buchanan. The buildings occupy two sides of a quadrangle, on the south side of South Street; and have lately been repainted and tastefully repapered.

The curriculum, or course of study in the arts, extends over four sessions. These studies are pursued at the United College, and the session lasts from the end of October to the beginning of May. St. Mary's College has three professors, viz., of divinity, church history, and oriental languages, besides a principal, who also reads lectures on divinity; and the complete course of a student includes four years, but the session is only of four months. The study of mathematics has always formed a principal branch of instruction at St. Andrews.

In each of the colleges are lodging-rooms for the students, which have been now for some time unoccupied; and there are bursaries or endowments, entitling the holders to a certain salary. The library belongs to the United College, and seventeen to St. Mary's. (Journ. of Educ. vol. iv. p. 35.) The students of St. Mary's pay no fees. The emoluments of the professors arise from their salaries; and those attached to the College, from their fees in addition. The number of students at the university was, in 1826-27, 326. (Journ. of Educ.) Those who belong to the United College are required to attend divine service twice in the Sunday at the college chapel; except in the case of the seniors, who are allowed to attend their own places of worship.

The revenues of the United College are somewhat more than 3500l. per annum, including the sums received on account of the college; the annual statement given in the report of the commissioners appointed by royal authority, some years ago, to visit the Scotch universities (rather exceeded the income; and there is besides a considerable debt. The revenue of St. Mary's, on the average for seven years before 1826, was rather greater than the expenditure, and amounted to above 1000l. The university has little property distinct from that possessed by the colleges individually; except the building of the Senate and the Parliament House, besides the buildings entered at Stationer's Hall, and contained upwards of 40,000 volumes in 1836. The officer of highest dignity is the chancellor, but his office is merely honorary: the rector (when one of the principal, or the principal on the students of theology, and of moral and natural philosophy) is the acting head. He is appointed annually, and one of the principal, or of the professors of divinity or church history, must be elected. He is preside of the senate ad interim, by which body, consisting of the principal and professors of each college, all the academic degrees are conferred. The flourishing trade once carried on the medical degrees has been given up. A grammar school, and school for English writing and arithmetic, are under the patronage of the corporation. Dr. Bell, the founder of the Madras system of education, has given a splendid donation of 45,000l. per cent. stock, for the establishment of a library of the same kind. In this building is called the Madras College. The buildings for this school, forming a large and handsome edifice on the south side of South Street, some distance west from St. Mary's College, are nearly completed.

The church of St. Leonard's is not numerous and interesting. Those which are ecclesiastical stand near together just by the harbour. The most antient is the chapel, (situated about forty yards S.E. of the cathedral,) the foundation and endowment of St. Leonard's College, commonly called St. Rule, the traditionary founder of the place, but which is probably 1000 years old at least. The story is, that a holy person, the abbot of a monastery at Patres, (Patras,) in Achaia, having been warned in a dream to descend without delay to the island called Aegina, situated in the farthest extremity of the Western world, set sail with
further repaired and beautified, and new works were erected by Cardinal Beaton in 1545; but it was demolished by an act of council in or about 1547, and though it was again partially repaired by Archbishop Hamilton, it never recovered from this overthrow.

The cliff between the harbour and the castle is a singular cave, consisting of two apartments.

The castle was the scene of several remarkable events during the progress of the Reformation. In 1505, a plot was hatched by heretics, led by a woman named Kett, for the destruction of the town. The plot was discovered, and the town was the ecclesiastical metropolis of the kingdom, and the stronghold of the Catholics. Here in 1527 Patrick Hamilton, the first Protestant martyr in Scotland, was burned; and in 1569 the Reformation of the Church was formally declared. As the reformers suffered; Cardinal Beaton, the then archbishop, looking on from a window of the castle. The martyr, with his dying breath, foretold the downfall of his persecutor, and his prophecy was realized within a few years after. Norman Leslie, son of the Earl of Rothes, with fifteen associates, proceeded to the castle, and with great address and resolution cleared it of the cardinal's retainers, and of the workmen employed in the repairs or new erections, amounting altogether to 150 persons, and proceeding to the cardinal's chamber, deliberately murdered him. The conspirators with their friends held out in the castle for several months against the troops of the government aided by a body of French; but were at last overpowered and dispersed.

And so it was that the seat of the princes of the blood of St. Andrews was transferred to St. Salvator's College, a history which is told in the following volumes of this work.

Andrews (Lancelot), an eminent English prelate, was descended from an ancient Suffolk family, and was born in the parish of All-Hallows-Barking, London, in 1568. His father, Collier says, was a merchant of good repute; according to the Biographia Britannica, he had spent the most part of his life at sea. Young Andrews was educated first at the Coopers' Free School at Ratcliff, and then at Merchant Taylors' School, from which he was sent to Christ Church, Oxford, and attempted to enter at Wadham College, but was one of the exhibitions founded by the latter in that College. He greatly distinguished himself at the University by his studious habits and extensive acquirements; and also in certain lectures which he read as cætistus displayed the first prophetical analysis of the Psalms. He afterwards attempted to enter at Lincoln, and records a severe and, at the same time, well-deserved condemnation of the manner of writing which he so much admired. "Pious and pleasant Bishop Kelton," he says, "his contemporary and colleague, endeavoured in vain in his sermons to strengthen the minds of his hearers, but by an awkward merrily of himself, I had almost married my own natural troth by endeavouring to imitate his artificial amble."

Bishop Andrews was all his life a hard student, and is stated to have made himself conversant with all the learning of his age. After he had been three years at the university, we are told, it was his custom to come up to London for a month every year; and during that space, which he spent in the house of his father and mother, he always put himself into the hands of the master or professor of some branch of science with which he was before unacquainted. Casaubon, Cluverius, Grotius, Vossius, and other eminent scholars of the time, have all highly eulogized his extensive attainments, which he applied to his conversation, as well as in his writings. He was also celebrated for his talent at repartee, of which the following instance is told by the writer of a life of Walter, the poet, prefixed to his works. Walter having one day gone to see James I. at the palace of Holyroodhouse, the Bishop of Winchester Chichester having become vacant, he was presented to it, and was consecrated on the 8th of November, 1608. The king at the same time made him his lord almoner. In 1604 he was translated to the see of Ely, and was soon after made a privy-councillor both for England and Scotland. When James, in 1617, visited the latter kingdom, Bishop Andrews was one of the persons by whom he was accompanied. In 1618, he was advanced to the bishopric of Winchester, and was at the same time made dean of the chapel royal. These were his last preferences.

He died at Winchester-house, in Southwark, on the 29th of September, 1626, and was buried in the church of St. Saviour's, where a handsome marble monument, bearing a long Latin inscription, was erected over his remains. His tomb was opened, and his cadaver discovered, in the course of the recent reparation of the church.

The principal work which Bishop Andrews published during his life was a thick quarto volume, printed in 1609, under the title of "The Answer to the Treatise, in which Cardinal Bellarmine attempted, 'by the way of Tortus, to attack the doctrine laid down by King James in his Defence of the Rights of Kings, respecting the authority of Christian princes over persons and causes ecclesiastic.' The work, which was at first designed as a demand of majesty; and was considered to have executed his task with great ability. He is also the author of a Manual of Private Devotions and Meditations for every Day in the Week, a Manual of Directions for the Variation of the Sick. Also, his death, a volume, containing ninety-six of his sermons, was, by the direction of Charles I., printed under the care of Bishops Laud and Buckleridge; and another volume, consisting of a collection of his tracts and speeches, also appeared in 1629. His work, entitled The Moral Law Expounded, or Lectures on the Ten Commandments, was first published in 1642. His *Account of the Christian Church* and a Collection of Public and Oratory Lectures delivered at St. Paul's, and St. Giles's Cripplegate, appeared in the same year.

Andrews was also, one of the authors of the common translation of the Bible. The portions in which he was concerned were the Pentateuch, and the historical books from the Book of Judges to the Book of Joshua. All the writings of Bishop Andrews display abundant learning; but his eloquence, notwithstanding the delight it appears to have afforded his contemporaries, is but little calculated to please the present age. Overspread as it is with verbal conceits and far-fetched allusions, and exhibiting in this way a perpetual labour of ingenuity, it altogether wants that simplicity and directness of effect which is the soul of good writing. Not that there is not a great deal of excellent matter in every work of his; but the style in which it is thought and expounded, the puerile and grotesque decorations; but the whole life and spirit of every thought is most commonly suffocated under a load of dead verbiage. The bishop's style, however, would seem to have wonderfully fascinated every body in his own times. Fuller, who is greatly taken with it, and who affirms that Dr. Andrews was "an inimitable preacher in his way," in an anecdote which he tells with the view of showing how difficult or impossible it was for those who attempted such an art to match the standard thus set up, records a severe and, at the same time, well-deserved condemnation of the manner of writing which he so much admires. "Pious and pleasant Bishop Kelton," he says, "his contemporary and colleague, endeavoured in vain in his sermons to strengthen the minds of his hearers, but by an awkward merrily of himself, I had almost married my own natural troth by endeavouring to imitate his artificial amble."

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me presently. Then, sir, said he, I think it lawful for you to take my brother Neale's money, for he offers it.'

Bishop Andrews, we ought to add, adorned his learning and shining talents by the highest reputation for piety, hospitality, charity, and munificence. One of Milton's early Latin poems is an elegy on the death of this distinguished prelate, in which he is bewailed in a strain of the most impassioned regret and admiration.

ANDRISCUY [See PHILIPPUS.]

ANDROMACHE, the wife of Hector. It is also the title of one of the extant tragedies of Euripides.

ANDROMACUS, a native of Crete, and physician to the Emperor Nero. He was the inventor of a celebrated compound medicine called Theriake (theriaca), the preparation of which he described in a poem which has been preserved in the collection of Galen's works.

ANDROMEDA, a constellation, so called by the Greeks from Andromeda, the mythological daughter of Cepheus and Cassiopeia, who was bound to a rock and thus exposed to a sea-monster, from whom she was delivered by Perseus. This constellation occupies a considerable region of the heavens below Cassiopeia, by which it may be thus found. A line drawn through the brightest star of the five in Cassiopeia, marked β, and the pole star, passes through a star of the first magnitude in the head of Andromeda, marked α, and called Alpherak. A line drawn through the other two stars, α and β, through Almach in the foot of Andromeda, marked γ, while in the line between the two stars thus found, lies Mirach, marked β, in the girdle of Andromeda. The following list, taken from the Mem. R. Astron. Soc. vol. v., shows the differences in periods of the order of this constellation in different catalogues. The first column contains the letter, by which the star is denoted; the second its number in Flamsteed's catalogue; the third that in the Astronomical Society's catalogue, and the fourth the magnitude of the star.

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ANDRONICUS was the advocate of the Jews under the reign of Polemæmus Philomurt in their proceedings against the Samaritans in Egypt, who, by assenting to the authority of the temple of Mount Garizim, or Gerizim, against the temple at Jerusalem, occasioned a controversy which terminated in bloodshed. The Egyptian Jews (although they had built, about the year 150 B.C., an heretical temple of their own, in the province of Heliopolis) zealously defended the authority of the temple at Jerusalem. After the arguments were exhausted, both parties took up arms, and having found that blows could not decide the matter, they assailed the King Polemæmus, the child of the emperor, who appeared on a solemn day of judgment. In full court it was agreed, that those who were found in error should be killed for the bloodshed already committed. The Samaritan advocates, Bitha (Sefunia) and Theodora, and their adherents, lost their cause against Andronicus, and were put to death. The arbitrary administration of justice in those times, and the character of Polemæmus Philomurt, render this account not quite incre-


ANDRONICUS COMENIUS, emperor of Constantinople, was the son of Alamanus. He distinguished himself in the army under his cousin, the Emperor Manuel, against the Turks and Armenians, but having entered into a treasonable correspondence with the King of Hungary, he was arrested and confined in a tower of the palace, where he remained twelve years. At last he contrived to escape, and after several romantic adventures arrived at Kiew, in Russia, where he won the favour of the Grand Duke Jeremias. Like Aleibiades, Andronicus could not resist the temptation of an aristocratical constitution; his athletic constitution could support the vicissitudes of all climates; he could pass suddenly from the fatigues and privations of the camp to a life of luxury and debauch. He was a great favourite with the fair sex, and he won the affections of no less than four royal princesses in succession, beginning with Eudocia, the emperor's niece, who for him forsaken the palace, and accompanied her lover in his early campaigns. Andronicus, in his exile at Kiew, became instrumental in forming an alliance between the Russian prince and the Emperor Manuel, and thus obtained his pardon from the latter. He led a body of Russian cavalry from the banks of the Borysthenes to the Danube, and joined the emperor's army at Constantine in order to assist the emperor in his struggle with the Turks. Semlin. After the peace, having returned to Constantinople, he protested against the adoption of Bela, Prince of Hungary, who had married the only daughter of the emperor, as presumptive heir to the throne. Andronicus was himself the natural heir to the throne, but Manuel thought to save his kingdom by the marriage of Manuel however having married a second wife, Maria, daughter of Raymund of Poitou, Prince of Antioch, had by her a son, who was afterwards Alexi II. Meantime, Andronicus, who held a command in Cilicia, fell in love with Philippa, Maria's sister, who gave herself up to him, as Eudocia had done before. The emperor, although himself dissolute in conduct, reproved this connexion of Andronicus with his and sister-in-law; and Andronicus, being obliged to leave Philip, undertook a voyage across the sea, accompanied by a band of adventurers, a pilgrimage to Jerusalem, where he won the favour of Aiméric, the Christian king of that country, and one of the successors of Godfrey de Bouillon. Andronicus received from him the principality of Barout (Berytus,) on the coast of Syria. There he fell in love with a third princess, Theodora, the young widow of Baldwin III. King of Jerusalem, who was herself of the Commenian line and a distant relation to Andronicus. She lived openly with him as his concubine, and had two children by him. Andronicus being no longer safe in Palestine from the hostility of the emperor Manuel, repaired, accompanied by Theodora, to Damascus, where the Sultan Nourreddin received him hospitably. Before he travelled to the Archangel, he had taken the parts of the west, and at last settled among the Turks in Asia Minor, whence he made frequent incursions into the Greek territories. For this he was excommunicated by the church and consequently by the emperor. Andronicus, by his bizondb found having means to seize Theodora and her two children, and send them to Constantinople, Andronicus, in despair, made his submission to the emperor, and repairing to Constantinople, sued for pardon in the most abject manner. He was banished to Conoço, a town of Pontus, on the coast of the Euxine, between Cape Heracleum and Cape Jasonium, where he remained till the death of Manuel, in 1186, and the disorders of a disputed succession, including the murder of the principal patricians, to recall Andronicus, as the only man who could restore peace to the empire. He arrived in the capital in the midst of acclamations, acknowledged the young Alexius as emperor, but arrested the emperor's father, who happens to be in some measure the cause of the troubles. Andronicus was associated in the empire as collegue and guardian to Alexius. He then developed his ambitious views. He first established himself in Crete, and, charging himself on the charge of treasonable correspondence. He was sentence of death and was strangled, and she body thrown into the sea. He next murdered young Alexius himself, and then assumed the undivided authority as emperor in 1183. He married both his wives and the most of his subjects, and disposed of France, who was still almost a child. «Andronicus short reign,» says Gibbon, «exhibited a singular contrast of vice and virtue: when he listened to his passions, he was the
ANDRICUS CYRHESTES, an architect who competed with Leontion at Athens, is also known by the epithets of the Tower of the Winds. This building stands to one of the existing remains of ancient Athens, commonly called the Tower of the Winds; the building takes this name from the figure of the eight winds being cut in relief on the exterior wall of the building; with their names above them on the frieze. (See Spon, ii., p. 156, Amsterdam, 1679.) This monument stands to the north of the Acropolis, and is thus described by Vitruvius:—"Those who have paid most attention to the winds make them eight in number, Antiquoelius, the pupil of Zeno, having built at Athens an octagonal marble tOWER, and cut on each face the figure of the several winds, each being turned to the quarter from which that wind blows; on the tower he erected a marble column (mosta) on which was engraved the name of Pericles. This tower stood so firmly set in his right hand; and he so contrived it, that the figure moved round with the wind, and constantly stood opposite to it; the rod, which was above the figure, showed in what direction the wind blew."

This building was intended for a sun-dial, and it also contained a water-clock, which was supplied with water from the spring under the cave of Pan on the north-west corner of the Acropolis. It is inscribed in the year 309 B.C. on the date of this building to about B.C. 159. (See Leake's Topog. of Athens; British Museum, Elgin Marbles, vol. i., p. 23.)

ANDRONICUS, LIVIUS. [See Lytron.] ANDRONICUS PALEOLOGUS, the elder son of Michael, emperor of Constantinople, was raised by his father as his colleague to the throne in 1273, and after Michael's death in 1282, he reigned forty-six years more. The last of the Byzantine emperors, was continually disturbed by religious controversies, civil wars, and foreign attacks. In 1301, Othman first invaded the territory of Nicomedia, the passes of Mount Olympus having been left unguarded by the neglect or parsimony of the Byzantine court. A formidable host of Othman, and other adventurers came to Constantinople in 1302, to give Andronicus their assistance against the Turks, but in fact to live at the expense of the empire, and plunder both sides of the Channel. They defeated the Turks in Asia, but ravaged the country, sacked Philippopolis, sieged Magnesia, which had a Greek garrison, seized Gallipoli on the Hellespont, and behaved, in short, worse than the Turks themselves. Andronicus, partly by force and partly through bribes, succeeded at last in getting rid of these troublesome allies, at an enormous cost. In 1320, Michael, son of Andronicus, died. Michael Andronicus was distinguished by the historians by the appellative of 'the younger,' revolted against his grandfather; and after several years of a ruinous war, was crowned as co-ruler to the old emperor in 1325. Another sedition broke out in 1326, of which Michael was the cause. All those who, during his long exile, had traduced him, opposed his views, or insulted his misfortunes, as well as those who were the friends of the murdered emperor and of his son. A wretch of the name of Aydor, had been appointed secretary to the emperor Manuel, and his eyes put out on account of treason, suggested to Andronicus not to content himself with blinding those he suspected, but to cut out their tongues also, by means of which they might still have injured him. Many of Andronicus's intended victims escaped to Nicæa and Prusa, where they made a stand, but were overpowered, and those unfortunate towns were treated with the greatest barbarity. At last, so many terrors drove the people of Constantinople to revolt; Isaac Angelus, one of the proscribed and a descendant in the female line from Alexius I., took refuge in the church of St. Sophia. A crowd assembled and proclaimed him emperor. Andronicus was then, with his young wife, in one of the islands of the Pro- pant, on the coast of the Canacean or Chersonesian Sea. He was taken prisoner, and dragged to the presence of Isaac Angelus, who, without any form of trial, gave him up to the personal revenge of his enemies. He was insultied and torn by the hair with his eyes, his hair was torn from him, and lastly, he was hung by the feet between two pillars. In his painful agony he was heard to appeal to heaven, entreatting it 'not to bruise a broken reed.' At last some one ran a sword through his body, and put an end to his sufferings. The catastrophe happened in September, 1185; Andronicus was then past sixty years of age.

ANDRONICUS, RHO-DIUS, or the Rhodian. It appears from Plutarch, Strabo, Galen, Aulus Gellius, Ammonius, Simplicius, and other antient writers, that there resided at Rome, about a century before the birth of Christ, an eminent Peripatetic of this name, who had previously taught philosophy at Athens. He is said to have written a treatise arranged, indexed, and published the works of Aristotle, after they had been brought to Rome in the library of Apollion of Teos, by Sulla; the manuscripts had been committed to the flames by the Romans; he seems to have been originally employed to put them in order. Some of the authorities also refer expressly to the Commentaries of this Andronicus on certain of Aristotle's works. The first work, however, supposed to be by this son, which was recovered in those days, was a first treatise, published by David Hoeschelius, in 12mo., at Augsburg, in 1594, under the title of Andronic Rho- dius Peripatetikos PhIosophus Lepidos Heredarius. In his preface, he speaks of the literary labours of Plato and his followers, who had mentioned Andronicus. In 1607, Daniel Heinsius published, in a quarto volume, at Leyden, from a MS. which had fallen into his hands, a Greek Commentary, or paraphrase, of Aristotle, which places all theories in Ethics, probably so written as from having been originally adapted to the Nicomachea. Heinsius accompanied the text of his author with a Latin translation; but although in the manuscript the work was attributed to Andronicus, the Rhodian, he did not consider himself warranted to insert the name of the author in the title-page. The inscription on the manuscript, he says in his preface, was evidently by an illiterate hand; and he insinuates that there is no proof that Andronicus, although he arranged and indexed the writings of Aristotle, ever wrote a treatise on any of these books. In 1618, however, he published a second edition of the Paraphrase at Leyden, in octavo, in which he entitles it Andronic Rhodi Rhetorum Nicomacheorum Paraphrasis, &c. In this edition he refers to the former authors, besides Plutarch and Strabo, who have spoken of Andronicus, and expresses his conviction that the work is really by him. He was also the first who fixed the date of the former newly-added authorities, which tend to render this not improbable, although they had escaped his recollection when he published his former edition. It is most likely that his attention was called to them by having, in the interieu with the preface by Hoeschelius, a host of Othman, especially as we find him now re-printing that treatise at the end of the Commentary. The next edition of this Com- mentary appeared at Cambridge in 1679. It professes to make exact extracts from the text of Heinsius, but of which nothing is noted, although Heinsius himself, in his
second preface, speaks of his first edition as being full of blunders. This second preface the Cambridge editor suppresses, and prints instead of it the other, which Hutton had withdrawn. To that he adds another of his own, an inspection of which may possibly explain his curious selection from the two written at different times by his predecessor. The latter is a reprint of the display, or, as it is now termed, the "length," of passages respecting Andronicus from the writers previously indicated by Heinæus and Hoeschelius. All this, he says, the worthy editor evidently wishes to pass off as his own. Heinæus, accordingly, he gravely tells us, preserves its deep silence; respecting his author: and to bear out this assertion he prints, as we have said, the original preface only of that eminent scholar. If Heinæus, however, is defrauded of some glory by this clever management, it must be remembered that he is as well off at his own expense, and receives no more than the treatment he had himself practiced on Hoeschelius. The facts, we think, are, worth recording as another illustration of the common saying, that there are trycks in all trades. It may be added, that in 1689 the editors of the Clarendon press at Oxford produced a fourth edition of the Paraphrase of Andronicus, in which with amusing scrupulosity they have followed the previous edition of the sister university in all particulars, the previous selection from the prefaces of Heinæus included.

After all, great doubts have been entertained by several critics as to the work being really the production of Andronicus. The name does not occur upon the title-pages. The subject may be found in Bayle. Gabriel Naudé conceives Olympiodorus, who lived in the sixth century after Christ, to be the author. Saumaise (Salmassz) also is decided in the same opinion, and in the year 1764 the same opinion was held by the house of Encyclopedica. Others have even attributed it to an Andronicus Callistus, a native of Thessalonica, who lived in the fifteenth century, and came to Italy after the taking of Constantinople. He gave lessons in Greek in different cities of Italy. Angelo Poliziano being one of his scholars; after which he came to Paris, and was the first who taught the language in the university there. He died in 1478. There is as much diversity of opinion about the authorship of the short tract Ἱπποκράτειον, which are all resorted to by the editors, as about the authenticity of the Paraphrase. It is stated in the Biographie Universelle, that a manuscript in the Imperial Library of France (now the Bibliothèque du Roi) cited by M. Sainte Croix, in his Recueils des Historiens d'Alexandrie, p. 354, attributes the Paraphrase to a Heliodorus of Prusa, that is, Brusa in Bithynia, we suppose.

An English translation of the Paraphrase on the Nicaeans appeared in a quarto volume at London, in 1687, where it is stated that it is translated by John Stedman. The Pamphlet Greek Writer, Athioto published under the title of Andronicus Rhodius, on the Nicaeanian Ethics of Aristotle, translated from the Greek by William Bridgeman, J. S.

ANDROS. [See BAHAMAS.] ANDROS, an island of the Grecian Archipelago, lying off the S.E. end of Euboea, from which it is distant sixty miles. It lies in a N.W. and S.E. direction, is twenty-one miles long and eight broad, with a population of about 18,000. The island is very high and mountainous, and the highest summits retain the snow during many months in the year. The town called Andros, or Castro, is on the eastern coast, besides which there are sixty-six villages scattered over the island. The soil is very fertile; and the numerous gardens, which are well laid out, produce excellent lemons, oranges, and pomegranates. Much wine is made, but all consumed by the inhabitants, who are the only drinkers. Silk, to the amount of about 2000 pounds on an average, is exported annually. It is the practice to sow wheat and barley together, of which they make their bread, but there is not sufficient ground for the consumption of the island; the deficiency is made up from the neighboring island of Euboea. On the west shore, there is a port called Gabriel, partially sheltered by small islands from the sea, but on this side of Andros there are no harbors in which vessels can lie safe, but its sailing-ports are very good. The light from the S.W. point, called Point Guarida, is in 37° 57' N. lat., 24° 42' W. long.

ANDROSCOGGIN, or AMARISCOGGIN, a river of New America, which rises in about 45° 11' N. lat., 11° 41' W. long., on the east side of the higher part of the province of New Hampshire and Maine. The Chaudière, which enters the St. Lawrence opposite Quebec, has its sources near those of the Androscoggin, on the north and west side of the same high

ANDZE, a town in France in the department of Gard. The town itself is ill built, but it is in a pleasant country, on the right or S.W. bank of one of the streams called Gardon, and which is distinguished as the 'Gardon d'Anduze.' The inhabitants, who amount to more than 6000, are mostly protestants, and are engaged in the manufacture of hats, cloth, serge, silk stockings, pottery, and glass, which find a sale at the great fair of Béziers, in the same department. [See BEAUCRAINE.] It is about 22 miles N.W. of Nantes, the departmental capital.

ANEKADA, or the DROWNED ISLAND, one of the lesser Antilles, and the most northern of the group known as the Virgin Islands. The surface of Anegada is the production of lithophyta, based on a subarctic foundation. The island is for the most part a desert. On the south-east, there is a gradual rising of the ground from north to south to the elevation of sixty feet, and this is the highest point of the island. The south side is a continued mass of shelves, loosely covered with vegetable mould, mixed with sand. This mould is the result of sea-weed, which has lost its saline properties. The light is bright, clear, and light, and of a dark brown colour, and in many places covers the ground only to the depth of a few inches. Where the shelves are intersected by openings which occur occasionally and of various sizes, a large quantity of vegetable mould has been detached, and a considerable amount of vegetable mould has been accumulated, in which plants grow of a
healthy and vigorous appearance. The few trees found on
the island grow in these situations. The northern, western,
and eastern sides of the island are less favourably covered
with sandy deposits thrown forward by the surf.

The sand is frequently formed into hills and ridges
forty feet high, and where they do not occur, detached masses
of limestone and coral may be seen, many of which are up
wards of thirty feet high. Behind these rocky hillocks some
patches of productive soil are found, and these are culti-
vated as garden-ground by the inhabitants. Several ponds
are met with on the surface of the island, from some of
which considerable quantities of salt are gathered.

There is abundance of fresh-water on almost every part
of the island, even in the immediate vicinity of the west and
of the salt-ponds. The water, by filtering through the surface
soil, is very speedily deprived of its saline particles.

The vegetable productions of Anguadga are not numerous,
but is singular that several of them are not observed in
any of the other Virgin Islands. It appears probable that
the seeds of these must have been carried there by currents,
or conveyed by birds from the Spanish main.

Anguadga is chiefly noted for the numerous wrecks which
have happened on the reef by which its windward or east-
ern side is bordered, and which continues, under the name of
the Horseshoe, about four leagues to the south-east, ter-
minating seven miles from the east end of Virgin Gorda.

The channel of these wrecks through three short
wrecks: and, except on such occasions, the only labours
in which they engage are those of raising provisions for their
subsistence, and cultivating some small patches of cotton,
the produce of which is taken for sale to the neighbouring
islands of Tortola.

The length of the island, in a direction east-south-east,
is ten miles, and its greatest breadth four miles and a quarter.
The south-east point of the island is in 18° 44' N. lat.,
and 64° 16' W. long. The population consists of eleven whites
and twenty-one coloured and black families. (See Purdy's
Colombian Navigatir, and Journal of the Royal Geo-
ographical Society, vol. ii.)

ANEMOMETER. From the Greek language, signifying
wind-measurer; it is an instrument for measuring the force
of the wind, by finding what mechanical effect the wind to be
measured will produce upon the apparatus. The first
anemometer was invented by Wolf, and is described by
him in his Elėmenta Mathematir, vol. ii. p. 319 (Geevers
edition, 1740). It consists of four sails, similar to those of
a windmill, but smaller, turning on an axis. On the axis
is a perpendicular screw, which turns a vertical cog-
wheel round a vertical fixed axis to the former. To the
second axis is attached a bar, on which a weight is
fixed, so that the sail cannot turn without moving round
the bar in a vertical circle. When the wind acts upon the
sails the bar rises, and this continues until the increased
leverage begins to unbalance the weight. It is the effect of
the force of the wind. The number of degrees through
which the bar is moved to produce this effect is measured on
a dial, the hand of which turns on the axis of the cog-wheel.

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variety of colours, the principal of which are white, scarlet, and purple in different shades. In the garden it is too well known to require description: the single varieties are usually called poppy anemones; the double kinds owe their peculiar state either to a multiplication of the petals, or to a compound one; and as these forms have been procured by patient cultivation for some hundred years, and are still improving. The method pursued has been to save seeds only from the kinds that have the greatest tendency to multiplication of their parts, and wherever a double flower is accidentally capable of producing seed, to prefer it to all others. By this means habits that were originally accidental become fixed, and capable of being further acted upon by the perseverance of the gardener. Thus has the Dutchman enabled the Dutch to improve the race of anemones so much as to obtain them within a few years with stems nearly half a yard high, and with blossoms six inches across.

A. atelata; a native of various parts of Germany, France, and the Levant, is also often seen in our gardens, where it is called A. hortensis. It differs from the last in having smaller and narrower petals, very rarely double flowers, a greater tendency to purple in their colours, and much broader leaves. It is not so liable to vary as the last species.

Gardening books are filled with directions for the management of these plants; all of which, in this as in most other cases, may be reduced to a few simple rules, resulting from the nature of the plant itself, but which may be made still more clear by a careful study of the history of the species. 1. They grow wild in rich and moist pastures; the soil for them should therefore be fresh loam, with as great a proportion of sand as they can be made to bear. 2. They are natives of the hottest parts of Europe, where the winter's cold is not more than the olive will bear; they should therefore never be exposed to the severest frosts of England, but should be protected by a covering of some kind, either in the shape of frames or a mulch of decayed tan. It is true that they are hardy enough to exist and flower without this care, but the beauty of plants protected is infinitely greater than that of such as are left exposed without any protection. 3. They grow through the mild winters of their native countries, and are ready as soon as the spring is sufficiently advanced to start up into flower. As the summer advances, and the heat and drought increase, they perfect their seeds and lose their leaves, when they fall into a state of rest; summer and autumn are, therefore, their real winter, and, consequently, it is at this time they should be taken up and prepared for the succeeding season. 4. When they are in a growing state, they are very liable to be injured, they shrivel, and lose their leaves, when they fall into a state of rest; summer and autumn are, therefore, their real winter, and, consequently, it is at this time they should be taken up and prepared for the succeeding season. 5. When they are in a growing state, they are very liable to be injured, they shrivel, and lose their leaves, when they fall into a state of rest; summer and autumn are, therefore, their real winter, and, consequently, it is at this time they should be taken up and prepared for the succeeding season. 6. When they are in a growing state, they are very liable to be injured, they shrivel, and lose their leaves, when they fall into a state of rest; summer and autumn are, therefore, their real winter, and, consequently, it is at this time they should be taken up and prepared for the succeeding season.

For A. Hepatica, see Hepatica.

ANEMOSCOPE, an instrument for determining the direction of the wind; usually constructed by connecting with the spindle of a weathercock the handle of a dial on which the points of the compass are marked.

ANETHUM. [See Foeniculum and Pimpinella.]

ANEURISM, is a Greek word (ἀνευρισμός), literally signifying a rupture or escape, but now used to signify a tumour, consisting of a preternatural enlargement of an artery. The artery is the only seat of this disease; and any artery of the body may be the subject of it, but it is much more common in some arteries than in others. The commonest of these is the aorta.

An artery is composed of three membranes which are firmly united, and form the walls of a strong, elastic, and extensible tube. These membranes are called tunics or coats. The outer coat is the state of the tube, these tunics yield only to a certain extent to the impulse of the blood, so that the tube possesses only a certain diameter; but in a state of disease the impulse of the blood distends these tunics, and they gradually yield to the pressure of the blood, which is diseased by being too small, and becomes insensibly dilated, and at last bursts as the pressure at last becomes too great.
the sac, as they often do, they are necessarily stretched as
the tumor enlarges, and this distension of the nervous cords
sometimes occasions intense pain. The cartilages and
bones, pressed upon by the advancing tumor, gradually dis-
appear, and at length are so completely destroyed that not
the slightest trace of them remains. In general, as long
as the tumor is small, it is unattended with pain, but the
changes which it produces in other parts, such as not
the stretching of the nerves and the absorption of the bones, is
sometimes attended with intense pain, capable of being
mitigated by no means hitherto discovered. Death at last
puts an end to the pain and the patient together; the
approach of the fatal event being clearly indicated by the
increasing thinness, softness, and darkness of the tumor.
The cause of the cure that has been seen between this
most dangerous disease and all other tumors is manifest;
but the distinction is not always easy, or at any rate is not
always made. Many a fatal accident has happened in
consequence of incisions having been made into aneurisms
which were mistaken for abscesses. Vesalius was consulted
about a tumor of the back, which he pronounced to be an
aneurism: soon afterwards an imprudent practitioner made
an opening in the swelling and the patient bled to death.
Ruych relates that a friend of his opened a tumor near the
heel, not suspecting it to be an aneurism, and the hemor-
rhage, though suppressed at last, placed the life of the
patient in the utmost jeopardy. A person consulted Boer-
horst about a tumor near the elbow of its success attained by
agitating against allowing it to be opened; it was opened, and
the man died on the spot. Even Ferrand, head surgeon of the
Hôtel Dieu, mistook an axillary aneurism for an abscess,
plunging a lancet into it and removing the patient. The
characters by which the aneurismal swelling may be
distinguished from all other diseases are given at great
length in surgical books.

It is something in the structure of the larger arteries
which predisposes to this disease. Their coats are thinner
in relation to the magnitude of the column of blood with
which they are filled than the coats of the smaller arteries.
The internal are much more subject to aneurism than the
external, and to that arrangement of the blood vessels
preponderate. The period of life at which aneurism is
most frequent is between the ages of thirty and fifty. Sir
Astley Cooper, however, states that he has seen the dis-
ease in a child only eleven years old, and that he has ope-
rated for it in success in a man of eighty-five. It is
much more common among males than females. Out of
63 cases of this disease, 56 were males, and only 7 females.
Aneurism so often follows a sudden violent shock sustained
either in the middle of the back or in the region of the
spine, or the sudden violent extension of a limb, as apparently
to justify the common opinion that external violence is among
the most frequent exciting causes of the malady.
The aneurism led him to believe that the sudden cutting
of the spontaneous cure, already explained, is the effect, this
disease, when left to itself, uniformly proves fatal by the ultimate
rupture of the tumor, in consequence of which the patient
experiences either instantaneously from the great and sudden
loss of blood, or by degrees from repeated losses of it.
And yet anterior to the time of Galen, who lived about the
middle of the second century, there is to be found no record
whatever of this terrible malady. The older practitioners, in-
deed, so believed that the aneurisms in the air-tubes, could have
had no conception of the existence of an aneurism. It has
been justly observed, that were the number of individuals in
Europe who are now annually cured of aneurism by the inter-
fERENCE of the general medical profession, compared to the
number of persons who have perished by this dis-
ease, from the beginning of the world to the time of Galen,
it would help to convey some conception of the extent to which
anaesthetic knowledge is the means of saving human life.
The complete obliteration of the preternatural cavity of the artery.
The obliteration of this cavity is the sole object of the operation, which is found to
be the only sure and effectual mode of curing the disease. This is done by the surgeon
and passing a ligature around it about its dilatation. The immediate effect of the ligature of course is to stop the flow
of blood into the sac; its ultimate effect is to excite inflam-
mation, and to produce an intense pain, leading the surgeon
into close contact by the ligature, permanently adhere to-
gether, thus inducing an obliteration of the cavity of the
vessel. The success of the operation depends entirely on
the completeness of the adhesion of the sides of the vessel,
and the consequent obliteration of its cavity. But this
adhesion will not take place unless the portion of the
artery to which the ligature is applied be in a sound state.
If it be diseased, as it almost always is, near the seat of the
aneurism, when the operation is completed the portion of the
artery is removed [see INFLAMMATION], hemorrhage takes
place, and the patient dies just as if the aneurism had been
left to itself. For a long time, surgeons were in the habit
of applying the ligature to the general wall of the tumor
rather than the aneurism: they laid open the aneurismal sac in its
whole extent, and scooped out the blood contained in it. The
consequence was that a large deep-seated sore, consisting of
parts in an unhealthy state, was formed; and it was necessary
to apply a dressing sustained by a bolster and a bandage on
the head,—a process which the constitution was frequently
unable to support. Moreover, there was a constant danger
that the patient would perish from hemorrhage, through
the want of adhesion of the sides of the artery. The pro-
found knowledge of healthy and of diseased structure, and
of the laws of the animal economy by which both are regu-
lated, which John Hunter had acquired from anatomy,
suggested to this eminent man a mode of curing the
aneurism, the effect of which, in preserving human life, has placed him
high in the rank of the benefactors of his race. This
consummate anatomist saw that the reason why death so often
followed the common operation, was because a process essen-
tially different from hemorrhage occurred, by which the
artery was brought under control. He observed that while the vessel close to
the aneurism was always diseased, at some distance from the
aneurism it was in a sound state: it occurred to him, then, to give to the
aneurism a ligature instead of a diseased portion of the artery; the
process necessary to the success of the operation would not
be counteracted. But to this there was one capital objection,
that it would often be necessary to apply the liga-
ture around the main trunk of an artery, before giving it
off its branches, in consequence of which the parts below
the ligation were deprived of their supply of blood, and
must therefore mortify. He was well acquainted, however, with this
and vassal vessels, which are always preserved under the term ANATOMOSIS. Reflecting on the
number and freedom of the communications of the arterial
vessels, he conceived it possible that a limb might receive a
sufficient supply of blood to maintain its vitality through the
medium of its collateral branches only. For an aneurism in
the ham, he, therefore, boldly cut down upon the main
trunk of the artery which supplies the lower extremity, and
applied a ligature around it, where it is seared near the
knee; and on the contrary, he cut off into the direct channel, though he thus deprived the limb of the supply of blood
which it received through its direct channel, it would not
perish. His knowledge of the processes of the animal
economy led him to believe that when the process is
completed the function which this great artery serves in
the body is not sufficient to be produced by the
other arteries of such importance, that they have been themselves
astonished at the extent of their success. Every
individual on whom an operation of this kind has been successfully performed is snatched by it from certain
and inevitable death. He consigns it to the surgeons on the
Diseases of Arteries and Veins; Bell's Surgery; Abernethy's Surgical Works; Use of the Dead to the
Living, &c.

ANGEL (GNE.) Dr. Johnson defines it as 'a piece of
money anciently coined and impressed with an angel,
in memory of an observation of Pope Gregory, that
the pagan Angli, or English, were so beautiful, that, if
they had seen the Angel, or Angels, they would soon
be converted. But we must remark, that Pope Gregory's
observation was made in the seventh century; and the coin called the
angel was not struck in England till the middle of the
fifteenth century. The angel was originally a gold coin of
France, where it was first coined, at least by that name, in
1400. (See Ducange, r. Menzel, and Le Blanc, Traité
Hist. des Monnoyes de France, 4to. Amst. 1692, p. 207.)
In France, where it was soon followed by the half and
quarter angel, it was always of fine gold, but not always of
the same weight. It appears to have been introduced into
its minor divisions, into England, by Edward IV., in 1465,
(see Leake, pp. 150-164,) and was continued as a coin by
King Henry VI. when he returned to the throne. Angels
and half-angels are the only gold coins known of Richard
III. (Leake, p. 170.) When first introduced, the angel
was rated in value at 6s. 8d., and being of the same value
as the noble, was sometimes called the noble angel. This
value was continued at Henry VIII.’s first coinage of
gold. In the coinage of that king, latter time, the value
was raised to 8s., and so continued through the reign of
Edward VI. Queen Mary’s angel went for 10s., which value
continued to the end of the reign of Charles I., the last of
our kings who coined the angel. So base was Henry VIII.’s
gold coinage of this money, that Stow, in his History of
London, says, ‘I have seen twenty-one shillings given for
an old angel, to fill withal.’ Queen Elizabeth, (according
to Nicolson’s Historical Library, p. 267, from Fynes
Moryson’s Itin. Part i. li. 3 c. 6.) in the 43rd year of her
reign, (1590-1601) contracted not only for the coining of
angels, and their usual divisions, but for pieces of an angel
and a half and three angels, of the finest angel gold; but
it is presumed that the contract for these larger pieces was
never completed, as no, such coins have been seen by our
collectors. The usual device upon the obverse of the angel,
was the figure of St. Michael standing upon the dragon, and
piercing him through the mouth with a spear, the upper
end of which terminated in a cross, or cross-croslet. The
reverse of the earlier ones had a ship, with a large cross for
a mast, with the royal arms in front. The angels of James I.
and Charles I., have the mast of the ship with a main-top
and no cross. The obverse had the king’s titles surround-
ing the device. The reverse, from Edward IV. to Edward
V., bore the inscription ‘PER CHRYSTM CRUCI ET VICTA
CHRISTE REDDEMONTE.’ The reverse of the angels
of Philip, Mary, Elizabeth, and James I., bore, partly at
length, and partly abrided, the sentence, ‘A DOMINO FAC-
TUM EXSTVTVM SIT MIRABILE [IN OCVIS NOBIS).
Charles I.’s angel had on the reverse, AMOR POPVLI FR.
ESIDUM REGIS. Folkes (pl. xii. of his Gold Coins) has en-
graved a piece in silver, struck from the reverse of one of a
die, intended for an angel by King Charles II., but never coined;
with the same inscription on the reverse as his father’s
angel. The only distinction by which the angels of Henry
VII. are known from those of Henry VIII. is, that in the
former, the archangel Michael stands with his left foot upon
the dragon; in the latter, the angel stands with both feet
upon the dragon. In the collection of Lord Pembroke there
is a six-angel piece; but it is not certain that it was intended
for a coin. The Angelots of Edward IV., and to Henry
VIII., have on the reverse, O CVXN AVE SPES UNICA. The
Angelots of Edward VI. have the same inscription on the
reverse as the angel.
ANGELICA, a genus of plants belonging to the natural
order umbelliferous; it comprehends several species, the
principal part of which are to be met with in botanic gardens,
and one that was formerly very much cultivated as an es-
culent plant, on account of which we admit the genus here.
This, the Angelica archangelica, or Archangelica officinalis,
as it is now sometimes called, is a native of the banks of
rivers and of wet ditches in all the northern parts of Europe;
in this country it grows abundantly on the banks of the
Thames below Woolwich, and in several other places.
It is a biennial plant, with a large fleshy aromatic root,
blackish externally, but white within; and a stout furrowed
branched stem as high as a man. Its leaves are of a
clear bright green, shining, and divided into a very large
number of heart-shaped finely serrated lobes. The flowers
are white, and disposed in round, very compact umbels; they
are succeeded by large broad-winged grains of a pale yel-
lowish-brown colour. Each partial umbel is surrounded
at its base by seven or eight pointed undivided bracteae.
For the sake of its agreeable aromatic odour, this plant
has been much cultivated, and is so still on the continent.
Its rhizome is sometimes included with sugar, in a very sub-
stable sweetmeat, possessing tonic and stomachic qualities.
Its roots contain a pungent, aromatic, stimulating principle,
which has caused them to be employed in scrofulous diseases;
they have been administered in the form of infusion and of
powder, as diuretics and sudorifics; but in this country they
are no longer employed as curative agents.
A very common wild species, the Angelica sylvestris, or
wild angelica, which is found all over the meadows near
the Thames above London, possesses similar properties, but
they are weaker, and therefore less important.
ANGELO (BUONAROTTI, MICHEL), the father of
epic painting, and scarcely less distinguished as a sculptor and
architect, was descended from the noble family of Catessia
in Tuscany. He was born in the year 1474, a period peri-
nuriously favourable to genius, when the artists of Italy emulated each
other in the cultivation of the liberal arts. Michel Angelo,
the bent of whose powers manifested itself in his earliest
childhood, learned the elements of design in the school
of Domenico Ghirlandaio, a celebrated painter in Florence,
while he pursued his studies with this master, a seminary
was established for the promotion of sculpture by Lorenzo
de' Medici, and Michel Angelo was invited among other youths to study from the collection of antique statues arranged in the Medicean gardens. It is said that the sight of these sculptures would have served to excite his fancy; and he began, not merely by copying, but by investigating the principles on which the Greek artists had wrought, and having found a head of a laughing faun, considerably missile, he copied it, and the world was surprised to see restored what was wanting. Lorenzo, who frequently visited the garden, was struck by this demonstration of vigorous capacity; and being pleased no less with the simple manners of the youth, and his evident devotion to his art, he invited him to reside entirely in his house. Michel Angelo remained three years, treated with paternal kindness, and having the advantage of associating with the first literary characters of the age. At the suggestion of Politian, who also resided with Lo- renzo, he made for this illustrious patron a basso-relievo in marble, the subject of which was the Battle of the Centaurs; he resummed the pencil also during this period, and made many studies from the works of Masaccio. Lorenzo died in 1492. His brother Pietro continued to patronise Michel Angelo, but in a different spirit. Treating art as a toy, he employed him, during a severe winter, to make a statue of snow; and manifesting in all things the same frivolous spirit, he precipitated, by his hasty dispositions, a misfortune which soon overtook all. He was driven from Florence in 1494. On this event, Michel Angelo retired to Bologna, where he contributed two statues to the church of the Dominicans, and after a year's residence in that city, returned to Florence. During this time he made the statues of Soderini, for which work the Senato of the Republic, requiring Michel Angelo to return to Florence, restored him to his former residence, and assigned him a house near the Dome of the Cathedral, where he was received with great kindness. Michel Angelo was occupied for some time with the design of the statue of the Cathedral of Bologna; and in 1497, he was appointed by the Pope to execute a statue of St. Peter, for the famous church of S. Maria Maggiore at Rome. This work was not carried out, and Michel Angelo left it unfinished. He was then called to Rome by the Pope, who desired to have a statue of St. Peter for the magnificent church of St. Peter's; for Michel Angelo having seen and contemplated what the interior of the old edifice would not allow sufficient space for the monument to be properly seen, the pontif determined to rebuild the church on a larger scale. While the monument was being projected, Michel Angelo was appointed to visit the tombs of the popes, and inspect it; but the work was interrupted by an accident which slightly marked the character of the artist. Having occasion to make some communication to his holiness, and not having found admission on two applications, in the latter of which he felt himself somewhat superciliously treated by one of the officers in attendance, he gave directions to his servants to sell his goods to the Jews, and immediately set off for Florence. He had scarcely reached Poggibonsi before five couriers had arrived from Julius commanding him to return, but Michel Angelo was inflexible, and continued his journey. On arriving at Florence, he set about finishing the cartoon of Pitta, but three briefs were dispatched to Soderini the Gon- dola, which refused to pay them until he should return. Michel Angelo excused himself, alleging that he had accepted a commission from the Grand Sultan to go to Constantinople for the purpose of building a bridge. The Pope, in the mean time, had gone on political affairs to Bologna, and having himself the pleasure of seeing the pontif, pressed Michel Angelo to go to that city. Immediately on his arrival, and before he had had time to adjust himself, he was conducted by the pope's officers before his holiness, who, looking at him with an angry glance, said, 'What, then! no doubt that we should come to seek thee? Michel Angelo excused himself, saying, 'that he had quitted Rome, being unable, after his faithful services to his holiness, to find the requisite indemnity for admission to his person.' A bishop in attendance, intending to say something in extenuation, observed to the pope, that such persons, however expert in their professions, were usually ignorant of everything else; 'Who told thee to interfere?' exclaimed Julius, bestowing at the same time a hearty blow with his staff on the shoulders of the ecclesiastic; and commanding Michel Angelo to know, he gave him his benediction, and received him into full favour, giving him directions at the same time to take his statue in bronze. Michel Angelo soon completed the clay model; the statue was the personification of majesty, but the face had so terrible an expression, that the pope denounced, 'Am I to be represented as one suffering a blessing?' Michel Angelo, knowing of the Pope's aversion to the design of his statue, had intended to represent him admonishing the people of Bologna, and inquired if his holiness would have a book placed in one of the hands: 'Give me a sword,' answered the warlike pontiff, 'and I shall be satisfied.' On his return to Rome, Julius was observed by the advice of his architect, Bramante, to suspend the execution of the monument, and he gave orders to Michel Angelo to paint the vault of the Sistine Chapel. It is said, that Bramante was indited by unworthy motives in giving this commission to the Pope, either imagining that the large sums which his holiness was expending in sculpture would leave less at his command for the purposes of architecture; or that Michel Angelo, by his contempt of painting, would incense the Pope by refusing to perform his commission; or finally, that, should he attempt it, he would expose his inferiority as a painter to Raffaello D' Urbino, who was Bramante's nephew. All these motives ascribed to Michel Angelo, although base, are to this day current, and are founded on ill ground. If, however, Bramante was really actuated by any unworthy motive, never did an evil intention more completely defeat itself. Michel Angelo, indeed, who was absorbed in the execution of his great work, not only declined the task of painting the chapel, and even alleged that he thought Raffaello better qualified to perform it; but Pope Julius allowed no impediment to stand in the way of his will, and Michel Angelo finding himself without an alternative, and impressed with a sense of the enormous expense of the task, commenced his cartoons. He invited from Florence several artists distinguished as painters in fresco, a mode of practice in which he was then inexperienced, and the roof of
The chapel was commenced by these assistants, under his direction, they executed, however, a very short of his expert两手, and entering the chapel one morning, dismissed them all, threw their work from the walls, and determined on executing the whole himself. Having advanced to the third compartment, he had the satisfaction to find his labors had been rewarded by all his Opportunities. The skill with which the place had been executed, the talent the undertaking. The pope, being made acquainted with this misfortune, sent to him his architect, Sangallo, who investigated the cause of the failure, and taught him how to correct it. Thus reassured, he proceeded, and the pontiff hearing at length that the ceiling was half completed, could control his impatience no longer, and the last thing to be suspected, say it was impossible. Many other persons found admission, and among the rest Raffaello d'Urbino, who then first became acquainted with Michelangelo's powers as a painter. Struck with admiration, he immediately changed his own style, and with the candour natural to a great mind, thanked God that he had been born in the same age with so great an artist. The work was now carried forward without interruption, and the whole was completed within one year and eight months from the time of its commencement; an achievement which, whether we consider the magnitude and sublimity of the performance, or the almost incredibly short time in which it was executed, is unparalleled in the history of art. Michelangelo was employed on this monument with a solemn mass, at which the pope assisted in person. The work was divided into twelve compartments, in which is painted the history of the antediluvian world. In three of the first compartments Michelangelo has personified the Sun, Moon, and Stars; in the other compartments he has represented the dark and light, creating the sun and moon—and giving life to Adam. The attempt to portray the Deity by visible representation is repugnant to our present ideas, but it was at that time sanctioned by the church, and is almost atoned for by those images of divine power and majesty which Michelangelo has here embodied. The eleventh subject of the series on the roof is the Deluge, and the twelfth is from the story of the flood. Some of the remaining panels were served after that awful event. On the sides of the chapel is a series of designs representing the persons who compose the genealogy of Christ, and between these compartments are the colossal figures of the Prophets and Sibyls, seated in solemn meditation. The effect of the whole work is adapted with admirable accuracy to the vast height at which it is seen, and it is impossible to contemplate it without reverence and astonishment. The reign of Julius terminated in 1515, which not at all.

It might have been expected that Leo X., whose name is associated with the ideas of taste and munificence, and who affected to appreciate the powers of Michelangelo, would have employed him on some more ambitious talents. There is, however, in his whole conduct towards this great artist, a display of injustice not easily explained. He obstructed on him the task of building the façade of the church of S. Lorenzo at Florence—a commission which the artist most strenuously protested; but the pope overruled all objections, and compelled him to go to Carrara, in order to excavate marble for the purpose. He was afterwards directed to procure it from the quarries of Pietra Santa: the difficulty of conveying it hence was found almost insurmountable, and we cannot read without surprise and indignation, that during the whole pontificate of Leo, a period of eight years, this extraordinary man was employed in digging rocks and excavating the short reign of Adrian VI., which followed, although generally unfavourable to the arts, was less injurious to Michelangelo, as it allowed him leisure to proceed with the monument of Julius II.; but on the accession of Clement VII. that work was again interrupted, and he was called on by the new pontiff to build a library and sacristy for the church of S. Lorenzo. The civil wars of Florence ensued soon after; and we find Michelangelo acting in the capacity of engineer and architect. On the expulsion of the Medici he was appointed the superintendent of the fortifications by the local government, and he evinced extraordinary skill in fortifying the important post of San Miniato. Having continued his services until the Restoration of the Medici, he was again employed as the fall of the city inevitable he withdrew to Venice, and during his residence there, it is affirmed by some authorities, that he gave the design for the bridge of the Rialto.

He returned to Florence at the earnest entreaty of his fellow-citizens, who saw in him an importance than himself to his services, but, as he had foreseen, the city was soon after compelled to surrender, and he judged it prudent to conceal himself, as did several of the citizens who had distinguished themselves in its defence. Michelangelo was then engaged in various works, a part he took in those transactions, but he is, perhaps, to be praised rather than condemned for having sacrificed his private feelings to the duty he owed his country. As soon as the tumult occurred in the city, he fled and made his way to Clement VI.; ordered strict search to be made for Michelangelo, received him kindly, consulted him on various works, and the great picture of the Last Judgment in the chapel at Vincenza. In 1535, suspended these intentions, and Michelangelo now hoped that he should be enabled to complete the monument of Julius II. This work had been the favourite employment of his life, and he had devoted to it all his powers, but it had proved to him, almost from its commencement, a source of inquiry. Each pontiff, since the death of Julius, had on his accession demanded the services of Michelangelo, and compelled him, in spite of his earnest remonstrances, to continue his labours on the monument; in the meantime, the heirs of Julius, being impatient for its completion, harassed him with threats and complaints, large sums of money having been paid him during the progress of the work. Clement VII., it is said, thought that Michelangelo had a right to consider himself rather the creditor than the debtor; but Paul III., when Michelangelo urged his obligation to the heirs of Julius, as a reason for declining the commissions he offered him, threatened to tear the contract with his own hands. The pope persisted in his intention, and Michelangelo was now called on to perform the building of the dome of Florence Cathedral, which was the only remaining portion of the project, and placed in the church of San Pietro in Vincenzo. Michelangelo now found himself at liberty to proceed with the picture of the Last Judgment; he devoted to that immense work the labour of eight years, and it was finished in 1541. We are accustomed to connect with this performance an impression of everything which is great in art; nevertheless, whoever expects to find in it that which is usually attached to our ideas of painting, an effect agreeable to the eye, will find it utterly absent. Art, indeed, is considered a medium of amusement merely, but a vehicle for religious impressions; and as the leading feeling associated with the awful idea of the last judgment is that of terror, so that of Michelangelo he expresses the predominant sentiment of his picture. In the Messiah we see the figure of the judge than the merciful Redeemer; he turns to the left, and fulminates his sentence on the wicked, who fall thunder-struck. These groups, precipitated through the air, are seized by demons who spring from the abyss beneath. This is the finest part of the picture, for there is little among the groups of the righteous, who on the opposite side are ascending into heaven, which expresses the happiness of the blessed. That part of the picture in which the dead are seen rising from their graves is admirable. The excellence of the work consists in the unparalleled powers of invention displayed in the various groups, and in the profound feeling and knowledge of the human heart, which the artist was enabled so effectually to embody in his compositions; but considering the composition as a whole, it must be acknowledged, that, without impairing the solemn impression proper to the subject, a more picturesque arrangement might have been admitted, and the splendid results produced by great powers in conjunction with great opportunities. We next find him engaged in constructing the magnificent fabric of St. Peter's church. He
began by substituting for the Saracenic design of San Gallo, a more Christian and superb model in the shape of a Greek cross. The "'temple" of the Louvre" is described by the "saint of patrons," as nourished by the "writings" of his predecessors, he concentrated; suspended the cupola, and to the most complex, gave the air of the most simple of edifices. On this work he was occupied during the whole period of his life. He had, however, to direct fortifications, to adorn the Capitoll with magnificent buildings, to finish the" Farnese palace, and give designs for other works of architecture. But circumstances connected with the building of the church enabled him to complete his work entirely: he was caused of trouble. As he had occasion, among the number of persons employed in the undertaking, to promote some and dismiss others, he was beset by cabals, and harassed by opposition; but he was resolved to deliver his house; but he was uniformly supported by the pontiffs, especially by Julius III., who regarded him with profound respect and veneration. Old age came upon him not unaccompanied with the physical infirmities which belong to it, but he retained the vigour and acuteness of his mental faculties to the close of his life. He died on the 17th February, 1563, having nearly attained his 89th year. His last words were, "In your passage through this life, remember that we are all but passengers in a world of suffering, accidents, and death."

Guelphs either to the degree or the variety of his talents, Michel Angelo holds a foremost place among the great men of an age which has left the most durable impressions upon the arts and literature of Europe. As a painter and sculptor he created his own style, which, as it owed nothing to the influence of his masters, has remained unapproachable either by rivalry or imitation. As an architect, he converted the fabric of St. Peter's from an incongruous structure into the noblest temple which was ever dedicated to the honours of the Church. His poetic compositions which Michel Angelo has left can add little to his vast reputation, except as an evidence of his versatility; it may be observed, however, that they are by no means unworthy of such a man, and place him in point of eloquent expression among the best in Italian literature. His talents in engineering need no other attestation than the fact, that Vincenzo, the celebrated French engineer, in passing through Florence, was so impressed with the skill evinced in the fortifications of San Miniato, that he ordered plans and models of them to be made for his own special study. The moral qualities also of Michel Angelo are entitled to our respect. He was benevolent, temperate, amiable, and pious; he had a sweet and noble character, and knew how to enforce respect from the arrogant and the supercilious, in his general deportment he was mild and unassuming. He had acquired considerable wealth by the exercise of his calling; so that he was enabled to surround himself with friends, to provide for his servants, and during the siege of Florence, he supplied the government with sums by no means inconsiderable, considered as the contribution of an individual. For the labour of building St. Peter's church, continued during many years, he refused all remuneration, declaring that he dedicated that service to the glory of God. Although no man was ever more entitled to the claim of intuitive talent than Michel Angelo, no man ever trusted to it less: his practice was incessant, he continued his studies to the last, and so untiring was his energy, that even while engaged in the military operations of Florence, he proceeded with his works in statuary and painting. His predilection was decided in favour of sculpture, in preference to the other arts: yet it may be doubted whether his reputation is not more permanently based on his paintings in the Sistine chapel. Beauty, so essential an element in sculpture, was certainly not the branch of art in which he excelled; as he excelled in subjects wherein that quality is not indispensable, he sometimes reaches a point of unimagniced excellence; nor can there be found perhaps, in the whole range of Greek sculpture, any thing approximating to the profound thought and terminal expression of the statues of Lorenzo and of Moses.

As a painter, he has no competitor in the highest qualities of art, except Raphael, to whom, it appears to us, he stands in the same relation which, in our literature, Milton bears to the "school of pathos," the "school of pathos" in expression, in varieties of character, and the power of telling his story, Raphael is certainly superior to Michel Angelo; but if the truth of that axiom be admitted, that sublimity, in its highest degree, is more than an equivalent for all other qualities, then Raphael is superior to Michel Angelo, without doubt, the greatest painter that ever existed.

ANGEL CARAVAGGIO. [See CARAVAGGIO.] ANGELN is that part of Schleswig which is enclosed by the bay of Flensburg, the Baltic, and the Schlei. The largest diamond of the Baltic district, which is caught from N. to W., is about twenty English miles. Its surface comprehends about 230 square miles, of which the population amounts to 36,900. Among their neighbours the inhabitants are dispersed in small villages; the soil is rich and fertile; the eastern part is more sandy; of late great progress has been made in the development of the inhabited districts, but the roads are so indifferent, that they are a subject of general complaint. Angelns has not, like other parts of Schleswig, a peculiar political constitution. Fifteen of its northern parishes belong to the Amt (the government or county) of Flensburg, and the eighteen southern one to that of Gottorf.

ANGER (according to Aristotle, Rhetor. b. ii., c. 2). A desire of revenge is accounted of an apparent slight improperly offered to a person or some one connected with him. From this definition it appears, first, that in order to excite the passion of anger it is necessary that a slight should be offered; and secondly, that the slight produced must be such, that the revenge produced by it is either gratified or assuaged. A slight is an act or forbearance by which a man appears to indicate his opinion that another person is not worthy of notice; and it may be either shown to an individual who acts in a manner agreeable to the expected custom, or (and this is the more natural) when a person insults, reviles, ridicule, and banter, or annoys, vexes and teases another: passively, as when a person omits the marks of attention and respect which an inferior owes to a superior, or an emergency, as when he treats another with contempt. In the cases of abuse, insult, and unseemly or misplaced ridicule, as well as where there is a scornful indifference or a want of respectful behaviour, the pain is caused by the undue assumption by which an equal appears to estimate a fellow creature as unan equal. Hence it is (as an ancient historian has remarked) that men care more for insult than injury; as the one seems to be the aggression of an equal, for his own profit; the other to be the innocence of a superior, arising from spite or mere wantonness*. In the cases of annoyance and vexation, the pain of the person angered is caused by the feeling that the object of the other party is purely to give pain, without any purpose of advantage.

The pain excited by the slight is instantly followed by a desire of revenge. The desire of revenge is not a general desire that ill may come to the person offering the slight, but a desire of personally paining him, so that he may know by whom he is pained, and experience, in some degree, what may have the gratification of being himself the executioner of his own retribution. The satisfaction of the desire of vengeance is always pleasurable, and in brutal and uncultivated minds is attended with all the marks of the most triumphant exultation. So strong indeed is the temptation of gratifying this craving after retaliation, when the means of indulging it are in our power, and so great the difficulty of foreboding the pleasure which it affords, that Shakespeare enumerates among the rare instances of female perfection—

* She who being angered, her revenge being slight, Bids her wrong stand, and her displeasure fly.

No angry person, however, would feel his desire of revenge satisfied by learning that the object of his anger has suffered some grievous calamity, as that he has lost a near relation or a large sum of money: he wishes that the pain should be inflicted in return for the slight shown to him, and by his own agency. Anger, therefore, is different from hatred; the one is a passion which is commonly extinguished by the lapse of time, even if the desire of vengeance is not satisfied; the other is a settled habit of the mind which never varies: the one is attended with pain, the other is without pain. Anger is not personal to individuals; hatred is often general, and embraces not only individuals, but whole classes, as murderers, tyrants, heretics, &c. There are even national hatreds, and misanthropy.

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is a hatred of the whole human race. Anger is often satis-
fixed with a slight infliction of pain, whereas hatred desires
nothing less than the extinction of the persons hated;
between the two lies, with large intervals, Hatred.
Anger seeks to inflict pain; hatred desires to do harm.
Anger requires a personal retaliation, hatred is pleased that
hatred should come to the person hated, from whatever quar-
ter, and by whatever means. (See Aristotle. Ret., b. 2, c. 4.)
As far as the mechanism of the feelings is concerned, both
are objects of which the infliction of pain, ought to be re-
strained; and one of the most important parts of moral discipline is the proper regu-
lation of the desire of revenge which characterizes it. The
proper restraint of this passion consists not in altogether
suppressing it, which is indeed impossible, as every person
must feel pain at an undeserved slight, but in repressing the
desire of vengeance to which that pain gives rise. It is
a rule, to which every exception should be questioned, with
the most caution, that in a polite society all vengeance for
vengeance sake is immoral. This, however, does not
prevent a person from showing his displeasure at an im-
proper slight; so that the reproof be given without ani-
mosity, and arise from a desire of preventing future affronts
or vexation, not of satiating a thirst for revenge.
Although anger is a bad passion, and in a state of civil
society its effects are much oftener hurtful than beneficial, it
is not therefore (as is fancied) so rare, nor its effects
less obvious. In a state of nature, before the institution of
government, if instead of men being prompted by the con-
stant and violent influence of a passion to retaliate harm
for harm, the retribution of wrongs had been left to the irre-
gularties of chance, in addition to the collision of interests and
the mutual resistance which arose from each man being the avenger of his own cause,
and which were the origin of political government, would
ever have existed. Hence revenge (as Lord Bacon has
said) is a sort of wild justice; that is, in a society
where there is no administration of law, it takes the place of legal
justice; and it is better that wrongs should be avenged than
that they should be done away with entirely. In the
barbarous states of society which have prevailed at different
times in Arabia, Greece, Germany, Scotland, and other
countries, the imperfect security of person which existed was
owing chiefly to the duty of revenge imposed by traditional
feelings and opinions on the family of a murdered person.
But when the exercise of sovereign political power is once
firmly established, together with an efficient administration of
law by regular Judicatures, the use of revenge, as an in-
strument for the repression of wrongs, has ceased, and it
must give place to a far better subsitute. The good, say
the French proverb, is the enemy of the better; and on this
principle, a political society, both in its legal and moral code,
must discard that instrument to which it may, indeed, in
great part, have recourse when they desire with its continuance in a state of happiness and tranquillity.
The private retaliation of wrongs is the scaffolding by means of
which the structure of civil society was erected, but which
decays as the part it served it impairs its utility when completely.

[See Punishment.]

ANGERBURG, one of the circles of the government of
Gummersen, in the province of eastern Prussia, containing
a surface of 260 square miles, and about 16,000 inhabitants.
Angerburg is the same also of a small town, with a castle,
lying on the Gross-Maur-Lake, in this province. It makes
linens and woollens; has a manufactury of salt, and a
fishery; and some trade in timber. The population is about
800 souls. It is 52° 16’ N., lat., and 15° 50’ E. long.; seventeen
miles S. of Königsberg.

ANGERMALAND is a province on the Baltic Sea, or rather on that narrow part of it, called the
Gulf of Bothnia. It is now comprehended under the po-
litical division of Angermanland-Län or Hernöland-Län,
from which it forms the northern, most extensive, and important
part; the southern, and smaller, is the antient province
of Midsland. The political union of these provinces
obliges them to unite in the building of the
more easily, as they resemble one another in almost
every respect.

It is remarked by Sonne Jørgens, that these effects which very required to be
made on the surface of the earth by the
oiling and redding, its preservation from physical harm, the propagation of the
people, the commencement of the vocation of man, the
saving of human life, and other causes; for these are the
objects of which the function of the venter and
water as an instrument of the earth. See the admirable
review of his metaphysical work by Dr. Johnson.

† See Bishop Butler’s Sermon on Restitution.

Angermanland-Län extends from 63° 18’ to 64° 20’ N.
lit., and from 15° 40’ to 19° 20’ E. long. Its greatest
length lies along the coast, and may amount to between 140
and 150 miles, and the greatest breadth, with high
banks of the banks of which meadows and woods are intermingled in the
most pleasant manner; the woods commonly clothed
the slopes of the hills and sometimes their summits. If to this
picture we add the inlets of the sea, which often pass
through the narrow openings and large, rapid rivers, expanding at intervals like lakes,
we shall acknowledge the justice of the opinion of Dr. Clarke,
who compares this province with the country about the
lake Lago Maggiore in Italy. People regard it as
incredibly extensive. Hence the Angerman-Län is as much worth seeing, and would as
seemly repay the trouble of a journey thither, as any part of Europe. But
this description only applies to the coast and to the country
extending about twenty or twenty-five miles from it. Further
westward, the country is less open, and the
people, by a distance of about ten miles and upwards, rising
higher and higher to more than a thousand feet above the
level of the sea, and on this height it runs on almost like
a plain through Jamtland till it reaches the foot of the Scan-
dinavian mountains, and the boundary of Norway. From
these heights the rivers descend in long, and sometimes
narrow valleys, and in their descent frequently form
cataracts.

The coast of this country, though high, rarely rises to
200 feet, and is very much intersected by bays, some of
which run several miles into the land, especially Härmar-
sundets-Fjord, Deger-Fjord, and Ulansanders-Fjord, all three
situated to the north of the mouth of the Angerman-Eif.
An uninterrupted series of islands extends along the coast;
most of which are small, uninhabited rocks, called skär
(pronounced share), only visited in summer by fishermen.
Some, however, are several miles in length, as Brännön, to
the south of the mouth of the Ljungan-Eif, Almön, opposite to the
Sundsvall, and Hernö and Hamso, in the em-
bouchure of the Angerman-Eif.

The rivers which traverse Angermanland-Län are the
largest in the province, and do not rise in the province. Their sources are in the Scandinavian mountains, to
which this province does not extend. The most important is the
Angerman-Eif, which rises in an alpine lake, called Kulis-
sön, near the mouth of the river of Örsö, which is called Åsle Laper.
Running for nearly half its course in a south-eastern direction, it receives all the waters
descending from the Styringstöf, and the great chain in
Åsle Laper; it then enters, by a southerly course, An-
germanland, where its waters are increased by two large
rivers, coming down from Jamtland. Its general course is
still directed to the south or south-east. No river of
Sweden is, in its natural state, navigable, so far as the An-
german-Eif, but it is said to be navigable upwards of forty
five miles, and by merchant-
vessels to Solleita, nearly sixty miles. At the last place the
navigation is interrupted by a cataract, and higher up, other
waterfalls likewise impede the progress of goods. But
of late years, the Swedish government has paid much attention
to rendering it navigable. Not far from its mouth Dr.
Clarke found the breadth of the river from one side to the other,
and he adds, that the Rhine exhibits nothing of a
wider or grander, and that even the latter are at no place
more beautifully adorned, than those of the Angerman-Eif.
The whole course of the river amounts to upwards of
240 miles. The Indals-Eif, which traverses the southern part of
Angermanland-Län, and forms the channel by which the lake called Storsvä (the great lake) discharges its waters.
This lake is situated in Jamtland,
surrounded by an elevated country, which exhibits high,
and even snow-covered mountains on the west and south. From
these mountains numerous rapid rivers descend to the lake, which discharges these collected waters by one outlet, the river Indals-Elf. It is several miles wide, and flows for a great distance to the north; it then turns to the east, and descends from the high-lands to the coast, and in this descent still receives some considerable rivers. The latter part of its course is to the south-east. It is one of the longest of Sweden, and is navigable for many of its courses, and by vessels of medium size. The navigation is much dreaded; one of them, in 1758, lost all the valleys through which it flows, and changed the course of the river in many places. Since that period a new course has been formed, and another channel has been made for the river. The largest of the other fish, which formerly abounded, has left it; only a kind of whiting (salmo lanarectus) is occasionally taken. It runs about 140 miles. The third and most southern river is the Ljungan-Elf. It is in that part of Österbotten-Land which bears the name of Heryelden, in the most elevated part of the Scandinavian peninsula, from which it descends with a rapid course through a narrow valley; but as it approaches the boundary of Angermanland the valley widens and the course of the river becomes less rapid. After its entry into this province it receives its only great tributary, the Giman, and falls into the sea to the south of Sundsvall. Twenty years are this river was not navigable; but since that time it has been made navigable in many parts of its course in order that Stockholm may not be under the necessity of deriving its firewood from a foreign country. By examination it was ascertained that two courses of this river were broad enough to allow of a boat of tolerable dimensions being flung down the wood and timber, which is here abundant on its banks. Its course can hardly be less than 200 miles.

The lakes though small are very numerous, and, according to the calculation of Forsell in his statistical tables, occupy more than one-tenth of the entire surface, or, more exactly, 2222 Swedish or 97768 English square miles.

The climate, though very healthy, is also very severe, as might be expected in such a latitude. The winter continues for eleven or even eight months, and people often travel in sledges in May. Then follows a spring of two or three weeks, and the summer begins in the middle of June. The heat increases rapidly, and the vegetation is so vigorous, that in a couple of days the grass attains the length of a finger, and commonly more; rarely eleven or twelve weeks pass between the sowing and the reaping of the corn. The sky is generally serene and clear, and rain is not frequent, and very rarely continues half a day. But the valleys are covered in the morning by a dense fog, rising from the lakes and rivers, which imparts the necessary moisture to the fields, and hinders the night-frosts in August and September from damaging the crop. The summer ends in the beginning of September, and is very chilly, and is usually less than the spring, and then comes the winter with all its severity.

Travellers commonly speak with rupture of the fertility of the land. It is true that it surpasses all the other parts of Sweden. But this remark only can apply to tracts of very small extent, especially to the valleys along the large rivers, and to the low land about the lakes. By far the greatest part is sterile; and all the broad and long ridges of the high country contribute little or nothing to the maintenance of the inhabitants. In Forsell's table the arable land is calculated to occupy only 1°36 Swedish, or little more than 66 English square miles, consequently not much more than one of the hundredths of the surface of Rutlandshire. The meadows extend over a space equal to 640 Swedish, or 281 English square miles, nearly the extent of Middlesex. The remainder is covered with mountains, heath, and forests, which only furnish abundant pasture for bears, wolves, and foxes. The uncultivated ground in the woods, and on the long and broad back of the mountains, affords pasture in abundance, and, consequently, the rearing of cattle is an important branch of industry. But these are not far distant from the villages to which they belong; a country which has been introduced which also prevails in the Alps of Switzerland; the cattle are sent in June to the pasture, accompanied only by one or two girls, who pass the whole summer in a cottage rudely constructed of wood and scattered branches of trees, and care for the cows, the calves, the bears, and perform the labours of the dairy. As the summer pasture is so abundant, the inhabitants are much more intent on extending their meadows than their corn-fields; that they may be able to increase their stock of cattle, and not want the import of fodder from the woods. The young sons, therefore, who are obliged to buy corn, bring considerable quantities of butter to the market, and even some cheese of indifferent quality. Their cattle is of a middling size, but smaller than those of the southern provinces of Sweden, swift and hardy. Sheep are numerous; but wool is coarse, and only employed by the country people for their own need. Oats are unknown; they are not used; but this animal consumes less of the food of man, which is here rather scarce. Many places in the higher valleys goats are kept in great numbers.

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The scanty population of this country might lead us to suppose that no kind of manufacturing industry could be maintained, but it is not the case. Many things that are manufactured in England are made, especially in the country along the coast to the north of Hernsland. The finer sorts are said not to be inferior to those of Holland, but many think that this assertion is somewhat exaggerated. The people of this branch of industry are by no means destitute of means, and the distance from one another, have been accustomed to satisfy all their necessities by their own labour.

Since government has rendered their lives more navigable than they were twenty years ago, great quantities of timber are floated down the Angerman-elv and the Ljungan-elv. The timber is sawed and sent to England. The exportation in 1825 amounted to 16,379,707 (of nearly two English feet) were exported to Stockholm. The leguminous seeds are exported in large quantities, and the great distance from one another have accustomed them to supply all their necessities by their own labour.

Many churches are built by simple peasants, and the carvings of crosses and initials of families exactly observed. Their masons are frank, courteous, and graceful, more than those of the other inhabitants of Sweden. They are of a cheerful temper, good-natured, and hospitable. Their houses have an appearance of neatness and prosperity, and this appearance is by no means fallacious; for the people are actually more prosperous and wealthy than other Swedes, inasmuch as they are also more industrious than most others.

The town of Hernsland is the seat of a bishop, whose diocese extends over the whole north of Sweden: besides Hernsland-län, he has the inspection of the clergy in Osterunda-län, Ume-län, and Pite-län. (See Von Buch's Travels through Lapland and Lapland.)

ANGERMUENDE, a circle in the Prussian province of Brandenburg, containing 25,000 inhabitants. Also the capital of the preceding circle, built on the shore of a small lake; it has a population of 10,000 souls, produces woolens and linens, and raises some tobacco; it lies forty miles north of Berlin.

ANGERS, an important town in France, in the department of Maine and Loire, of which it is the capital now, as it once was of the province of Anjou. It is on the banks of the Mayenne, (chiefly on a gentle declivity rising from the east or left bank,) a little below its junction with the Sarthe, and a very few miles above its influx into the Loire. In the ancient parts of the town the streets are narrow, and many of the houses are built of wood, though in some the wood is concealed by a thin covering of slate; several have open galleries in front and deep projecting roofs, which appear calculated to afford the shelter required by the climate; the windows of the galleries are ornamented with carved designs. As the growth is luxuriantly in the district, is frequently seen entwined round their Gothic mouldings, or running across the street from house to house. The more modern quarters are regularly and well built; the houses are larger, and many of our century, are of much later date than the rest of the building. It is defended on the side of the town by a deep moat. The town itself is surrounded by ancient and extensive walls of dark brown stone, and strengthened by towers. The cathedral, dedicated to St. Maurice, stands on an eminence in the centre of the town; it has two lofty spires. The architecture of the interior exhibits exquisite work, and there is fine painted glass and tapestry of great antiquity. The tomb which contained the remains of René, king of Sicily (above mentioned), and of his daughter, Margaret of Anjou, queen of our Henry VI., was destroyed at the revolution, during which many convents (they were numerous in Angers) were suppressed, burned, and looted. The greatest part of the fragments of a Gothic bridge over the Mayenne, which once served to connect the town with some fortifications on the opposite bank; and a church, remarkable for its curious and ancient architecture, is likewise destroyed. It was built by our King John, who committed great devastation in this place. There are several public walks, as the 'Turchy,' the 'Champ de Mars,' and 'Le Bout du Monde,' (the world's end.)

The manufactures of Angers are of sail-cloth, camblet
sage, handkerchiefs, hosey, &c.; and there are establish-
ments for bleaching wax, and refining sugar. Besides the
articles from their own factories, the inhabitants carry on a
trade in the agricultural produce of the surrounding district,
comprising corn, wine and brandy, wax, honey, and dried
fruits. In the neighbourhood are extensive vineyards, which
give employment to 3000 workmen, and furnish
annually 80,000,000 slates. The population of the town
is about 30,000, which is rather less than that given in the
Encyclopédie, 1755, viz. 34,000, showing a
diminution within the last half century. In 1670,
before the revocation of the edict of Nantes, it is said to
have had 60,000.

Nantes is the see of a bishop, and the seat of a
'cour royale' (assize court). It has an 'académie,' *' college
royal,' (high school), a school for the deaf and dumb,
and a 'seminaire,' (place of education for the priesthood),
a public library of 26,000 volumes, a museum of natural his-
tory, a fine collection of French paintings, a botanical gar-
den, an agricultural society, and a royal school of arts and
trades. The hospital of St. John, said to have been erected
by our Henry II., has an extensive Gothic hall, used as a
chamber for the sick, of great width and height, with a
double row of light columns supporting the roof. There
are two theatres,

The traveller Bernier, and the poet and philologist
Molet, who have visited Nantes, affirm, that its sub-
jection to the Romans, the town was called Juliomagus,
and subsequently Andecavi. It is 178 miles S.W. of Paris;
latitude 47° 28' N., longitude 1° 33' W.

The number of its houses contains 59 communes
and 92,810 inhabitants. Its extent is equal to 436 square
miles, or 279,040 acres.

ANGERSTEIN GALLERY. [See National Gal-

LEY.]

ANGINA PECTORIS, literally, 'a contraction
or tightening of the chest,' a disease so named from the
anguish felt in the chest. This disease is characterized by a
sudden attack of severe pain in the lower part of the chest,
completely inclining the patient to the floor, sometimes
so severe, that the patient feels as though he must die: the
pain generally extends to the left arm, and occasionally also
to the right; it is often attended with a sensation of fainting
or of suffocation, and with palpitation of the heart, but fre-
quently these latter symptoms are absent; the pulse is
commonly quick, weak, irregular, or intermitent, though
sometimes it is little affected; the countenance is
commonly pale, and the expression anxious and depressed.
This disease is increased in paroxysms, which last from a few
minutes to half an hour and more. There is no regular
interval between the paroxysms, and no distinct warning of
their return. They usually come quite suddenly, from slight
causation, and are accompanied by no constitutional
change. The condition of health at first is tolerably good during the intervals, but in
the progress of the disease a great variety of uneasy sensa-
tions distress the patient even when the paroxysm is absent,
chiefly those which indicate a disordered state of the diges-
tive and respiratory organs.

Much investigation has been instituted to ascertain the
state and nature of this disease; and although physicians
are not yet unanimous in their opinion in regard to either,
yet sufficient evidence has been accumulated to determine
both with a high degree of probability. It seems upon the
whole to be established that it is primitively a nervous
affection, and that the nerves in fault are those which supply
the diaphragm and heart; one of the symptoms of the disease of its nerves being unable perfectly to decarboxy-
late the blood, and the heart, in consequence of the disease
of its nerves, not being duly nourished, and consequently not
being able to carry on the circulation with the requisite
cenergy and regularity. On inspection of the organs after
death of those who perish by this disease, in the immense
majority of cases appreciable disease is discoverable both in
the lungs and in the heart, but more especially in the latter.
The most frequent and apparent disease of the heart, is
ossification of the coronary arteries (the nutrient arteries of
the organ); ossification of the valves of the heart; preter-
natural accumulation of fat on its external surface; enlarge-
ment of its cavity; and swelling above all, chylitis or congestu-
it muscular substance, which becomes pallid, soft, flabby;

th, and easily torn. This change in the muscular sub-
stance of the heart is by far the most constant morbid ap-
pearance; but even this, as well as the other organic
changes, must be considered as the effect rather than the
cause of the disease, in whatever degree these organic
changes may be the cause. Angina pectoris is most frequent at the meridian of life
and beyond it; it may occur in adolescence, but it is very
rare at that period. It is much more frequent in the male
than in the female. Out of one hundred cases, seventy
were upwards of fifty years of age, and seventy-nine were
males. It is remarkably underneath the influence of mental
causes, if it be not in the first instance induced by them.
When it has once occurred, a paroxysm is readily produced
by any emotion, whether of a pleasurable or a painful nature,
but more especially by the latter. Anxiety of mind, any
depressing passion, or anger, places a person subject to this
disease in the most imminent danger. Many persons have
died suddenly, instantly, under the influence of such
emotions. There is conceived to be a close connexion between
this disease and gout. Without doubt it is very often found
in persons who are subject to gout, and the less the gout
affects the extremities, in its regular and decided form, the
more frequently and severely such persons suffer from angina
pectoris.

It is of the nature of this disease to proceed progressively
from bad to worse. At first it is in the temporary evil of short
duration, recurring, perhaps, only at distant intervals; but if
it be neglected, the intervals become shorter and shorter,
and the paroxysms more and more severe. Complete suc-
cess often attends the early, active, and judicious treatment
of it. This, therefore, is eminently one of those diseases,
the first accession of which should excite serious alarm,
and induce every one to adopt without delay, and with the greatest
regularity, the means best fitted to prevent the recurre-
ance of it.

Those means are, in the paroxysm, absolute rest. The
paroxysm often comes on in walking or during some bodily
exertion: the patient has the feeling that the continuance
of such exertion would prove instantly fatal; and it is
really highly dangerous. Unless in very severe
cases, the paroxysm usually goes off spontaneously, in a
few minutes, on sitting perfectly still, or, which is often
better, on lying down. If the pain do not quietly subside,
vigorous friction with a stimulating liniment should be
applied over the whole chest, and the patient should
instantly take some warm antispasmodic and stimulant me-
dicine, such as two ounces of the camphor julep, with a
thick cream of ether or of the aromatic spirit of ammonia.
But much more active measures may be necessary; and this is a
disease so serious in its nature, and requiring so much
delicacy and skill in the management of it, that the patient
ought to place himself under the best medical guidance he
can procure as quickly as possible. It is during the inter-
val that the most effectual treatment must be employed. It
is impossible to discuss here the remedies which the physi-
cian should resort to, the reasons which should determine
his choice, and the different states which should modify the
treatment in adaptation to individual cases. But it is very
important to state, that angina pectoris is one of those
diseases in which the concurrence of the patient with the
efforts of the physician is indispensable. Unless the patient
resolve and firmly adhere to his resolution strictly to con-
form to the plan prescribed in diet, in exercise, in every loco-
motive movement, in sleep, temperature, and medicine, but
abide by all the regulations of the mind, the physician
can do but very little for him.

ANGIOSPERMIA. [See Didynamia.]

ANGLE OF CONTINGENCE, or CONTACT, the
opening made by a curve and its tangent. [See Curvatu-

ANGLE (CURVILINEAR), the rectilinear angle made
by the tangents of two curves at the point where they meet,
as A B C.
ANGLE (HORARY), the angle formed with the meridian of any place by a great circle, which passes through a star and the pole.

ANGLE OF INCIDENCE, REFLECTION, REFRACTION, ELONGATION, ELEVATION, THE VERTICAL.—see these several terms. ANGLE, PLANE, SPHERICAL, SOLID, PARALACTIC.—see these terms.

ANGLE OF POSITION, usually the curvilinear angle made by two great circles drawn through a star to the poles of the ecliptic and equator. It may be used to signify the angle made by lines drawn from any point under consideration to any two points which are used in determining the position of others.

ANGLE (RECTILINEAR), from the Latin word angulus, of the same signification. The notion (for it can hardly be called definition) is the opening made by two straight lines which cut one another. The term rectilinear is also used synonymously with angle; thus, the angle or opening of two lines is called their inclination to one another.

To investigate a more precise definition for this word, we must recall that any species of relation is entitled to the term magnitude, and becomes the object of arithmetic or geometry, so soon as it can be shown that the notion implied in one or other of the words equal, greater, or less, is always derivable from the consideration of two such relations. Take the two angles A P and A Q, and let the points A and B be the straight lines A P and A Q at A, and by B R and B S at B, and transfer the first figure to the second, so that the line A B shall fall upon B, and the straight line A Q upon B S; or, more exactly, as much of A Q as is equal to B S fall upon B S, and let the remainder of A Q form a continuation of B S; also let A P and B R be made to lie upon the same side of B S. We have now no longer any control over the position of A P with respect to A Q, since the first figure is not to undergo any change except that of simple removal into another position. If after A Q has been placed upon B S, A P then fall upon B R, the two openings or angles at A and B are equal. If A P, in its new position, fall between B S and B R, the opening or angle at A is less than that at B; and if A P fall further from B S than B R does, the angle at A is greater than that at B. The angle A P Q, and that at B, the angle B R S. Hence the notion of one angle being twice or three times, &c., as great as another may be fixed.—For example, the angle A Q B S. Then the angles A P Q and B R S are in the same proportion as the spaces (called sectors) A P Q and B R S, and also as the lengths of the arcs PQ and RS. This proposition, which is Euclid, vi. 23, is not so far from first principles as its position would appear to indicate. For the fifth book, on proportion, is entirely independent of, and might be considered as anteecedent to, the first four books; if this were supposed, the preceding proposition might be easily made to follow books i. 23, &c. 8. We might even place it immediately after the doctrine of proportion, by a proof founded on simple superposition, provided we assume (what is tacitly assumed in various parts of the first book of the elements, i. 4, for example) that an angle may be conceived equal to another angle before we know how to construct equal angles.

If a line setting out from A B is to be conceived to revolve round the point A, it will in every position form two openings or angles with its original position A B. For example, in the position A C, A B and A C will form the smaller angle B A C, and the larger angle made up of the angles C A F, F A K, and K A B. Only the former of these is usually considered in geometry, but the latter is frequently used in analysis. When from A revolution has been made, and A B has come to A F, at first sight we might say there was no angle formed; but on looking at the preceding position A E, we see that the opening of B A E is greater than that of B A E. The half of this opening B A P, that is, B A D, is called a right angle. A whole revolution makes A B C, or a greater or less than that of A B E. The second angle, the angle made with A B is said to be 4 right angles + B A C.

An angle is said to be obtuse when it is greater than one right angle, and less than two, and acute when it is less than one right angle.

For the most important properties of angles see Triangle, PARALLEL, POLYGON, TRIGONOMETRY. The methods of measuring an angle, of which we think it
necessary to take notice, are three in number. The first is the one universally employed in theoretical investigations, and is as follows:—In the last figure but one, the number which expresses what proportion the arc $P Q$ is of the radius, is the number chosen to represent the arc $P Q$, as shown in geometry that if any number of arcs be drawn with the centre $A$, subtending the same angle $P A Q$, what part soever one of them is of its radius, the same part is any other of its radius. That is, whatever circle may be chosen, the preceding measure gives the same number for the same angle. For example, if the arc $P Q$ be equal to the radius, the angle $P A Q$ is the angle $1$. If $P Q$ be two-thirds of the radius the angle $P A Q$ is the angle $2$. The unit of this measure is the degree, and its angle whose minute is equal to one-tenth of its radius. It is customary to say that an arc or angle (for the terms are frequently confounded) thus measured, is given in parts of the radius; but this expression does not convey much meaning, and we cannot propose any better, unless it might be judged proper to say it is measured in theoretical units, meaning thereby in the units which are always employed in pure theory. The theoretical unit would then be the angle subtended by the arc which is equal to its radius.

The semi-circumference of a circle consists its radius

$3.1416$, $26535$, $89793$, $23816$

times, very nearly. This is then the number of theoretical units contained in two right angles. The right angle is therefore

$1\,75779$, $32627$, $407$, $61923$

and the following are the angles of one degree, one minute, and one second, to which we shall presently come:

$0.01745$, $3293$, $9193$, $9577$ degrees

$0.00002$, $00850$, $625$, $7250$ minutes

$0.0000$, $04818$, $38811$, $9358$ seconds

In the second measure, in which angles are said to be measured in space, (the word space being here employed to time, as we shall see, and not to length,) the whole angle traced out in one rotation, equal to four right angles, is divided into 360 equal parts, each of which is called a degree and marked thus ($'$). Each degree is divided into 60 equal parts, each called a minute ($''$), and each minute into 60 equal parts, each called a second ($''''$). Formerly, the second was divided into 60 equal parts called thirds, and so on. But it is now usual to use the tenth, hundredth, &c., of seconds. The present table therefore stands thus:

A whole revolution $= 360° = 21600'' = 1296000''$

A right angle $= 90° = 5400'' = 324000''$

<table>
<thead>
<tr>
<th>Degrees</th>
<th>Minutes</th>
<th>Seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>3600</td>
</tr>
<tr>
<td>0.1</td>
<td>6</td>
<td>3635.2</td>
</tr>
</tbody>
</table>

To convert an angle from theoretical units into degrees, $'$, of space, observe that the last-mentioned unit is

$206264'$ $^3$ $0083708$ $266350$ in seconds

$24327$ $'$ $746270781$ $9293$ in minutes

$378295779$ $31082$ in degrees

and multiply the number which expresses the angle in theoretical units by the one among the preceding numbers which has the same denomination as that to which the angle is to be reduced. As many decimals may be taken as shall be considered necessary. The following table, however, will be found more convenient:

<table>
<thead>
<tr>
<th>Degrees</th>
<th>Minutes</th>
<th>Seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.05725</td>
<td>0.03437</td>
</tr>
<tr>
<td>2</td>
<td>0.11450</td>
<td>0.06874</td>
</tr>
<tr>
<td>3</td>
<td>0.17175</td>
<td>0.12309</td>
</tr>
<tr>
<td>4</td>
<td>0.22900</td>
<td>0.18742</td>
</tr>
<tr>
<td>5</td>
<td>0.28625</td>
<td>0.25179</td>
</tr>
<tr>
<td>6</td>
<td>0.34350</td>
<td>0.31614</td>
</tr>
</tbody>
</table>

EXAMPLE.—It is required to express in theoretical units the angle $39.34''$. Take out the row corresponding to each figure from the column having the same denomination, taking seven places only for a unit's figure, and the whole eight places for the tens, increasing the last figure when necessary, as before:—add and make seven decimal places.

For $39.34''$ $1.396234$ $0.157079$ $129909$ $306222$ $0.008019$

and the answer is $1.5865340$.

Given any angle, and a radius, required the circles' subtended by that angle; proceed as above and then multiply by the radius. Thus to a radius of 100 feet, the arc which subtends an angle of $99.34''$ is

$1.586340 \times 100 = 158634.0$ feet.

In the attempt to effect a universal change of weights and measures, which followed the French Revolution, the circle was divided into 400 degrees, each degree into 100 minutes, each minute into 100 seconds, and so on. This innovation obtained only a partial introduction, and is now almost entirely abandoned. When used, it was customary in this country to distinguish the French degrees by the name of 'grades,' and to denote one degree by $1^\circ$ or $1^\circ$. The convenience of this method, from its close affinity with a decimal system, is certainly great: for example, grades and decimals of grades, such as $12^\circ$ $1299$ are converted into grades, minutes, and seconds, by mere separation of the figures; thus, $12^\circ$ $1299$. 

Place the decimal point three places off the unit's column for degrees, five for minutes, and seven for seconds. This gives $625.630$, since the present calculation is made for minutes. Further to illustrate the placing of the decimal point, let the angle theoretically expressed be $99.34''$, to be turned into degrees and decimals of degrees, and afterwards to seconds and decimals of seconds.

CUT OFF SEVEN PLACES, WHICH GIVES $0.996$. AGAIN, FOR THE SECONDS

$0.0096$ $1.58638725$ $12784988$

$0.035003494$ $4213$
It is not necessary to give complete tables of reduction from the new French to the ancient system, as they would so seldom be useful; the following is all that is necessary—

\[1^\circ = 0^\circ 9' \text{ or } 54' \text{ or } 3240''\]

The third method of measuring angles, in which they are said to be measured in time, is confined to astronomy, and is derived from the complete revolution of the heavens which takes place in 24 hours. That is, if a line revolves round a point at the rate of a whole revolution in 24 hours, or a right angle in 6 hours, the times of moving through different angles are made the measures of these comparative magnitudes. Thus 4° 32' 60'' is the angle moved through in 4 hours, 32 minutes, and 60 seconds. The following tables are useful in turning angles measured in degrees, etc., of space into the corresponding measures in time, and the converse.

<table>
<thead>
<tr>
<th>TIME INTO SPACE.</th>
<th>SPACE INTO TIME.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours.</td>
<td>Minuten.</td>
</tr>
<tr>
<td>1.</td>
<td>15.</td>
</tr>
<tr>
<td>2.</td>
<td>30.</td>
</tr>
<tr>
<td>3.</td>
<td>45.</td>
</tr>
<tr>
<td>4.</td>
<td>60.</td>
</tr>
<tr>
<td>5.</td>
<td>75.</td>
</tr>
<tr>
<td>6.</td>
<td>90.</td>
</tr>
<tr>
<td>7.</td>
<td>105</td>
</tr>
<tr>
<td>8.</td>
<td>120</td>
</tr>
<tr>
<td>9.</td>
<td>135</td>
</tr>
<tr>
<td>10.</td>
<td>150</td>
</tr>
<tr>
<td>11.</td>
<td>165</td>
</tr>
<tr>
<td>12.</td>
<td>180</td>
</tr>
<tr>
<td>&amp;c. &amp;c.</td>
<td>12.30</td>
</tr>
</tbody>
</table>

In these tables, where there are two headings, either the upper or under of both must be used. The following are examples.

To turn 18° 11' 35'' into degrees, etc., of space.

From the first table,

18° 11' 35'' = 18° + 11' + 35'' = 18° + 1/8° + 35/360° = 18° 11' 35''

To turn 97° 54' 23'' into hours, etc. From the second table,

97° 54' 23'' = 3° 60' 23'' = 3° 60' 23''

In astronomy 30° is sometimes called a sign, in allusion to the arc of the ecliptic, through which one of the signs of the zodiac extends: Thus 2° 30' 1'' and others are 2° 30' 1''.

ANGLE (TRISECTION OF). [See Trisection.]

ANGLES, or ANGLI. The earliest record of this people we find in Tacitus' book on the Germans (chap. xi.); but this author only mentions their name, states a few particular

It was relative to their religions, and intimates that they were a branch of the Suevi. Having spoken of the Semnones as the most ancient and illustrious tribe of the Suevi, he thus continues: 'But the Langobards are ennobled by their small number of habitants, being surrounded by a multitude of the most valiant nations, they live in a state of security, not by submitting to them, but by fighting battles and braving dangers. After them follow (in this description he is proceeding to the Arverni) the Remi, the Rèmes, the Reutins, the Angeli, the Varini, the Eufodes, the Soisdr.POS, and the Nuthones; all these are protected by woods and rivers. Singly, these nations present nothing that is remarkable, except that they in common worship Hertha, that is, Mother Earth, both they and our ancestors, with ceremony before their religious journeys in a chariot among the nations. In an island in the ocean there is a holy grove where a consecrated vehicle is kept, covered with a vest: nobody but the priest is permitted to touch it. He knows when the god resides in this present in the sanctuary, and putting cows to the vehicle, he honours her with great devotion. These are days of rejoicing, and festivals are kept in whatever place the goddess visits, and honors with her presence. During these days they do not go to war, nor take arms in hand; hostile weapons are laid aside: peace and quietness only prevail, and are cultivated till the priest brings back to her temple the goddess satisfied with the converse of mortals: immediate and great favours from the heart and the vest, and if we choose to believe it, the goddess herself are washed in a secret lake. Slaves perform this service, who are instantly swallowed up by the lake. From this a mysterious fear arises, and a holy awe descendeth on what that can happen to be held only by men who must lose their lives. This portion of the Suevi extends into those parts of Germany which are less known.' This description at all events will convince most readers that Tacitus knew very little about these nations. Lindenbroch and Leibnitz (Scrip. Rerum Brunswick. tom. i. p. 81) have preserved fragments of the ancient laws used in common by the Angli and the Varini.

D'Anville has in his map assigned to them the same district which is occupied in the modern map, in their emigration into England, and parts of which the modern Angles still occupy. He allot to them the greatest portion of modern Schleswig and some part of Holstein, making the German ocean their western boundary, the Saxons their nearest neighbours on the south, the Varini on the south-east, and the Jutes on the north. It is impossible to fix with accuracy any boundaries for the Angli from the account given by Tacitus, but his statement appears perfectly reconcilable with D'Anville's map and the Saxon Chronicle; and it is remarkable that D'Anville in every respect agrees with the last-mentioned record, although it may be doubted whether he knew it, or paid any attention to it.

The case may be illustrated by German critics and historians, such as Haus and Dörfer, that the Angles, if inhabiting only the district of modern Angeln, were too insignificant a nation to occupy Great Britain, are indeed: for 1st. it has never been ascertained that their domain did not extend beyond the boundaries of modern Angeln; 2d. the names of the founders, such as Hench and Horsa first led over to England to the assistance of Pyrgicus against the Picts were not so great, as to render it impossible even for a small tract of land, inhabited by a warlike race of men, to produce them; 3d. it was never asserted that the Angles, alone occupied England, but that soon after their first attempt the Saxons and the Jutes joined them, or co-operated with them; 4th. these criticisms were sufficiently attributed to the fact that the occupation of England was effected as much by circumvention as by open force, and that the Angles obtained new allies in the Picts whom they at first came to expel. It is therefore, needless to extend the boundaries of the Angli to the Elbe and Travemünde, or even to spread them over the whole of the Cimbrian Chersonesus (Modern Jutland). [See Saxon.]
...a line drawn from south-west to north-east, along the shore of the Menai from Aber-Menai Ferry to Tŷwyn Head, opposite the little island of Porthmeirion, is 17 miles: a line drawn at right angles to the above from Caeas's Point, in the north-west, to the Menai, is about 30 miles, and these may be taken as the breadth and length of the island. A much longer line may, however, be drawn, running nearly east and west, from the extremity of Holyhead Island to Point Tŷwyn, mentioned above; this distance is about 37 miles. (Evans's large Map of North Wales, Llwyngroes, 1792.) The number of square miles of surface is variously given. The population, in 1831, was 4,836. There are several smaller islands round the coast. Bere Island, the Farther Island, is at the western extremity; Porthmeirion, or Plas Penlly* or Plas Newydd, the seat of the Marquess of Anglesey, is at the eastern; the others are insignificant. This island had, in early times, the names of Ynys-Dowell, (the shady or dark island,) Ynys-Fon, (the farthest island,) and Ynys-y-Cedefor, (the most covered.) By an ancient grant it is called Mona (which name it shared with the Isle of Man); the name of Anglesey, (Anglesey's eye, Englishman's Island,) it received from the Saxons. It was a great seat of Druidical superstition. Suetonius Paulinus, the Roman commander, landed here (A.D. 61) in spite of the resistance of the natives, and the terror which the Druids sought to strike into the hearts of the invaders: he cut down the sacred groves, and gave a blow to the Druidical superstition, from which it never recovered. The island was abandoned by the Romans for a time in consequence of the great revolt under Boadicce, and again conquered by Agricola A.D. 78. Several Druidical remains still exist, cromlechs (flat stones resting upon others) and menhirs (heaps of stones): of two cromlechs in the park of Plas Newydd, the seat of the Marquis of Anglesey, the larger has its upper stone 12 feet 7 inches long, 12 feet broad, and 4 feet thick, supported by five tall stones. There is at Tŷwyn Head, in the parish of Llandan, a large circular inclosure 180 feet in diameter, surrounded by a mound of earth and stones evidently brought from other parts, for the bottom of the bank, within and without, is level with the ground on which it is raised (Rowland's). It is supposed to have been the site of a Druidical onisatory. Near are the remains of a cromlech and a Gorset, or heap of stones, now dispersed, and of a large circle of stones. Rowland supposes the whole to have been sur-

* This island takes its name from the number of the priests which frequent it. During part of the summer it swarms with these and other birds of passage.

Egbert, monarch of the West Saxons, conquered the island in the former part of the ninth century, but the princes of North Wales having recovered it, Aberfraw, one of its towns, became the seat of government, and continued to be so till the final subjugation of Wales. During the reign of our William II., (Rufus,) near the close of the eleventh century, Anglesey was again attacked and ravaged by the English, in retaliation for some depredations committed by the Welsh borderers. It was laid waste in the following century during the civil contests of the Welsh themselves; unsuccessfully invaded by the Irish in the time of Henry III., A.D. 1245; and finally subdued by Edward I., a detachment of whose army was cut off by an unexpected onset from the inhabitants after they had appeared to submit. It was again made the scene of contest in the struggle between Charles I. and his parliament. (See Brummar.)

The climate of Anglesey is rendered by the sea breezes milder than that of the adjoining part of Wales; snow seldom lies long, even in the depth of winter; but the air is, from the same cause, loaded with frequent mists in autumn, at which season intermittent fogs prevail. The surface of the island is comparatively flat, and the absence of wood, as well as of quickset hedges, gives it a barren appearance. The air is so unfavourable to the growth of trees, that in most parts the ground can only be fully raised by plantation around their own houses. There are large extensile meadow woods in the neighbourhood of Beaumaris, and at Plas Newydd, the seat of the Marquis of Anglesey, on the Menai Strait. The limited extent of the island does not admit the formation of any considerable stream. Many rivulets descend from the interior, but none of them have any claim to notice. The coast forms several harbours, the principal of which are Beaumaris and Holyhead. That of Amlwch has been formed by excavating the rock. Anglesey was formerly a place of considerable trade, and the names of ports and havens yet remain, the use of which has long been given up.

The soil of the island is various: the lands on the sea-coast, especially on the western side, are sandy; the low grounds are chiefly covered with a black soil, approximating to peat earth, from which the peasantry dig turf for fuel, and in which they frequently find large trunks of trees, hard and black as ebony, buried several feet under ground. The more prevalent soil is, however, a stiffish loam, which, when manured with sand, produces abundant crops. The sand chiefly used as manure is that from the western side of Redwart Bay, on the east coast; it has a large intermixture, amounting to two-thirds, or from that to four-fifths, of sea shells. Various kinds of marl are found in the island, but the use of these as manures has declined: lime is used abundantly. The chief agricultural productions are oats and barley; of wheat the proportion is small, and of rye still smaller. Potatoes are grown in greater quantity than in any other part of North Wales, and the cultivation of the turnip is on the increase. Pasturage is, however, the great object of the farmers' attention, for only one-eleventh of the enclosed lands is estimated to be under tillage. Cattle from

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one of the staple productions of the island, and numerous
herbs are exported. These, before the erection of the bridge,
were confined to the west of the channel. The export is es-
listed in the year 1620, and has continued to this day.

The coast is sandy and unbroken, except for a few
points of land. The sand is white and fine, and the
water is clear and free from rocks. The beaches are
narrow and shallow, with small inlets and coves.

The county of Beaumaris is divided into three
cantref, a division which originated at a very early period;
and these cantref are subdivided into two or three
com, which are the local administrative units.

The town of Beaumaris is situated on the west coast
of Anglesey, and is a popular tourist destination.

The market towns are Beaumaris, (population in 1831,
2497), the county town, on the south-west coast (see
BEAUMARIS); Holyhead (population 4288), the great
place of emigration from Ireland, and one of the chief
ports of the island, on the west coast (see HOLYHEAD);
Llanerch-y-Medd, on the road to Amlwch, with a market,
and the most considerable in Anglesey, but of less extent
since the opening of the road to Holyhead; Aberfraw, on
the south-west coast, once the residence of the
Welsh princes (population 1367); and Abergele, not
far south-east of Aberfraw (population 864); but the
markets of the last two seem to have come into disuse,
while a customary one has grown up at Amlwch (population
6885), a place of greater importance than either.

The chief gentlemen's seats are Plas Newydd, on
the Menai, the seat of the Marquess of Anglesey; and
Baron Hill, near Beaumaris, the seat of Sir R. B. Williams Bulkeley, Bart.

There are various antiques except Druidical, the chief
of which have been noticed above. Beaumaris castle will be
noticed in the article BEAUMARIS; there are also the remains of
a priory at Llanvaes, and of another at Penmon, both in
the same neighbourhood. The conventual church of the
latter is the one used for mass at the church.

The coast and country are much frequented by seamen;
the sea is almost impassable, and the cliffs are high
and steep. The coast is topped with rocks and
cliffs, which are often covered with green
moss. The sea is often rough, with high waves
and strong winds. The beach is often
covered with driftwood and seaweed.

The coast is dotted with small villages and
hamlets, such as Llanfair, Llanmadoc, and
Llanfairfechan. These villages are
often surrounded by fields and
meadows, and are often
frequented by seamen and
fishermen. The
coastline is often
rocky and
steep, with
high cliffs and
jagged peaks.

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graphy of Angola is that furnished in Labo's book, printed especially from the care of Father Carvajal. But of course the several provinces, into which he describes the country as having been antiently divided, only the following seven belong to what is properly called Angola: — Loando, that in which the capital is situated; Danda, adjacent to the river Caama, as above mentioned; -- Banda, on the banks of the Benga, otherwise called the Zanza, and altogether inland; Moseche, between the Luca and the Coana, being the province in which the former was situated; Ilhama, between the Danda and the Benga, divided into the lower province next the sea, and the higher, called otherwise Lombo, farther inland; Oari, to the east of the former, and in some measure the upper region of the Luca, being the province in which the fort called Ambaca by Mr. Bowdich is situated. Various additional particulars may also be collected from Mr. Bowdich's book. Nearly five hundred miles beyond the most distant Portuguese fur is Cassange, where it is stated that, during the government of Count Saldanha, a respectable merchant of the name of De Costa, who had at one time commanded the militia in the interior, established himself, and lived many years in perfect harmony with the natives. To the north of the Cassanges are the Couatingas, and to the east of them are the Domges, with whom they are always at war, and who are said to maintain a trading connexion by Portuguese fear. The coast of Cassange is the opposite coast of the continent. The natives say, that the Congo and the Coana have both their source in a great lake, which lies on the eastern limits of Cassange; and also, that there is in that region a third river larger than all the others, of which neither of these two states has any notion, as it appears, has been actually traced by the people of the country to the distance of fifteen days' journey beyond the Quingonga islands, in long. 20° 30', through the territories of the Mogangues, two islands in the vicinity of Quingonga. The Quingonga islands in the river were taken possession of by a Portuguese force during the government of Count Saldanha. The district in which they lie is called Mattemmea, and is to the east of Cassange. The inhabitants, according to this neighbourhood, according to some authorities, are the Gigass, or Jagas, whose atrocities make a great figure in all the old accounts. But Mr. Bowdich says that Jega is an epithet which is borne by the Cassanges, and that it denotes a race who were originally nomadic warriors, in contradistinction to Jova, which means a stationary people. The Gigass mentioned by the old writers certainly resided far to the west of Cassange. To the north of Mattemmea, on the coast of Minemi, is the district of Ginga, the ancient capital of which, Cabassa, is reported by the natives to be four days' journey north of the Coana, and three days' journey south of the coast of the Congo. It is also styled by Mr. Bowdich, 8° S. lat, and on the same meridian with the Quingonga islands. It is necessary to observe, however, that very little dependence is to be placed upon these notices, the very vagueness of which indicates that they have been in great part derived from nothing better than the loose rumourry, while a comparison of the accounts given by different authorities would show them to abound in contradictions and inconsistencies. Both Cavazzi and Father Canneccattin, who resided for some time in Angola as a missionary, and wrote a Grammar and Dictionary of the language of the country, published at Lisbon in 1804 and 1805, make the Gigass to be the people of Mattemmea, or Mattambo, and to have been the source of the Benga, now called the Zanza. The history of whose wars with the Portuguese, in the seventeenth century, occupies a large space in Cavazzi's narrative.

The language spoken throughout the whole of Angola proper is the Banda, which appears to be merely a dialect of the Congoees, or that spoken as far north as Cape Cathe- line. It is reported by tradition to have originated in Cassange, and to have been introduced into the parts of the coast nearer the ocean by the Portuguese. A grammar and dictionary of this tongue have been compiled, as we have mentioned above, by Father Canneccattin; and some account of its peculiarities is given by Mr. Bowdich from these works. The most important and plural of the nouns, the voices, tenses, and persons of the verbs are distinguished by prexes, and the article varies in case and number with the noun. A language
nearly the same appears to be spoken as far east and south as Mozambique, in 19° S. lat. and 32° E. long.; and it is probable that the same form is found in Benin as well, as Mr. Bowdich asserts. In the account which he gives of the journey made through that country by Gregorio Mendes in 1785, it is stated that at Bumbo, in 14° 40' S. lat. and 17° 30' E. long., negroes were spoken by the natives to be easily intelligible to those who understood the Banda language.

The government, laws, and religion prevailing among the people of Angola, are in general the same with those of the negro tribes of Africa. The supreme authority in each district is in the hands of a single ruler, who is subject to no regular control. A tax is levied by the Portuguese from the inhabitants of Loando, and of the neighboring districts, where the king has no direct influence. Ampie details respecting the native superstitions may be found in Labat's volumes. In the course of the sixteenth century various missions were sent out by successive popes with the object of diffusing the knowledge of Christianity among the inhabitants of this part of Africa; and by dint of force as well as of persuasion, a good many converts were made. There is reason to believe, however, that the number of negro Christians in Angola is now very inconsiderable. The most part of the labours of the priests and intrepid missionaries are the accounts which several of them have given to the world of the country which their zeal induced them to visit.

The writer who, in recent times, has professed to give the fullest account of the climate and natural productions of Angola, is M. Degrandpré. But his statements really do not refer to Angola, properly so called, at all, but to Congo; the most southerly port which he visited being Ambriz, which is only in 12° 30' lat., and a little degree distant from the confines of Angola. This, he says, was the nearest port to St. Paul at which the Portuguese would suffer foreign ships to touch. From other authorities it appears that the country, though hilly, is so much so as to be a great part of Benguela. Cavazzi describes the confines next Congo as defended by high mountains and sandy deserts. There are no considerable mountains, however, in the space between the Congo and the Coaena until you reach an elevation of 1200 feet, and beyond each in successive terraces. The rivers, with the exception of the principal branch of the Coaena, all appear to originate in this district, or in those farther to the east. Most of them have been already mentioned, and they all fall into the sea either by the Danda, the Benga, or the Coaena. In the higher Illamba, Cavazzi states, are iron-mines, being the same, we suppose, which are mentioned by Mr. Bowdich as having been wrought. It is worth while to add, that though so soon after abandoned, on the coast of Congo in consequence of the insurrections occasioned by the frequent inundations of the river Lucora. The attempt to work them, however, was resumed, under the direction of Count Saldanha, with more success, a hundred years after being abandoned. The mines were again abandoned. The mines to St. Paul, besides what was disposed of in the interior. In other parts gold dust is said to have been formerly found; but Mr. Bowdich states that there is none now. Mines of copper are said to exist somewhere in the interior; but whether the Cassignes sell to the Portuguese comes from Mozambique, which, as already mentioned, is far to the south of Angola. Petroleum is found in abundance in the province of During.

The rains are stated to be so irregular, that sometimes there are none for three years. On the other hand, there is occasionally a heavy rain which lasts for many days. The principal commerce of Angola is carried on with Brazil, through the agency of many thousands of slaves have for a long period been annually exported. Mr. Bowdich has printed some accounts relating to the trade between Angola and Lisbon during the years 1803 and 1804, from which it appears that the only imports into Lisbon from Angola were, in the former year, 289 quintals of ivory, valued at 2,336,000 reis, and in the latter 750 quintals, valued at 4,779,000 reis. The exports to Angola from Lisbon are stated as consisting of wine, brandy, oil, pork, and other provisions; silk, linens, cottons, flannels and other woollens; laces, glass, gold and silver ornaments, earthenware, hardware, muskets, drugs, paper, and sundry other articles, such as might be supposed to be required for the use of the colonists, to the amount (including some from Africa) of 480,785,312 reis in 1803; and of 256,978,145 reis in 1804. These two sums would amount severally in English money to about 150,000l. and 106,000l.

Such a consumption of foreign productions, if it is not arrived at by illegal, is arrived at by the purchase of European colonists, or an extensive demand for such foreign productions by the natives; but it is probable that there were also some imports from Brazil.

The population of Angola, and of the adjacent regions, will be treated of under the head of Congo.

ANGOLA [See ANGOLA.]

ANGOLA/BRA. A town in South America, on the banks of the Orinoco river, in the Republic of Colombia, at a distance of about 240 miles from the mouth of the river, in 8° 8' 11" N. lat. and 63° 55' 21" W. long. The town is built on the southern bank at a place where the bed of the river is here thrown into a considerable bend, and thence it owes its usual name, signifying the Strait; its proper name is Santo Tomé de la Nueva Guayara.

The town lies between the foot of a hill and the river, and the houses stand partly on the bare rock; they are, in general, lofty, agreeable, and the greater part built of stone. On the tops are terraces, where people sleep in the season of the greatest heat, without receiving from the dew any injury to their health or sight. The streets are regular, and for the most part paved with stones. Angola had a population of about 8500 persons, among whom were 360 negroes. At present it is said not to exceed 3000.

Opposite to the town, on the left bank of the river, there is a fort, called San Ráfyl, which is surrounded by a number of houses. This place connects the parts of South America north of the river with Angostura. In the middle of the river, between both places, is a rocky island, called from its situation Del Medio, (the middle,) by which the river, though rarely, is under water during floods. To the south-west of the town, but contiguous to it, is another fort, called San Gabriel. The narrowest part of the river lies between the two forts, and here its breadth is from 300 to 400 yards. Humboldt estimated it to be 2430 English feet; opposite the town it was 3134 feet. When the waters are high, the river inundates the keys, and it has happened that careless people have become the prey of alligators even in the streets.

Angostura lies in the eastern part of the valley of the Orinoco, which in the middle of the year, the trade-winds are interrupted. Angostura is about 191 feet above the level of the sea. To the east of it as far as the mouth of the river, a level plains extends; but still more extensive are the plains on the west, which stretch up to the base of the Cordillera, near Pamplona and Santa Fe de Bogotá. The western plains are known by the name of Llanos (levels). In the rainy season, from April till November, these plains are mostly inundated, and a few mountains, standing a few feet above the level of the sea, and its tropical situation, Angostura enjoys a mild and equal temperature. It seldom happens that Fahrenheit's thermometer rises above 80° in the hottest time of the year; and from the beginning of November to the end of February, the day is generally cloudless. The river generally descends only to 60° or 70° at night. This is, in part, to be attributed to the trade-winds, which, according to Deaona, blow very regularly from the month of November to the month of March; this, we believe, is a single instance, where these winds extend to such a distance from the sea, and are not broken when they reach the land. The low coast at the outlet of the river, and the level plain between the sea and the town is, doubtless, the cause of this phenomenon. In the remainder of the year, the trade-winds are interrupted by calms, more or less frequent and long. Earthquakes have not occurred; sometimes a wind blows with the violence of a hurricane, but it does not last long, and ter are not at rest in the town.

The trade of Angostura, though at present nearly annihilated by the disturbed state of the country, will probably revive and become very great; before the beginning of the civil wars it was considerable. In this respect it is very advantageously situated. The channel between the town and the island Del Medio has 200 feet of water, when low, and on the increase of the river 50 or 60 feet more. But large vessels cannot sail up to the town on account of the shoals, which are very frequent in the western part of the river; only such as do not draw more than eight feet can navigate it with ease. The best vessels require fifteen days to sail from its mouths to Angostura; but otherwise the mouths of the Orinoco have an advantage over the other part of Colombia. A voyage from Europe to Punta Barima (at
the southern embouchure) is performed sometimes in eighteen days, sometimes in thirty to thirty-six days; besides, as the mouths of the river are placed to the windward of all the islands, the vessels of Angostura can maintain a more advantageous intercourse with the West Indies, and especially with Trinidad, than they could with Guayaquil or Guayaquil itself.

The inland trade of Angostura extends to a great distance to the west; the numerous large rivers which run from the eastern declivity of the Cordilleras to the Orinoco are navigable to the north of the island, and permit the transport of every sort of commodities: thus, the produce of the rich country about Varinas is not conveyed to the northern coast, which, though not very distant, is separated by the Orinoco and its tributaries, though the sea in this direction is more than four times as distant. The trade of Angostura with the country round Varinas was very active, and the town received from it considerable quantities of casco, indigo, cotton, and sugar. It sent back the produce of the manufacturing industry of Europe. Humboldt saw long-boats depart from Angostura for Varinas, the cargoes of which were valued at eight or ten thousand Spanish dollars. These boats went first up to the Orinoco to Cabrata at the mouth of the river Apure; then along the latter river to San Vincente, and hence on the river Rio Santo Domingo as far as Tornos, which is the port of Varinas Nuevas. The little town of El Hatillo, to which the strangers, who form this trade, which doubtless will become very considerable as soon as tranquillity is completely established in the republic. Many of the other rivers falling into the Orinoco will in future send similar commodities. Angostura is thus an important commercial town, and the commerce here is certainly unceasing, and occupied only by savage nations. The Llanos themselves, though they are not cultivated, nor probably fit for cultivation, afford some very valuable articles of commerce. For the greatest part of the year they are covered with rich grass, and innumerable herds of cattle, horses, and mules pasture on them. Great numbers of them are annually exported from Angostura to Trinidad and the other islands of the West Indies. These also, also, and the plantations of the coffee, and the coffee and sugar plantations of the coffee. (Travels of Baron Humboldt and Depon.)

ANGOLEUMÉ, a city of France, on the left bank of the river Charente, and on the road from Poitiers to Bordeaux, 287 miles from the capital. It rises on a hill projecting into the valley of the Charente, from the heights which bound it. The air is pure, and the prospect from the ramparts, which have been changed into public walks, is extensive.

The houses in the older parts are ill-built, and the streets narrow; but the "Quartier Neuve" is much better in these respects. Among the principal buildings are the case of the Cathedral, and the house of Angoulême, which was raised by the church government to the Dauphine, whose husband took the title of duke from the town.

The chief manufactures are of paper, which is in good repute, woolen stuffs, and leather, and there are also distilleries and sugar works. To these industries, some authorities add linen, copper utensils, and white wax.

It was formerly the capital of the province of Angoumois, but now of the department of Charente. It is also the seat of a bishop, whose see includes the department in which the town is situated, and who is a suffragan of the archbishop of Bordeaux. Before the revolution, it contained 30,000 inhabitants. The Duke of Angoulême, who was buried in the burial place of the former counts of Angoulême, now has a royal naval school, a high school, a library, and a museum of natural history. Population 15,000.

An Englishman, Mr. Field, who visited Angoulême in 1814, describes it as the Chester of France: the ancient houses on the banks of the Charente, a smoothly-flowering river, form a picturesque mass of buildings. Its beauty, however, appears to diminish on a nearer approach, when the construction of the place becomes more obvious.

It is a town of great and, indeed, unknown antiquity. It was the Iculama of the Romans, and its ancient designation may be readily traced in its present name. In the middle ages it was ruled by the Normans, and twice taken by the Huguenots in the sixteenth century.

Among the more eminent natives of Angoulême were Balzac, and Montaulembert, the engineer. Two others have acquired celebrity by crimes arising from the fierce religious combats which took place in France in the sixteenth century.—Pottot and Rascolax, one of the supporters of Guise and of Henry IV., respectively. (Malte Brun; Balbi; Dictionnaire Universelle de la France.)

The arrondissement of Angoulême contains 111 communes, and also 129,900 inhabitants. ANGOT, a province of Abyssinia. [See AMARA, ALVAREZ, and the travels of Alvaras.]

ANGOLEUMÉ (CHARLES DE VALOIS, DUKE OF), the natural son of Charles II. and Marie Touchet, was born on the 28th of April, 1573, about a year before the death of his father. Being educated for the church, he was, at the age of fourteen, made abbot of Chaise Dieu, and two years after, the abbot of St. Denis. At the age of twenty, he was made a member of the order of the Hospitaliers of St. John of Jerusalem, or Knights of Malta, in that kingdom. This same year, however, having received by the bequest of Catherine de Medicis the earldoms of Auvergne and Languedoc, he relinquished his ecclesiastical condition; and henceforth he appears chiefly in a military character. He was one of the first to give in his allegiance to Henry IV., in whose cause he fought with distinguished gallantry, at Arques, at Ivy, and at Fontaine Françoise. After the termination of the war, however, he was charged with having been concerned both in the conspiracy of the Marshal de Biron in 1602, and in that plotted in 1604 by the Marchioness de Verneuil, Henry's mother, to kill the Duke of Guise, and the Duke of Marie Touchet. For his share in the first of these attempts he was sent to the Bastille, but was soon set at liberty; on the next occasion sentence of death was passed upon him, but the punishment was commuted by his royal master into perpetual incarceration. Impositions which had been laid him by Catherine de Medicis were taken from him by a decree of the parliament, and bestowed upon the Dauphin, afterwards Louis XIII. In 1616, however, he was sent, with his son-in-law, from his long imprisonment; and in 1619 he was made Duke of Angoulême, having till then borne the title of Count of Auvergne.

He was also appointed general of the light dragons of France, and in 1616 was made a senator of France, and was a candidate for the post of chief minister of the kingdom, but was not chosen. At the accession of the Emperor Ferdinand II. He afterwards resumed his military career. It was he who, in August, 1628, commenced the famous siege of Rochelle, where the Huguenots held out against the royal forces, till they were obliged to surrender after an obstinate defence of nine months. After this he served for some years in Languedoc, Germany, and Flanders, in the war against the house of Austria which occupied the last years of Louis XIII. and the commencement of the reign of Louis XIV. He died in the house of Sully, at the age of eighty, on the 28th of September, 1650. The following works by the Duke of Angoulême were published during his life: Les Aventures des Enfants d'Angleterre, in 1665; Les Aventures d'Angleterre, in 1667; Les Aventures d'Angleterre, in 1668; Les Aventures d'Angleterre, in 1669; and Les Aventures d'Angleterre, in 1670. The Duke's memoirs are also to be found both in the first volume of the Mémoires particuliers pour servir à l'Histoire de France, four volumes, duodecimo, 1756, and in the third volume of the Mémoires particuliers pour servir à l'Histoire de France, four volumes, duodecimo, in 1758. In 1667 an account of the Duke's embassy to Ferdinand II. was published at Paris in a folio volume, by Henry Comte de Béthune, a friend of Philip Claudel, who was associated with Angoulême on that occasion, and who took indeed the chief management of the negotiation. The Duke of Angoulême was married, first, on the 6th of March, 1591, to Charlotte, daughter of the constable Henry de Montmorency; and, secondly, on the 24th of January, 1609, to Françoise de Nargonne, who survived him many years, dying on the 10th of August, 1715, at the age of ninety-two. He left two sons by his first wife, the eldest of whom,
ANGRIA, a branch of the river TACAZ, in Abyssinia.

ANGUILLA, or Snake Island, so called from its figure, and some of the Anilines, situated in 16° 6' N. lat. and 48° 19' W. long.

This island was first settled by the English, in 1580, and has since continued in their possession. It is so low and flat, that it cannot be seen at a greater distance than four or five leagues. The soil is light and sandy, and the place is desolate both in wood and water. It produces a little sugar and cotton, some tobacco and maize.

The town is on the east side, near the north-east end; it is of a small, narrow, single-storied line, in which it stands, and which it seems is shut in by reefs, as to be of little value as a harbour. Anguilla is very near the north side of the island of St. Martin, the channel between the two, which in some parts is not more than four miles wide, affords good anchoring ground, in from seven to twenty fathom water. Several small, low islands lie to the west of Anguilla; the largest of these, Dog Island, has a few inhabitants.

Anguilla is about twenty miles long, and six broad, and contains between 700 and 800 inhabitants. (Purdy's Colombian Navigator; Livingstone's Derrero de las Antillas.)

ANGULAR SECTIONS. [See Trihedral, Trihrometrical, Trihromium, De Muyrere's.]

ANGULAR VELOCITY. [See Velocity.]

ANGUS. [See Forsaith.] ANHALT is an ancient principality of the north of Germany, derived by some from 'Burg an der Held' (castle on the steep), and by others, from 'Burg von Steinh ohne Holz; or castle of stones without wood. It lies between 51° 35' and 58° 6' N. lat., and 13° 30' and 20° 24' E. long; it is inclosed almost on every side by the Prussian territories, viz., by Brandenburg on the north, Prussian Saxony on the east and south, the earrldom of Mansfeld on the south-west, and the territories of Brunswick, and the Prussian circle of Hanover, all of which form a circle, which flows through it from east to west, and by its tributaries, the Mulde and Saale: it produces corn, fruit, flax, hemp, tobacco, timber, silver, copper, iron and coal, whereas a considerable quantity of sheep and cattle; and contains a population of 133,000 souls, of whom upwards of 3,000 are Protestants, both prince and people having embraced the Reformation, and dissolved their monastic institutions, at so early a period of its propagation as between the years 1612 and 1622. Occupying an elevated tract, the largest portion of which lies on the right bank of the Elbe, and of which the greatest length is sixty miles, with a breadth varying from twelve to sixteen, this triple duchy contains 236 parishes, 1,116 townships, and 549 other villages. Of the towns, four possess a population exceeding 3000 souls: viz., Dessau about 10,000; Zeitz 6000; Cothen 6500; and Bernburg 8000. The form of government is constitutional, and the sanction of its diet is required to the imposition of taxes, though the fundamental laws rest on the various ordinances promulgated by its princes. This principality, which is exceeded in fertility by no state in Germany, and forms a richly-cultivated plain, excepting where the activities of the Hartz Mountains project in the direction of Bernburg, was formerly a compact territory, and its rulers derived their origin from Ascanius, grandson of Japhet, the son of Noah, whose descendants are said to have migrated from Ascania, in Bithynia, and, at last, to have settled amongst the forests of Germany. Hence, the princes of Anhalt to this day designate themselves 'Counts of Ascania.' Their ancestral seat was the stronghold of Anhalt, lying on the Hill, which is said to have been built by Prince of Ballenstaedt, in 940. Its only remains, at the present day, are the crumbling fragments of some of its walls, and a noble ash, rising from the midst of them, over which floats the blue of the sky. A castle was demolish'd about as well have been, with broad and straight streets: from about 1533, it became a city. It is the residence of French, English, and Dutch consuls, and carries on some trade. The population is probably 6000 or 7000.

From the 15th March, 1830, till the recent events in Portugal, Angra was the residence of the regency which

* At the peace of Bruggey, a.d. 1660, four years after the battle of Ponsiers.

Angra was the residence of the regency which governed in the name of Donna Maria. During this time, its fortifications were strengthened. (See Tacoma.)

Angra, a branch of the river Tacco, is in Abyssinia.
greater number of brave and skilful warriors than the House of Anhalt; beginning with Bernhard, who declared the imperial sceptre in 1788, because he deemed himself 'the avenging angel, one of the staunchest soldiers of the Reformation, who, being reinstated in his possessions after he had been expelled from them by its opponents, exclaimed, 'Though old and poor, I would give a thousand ducats could I but plant my standard on that spot, and conquer five thousand armed men.' Bernhard was christened by Princes Eugenius, on account of his devotion to the papacy, who lead the Brandenburg troops to victory in the Low Countries and Italy, created the Prussian infantry, and afterwards became the first of five field marshals who distinguished themselves in the Prussian service in the first half of the last century. Upon the death of Joschim, which happened in 1688, (the inhabitants of the several branches of the House of Anhalt having united in one person,) his four sons divided the principality between them; and thence arose the respective sovereignty of Dessau, Bernburg, Zeist, and Coethen.

The third of these became extinct in 1798, and was shared in equal portions among the three surviving branches. Their emigration to Russia is of recent date; the princes of Bernburg having been created dukes in 1806, and the princes of Dessau and Coethen having been raised to the same dignity in 1826. These duchies are now in possession of the house of Oldenburg and Schwartau, a single event, in the minor assembly of the diet of the Germanic Confederation, but each of them a distinct vote in its plenary assemblies; they furnish a contingent of 1024 men to the army of the confederation. (The tax assessment (according to Malehus) amount to 149,600l., and their public debt to 292,000l.) (See Bernburg, Coethen, and Dessau.)

Anhalt is a small Danish island, with a lighthouse, between the shores of Jutland in Denmark and Heligoland in Sweden, in the Kattegat, 66° 28'N., 11° 35' E. long. It was taken by the English during the last war, and an insufficent attempt to recapture it was made by the Danes in 1811. Its inhabitants do not exceed 100 in number, and subject to catching seals, the name of a small town on the old yeast, in Westphalia, nine miles north-east of Nunsquesen, with a handsome palace, the residence of the prince of Balm-Balm. Population 1720. By the treaty of Vienna, it was placed under the sovereignty of Prussia.

Aniello, Tommaso, called by corruption Massillo, a young sailor, and a native of Amalfi, lived at Naples towards the middle of the seventeenth century, under the government of the Duke d'Arco. Viceroy of Philip IV. of Spain. Naples was then suffering from all the evils of delegated absolute power; its treasures went to Spain, its youth were sent to fill up the ranks of the Spanish army, and both were wasted in ruinous wars for the ambition and seditions of the nobility. Massillo, in common with taxes, and suffered from the injustice and wanton tyranny of the officers and other agents of a foreign power. Besides the taxes which were laid upon every possible commodity, there was no exemption for the crown lands as well as of the communal ones, and the adulteration of the currency, every new viceroy that came was instructed to demand a gratuitous gift, for the service of his master. The nobility assembled in their salles, which were the only shadow remaining of the ancient representation of the country, were applied to by the viceroy to vote the amount, and distribute the quota of the gift among the various districts and families. In this manner alone more than 11,000 liras Massillo, who was accused of pandering to Naples into the Spanish treasury from the reign of Charles V., that is to say, in the course of a century. In the year 1647, the Duke d'Arco, in order to defray the expenses of a war against France, thought, as a last expedient, to levy a tax on fruit and vegetables, the common articles of food of the Neapolitan people. The edict which announced this fresh impost occasioned the greatest furor, especially among the lower classes of inhabitants. An old woman in Amalfi, who said to Massillo, 'Ah, you are not the same, you who mentioned the great market-place of Naples, spoke loud among his friends against the new tax. His wife had been arrested some time before at the gates of the city, as she was trying to smuggle in some flour, which, like everything else, was a taxed article. She was kept in prison several days, and her husband had to pay in order to obtain her release. Massillo had, accordingly, as we might expect, conceived a violent hatred against the Spanish government.

Massillo, and other young men who were preparing for the great festival of our Lady of the Carmel, by exhibiting sham combats, and a mock attack on a wooden castle. On the 7th of July, 1647, he and his juvenile followers were surprised by a party of dragoons, and put to flight. The consequence of the obstinate tax, but few countrymen had come with the produce of their gardens; the people looked sullen and dissatisfied. A dispute arose between a countryman and a customer who sought some figs as to which of the two was to bear the burden of the tax. The taxgatherer, setting as provost of the trade, being appealed to, decided against the countryman; upon which the latter, in a rage, upset the basket of figs on the pavement. A crowd soon collected round the man, who was cursing the tax and the tax-gatherers. Massillo ran to the spot, crying out, "No taxes, no more taxes!" The cry was caught and repeated by a thousand voices. The delito tried to speak to the multitude, but Massillo threw a bunch of figs in his face, the rest fell upon him, and he and his attendants escaped with difficulty. Massillo then addressed the people around him in a speech of coarse, hot, fiery eloquence; he described their common grievances and miseries, and pointed out the necessity of flight and emigration as the only means of redress of their rulers. 'The Neapolitan people,' said he, 'must pay no more taxes!' The people cried out, 'Let Massillo be our chief!' The crowd now set itself in motion, and massed around Massillo; it was the middle of the month of July, and the heat was intense, and already getting numbers at every step; their rage fell first on the toll-houses and booths of the tax-collectors, which were burnt, and next on the houses and palaces of those who had armed themselves against the demands. Armed with such weapons as they could procure from the gunsmiths' shops and others, they proceeded to the viceroy's palace, forced their way in spite of the guards, and Massillo and others of his companions having reached the viceroy's presence chamber, they ran through it, throwing overboard all taxes. The viceroy assented to this; but the tumult increasing, he tried to escape, was personally ill-treated, and at last strangled, by throwing money among the rioters, to withdraw himself into the Castel Nuovo. The palaces were emptied of their furniture, which was carried into the midst of the square and there burnt by Massillo's directions. Massillo was then saluted by acclamation as 'Captain-general of the Neapolitan people,' and a platform was raised for him in the square, where he sat in judgment in his fisherman's attire, holding a naked sword in his hand. Thence he issued his orders, and his will was law. The citizens in general, besides the populace, obeyed him, a sort of commonwealth was established. The title of viceroy was abandoned, and distributed into regiments. The few Spanish and German troops of the viceroy were defeated, and obliged to defend themselves within the castles. The viceroy in this exasperation proposed to have Naples, who was a man of abilities, and withal popular, to act as mediator between him and the people. Articles were drawn up under Massillo's direction, by which all imports upon articles of consumption were abolished, and the privileges granted by Charles V. restored, besides an amnesty to all concerned in the insurrection. It was agreed that these were to receive the viceroy's signature, and an early day was fixed for the purpose. The cardinal, accompanied by men of the highest influence, went to the palace of the viceroy, to urge him to sign; he met a fine charger, proceeded to the Castel Nuovo, followed by an innumerable multitude. The viceroy received Massillo with every mark of deference, and the conditions were examined and accepted. As Massillo entered within the castle, the populace outside grew impatient and tumultuous, when the chief of the people appeared at a balcony, and by a sign of his hand silenced them immediately; at another balcony all the people were seized. Victor was now again, as he placed his finger on the man's nose, and then his lips, they all became mutes. The viceroy being now convinced of the astonishing power of this man, the negotiation was soon concluded, after which the Duke d'Arco heard no more of the matter. Massillo was reinstated. As Duke of St. George, Massillo returned in triumph to his humble dwelling, and peace was momentarily restored.

But Massillo's mind gave signs of fatal decay: his sudden and giddy elevation, the multiplicity of questions that
were referred to him, his total inexperience of business, the
heat of the season, his want of sleep,—all helped to
draw him into a delusion. He had formed the notion that 'like
that of boiling lead in his head;' he became suspicious,
and was in continual dread of traitors, especially after
the attempt made by a troop of banditti who had mixed with
the garrison in order to do him injury. The whole
wretchedness of the affair put to summary death, but the
fears of Masaniello continued, and he ordered every man,
evenging the cause of their liberties, to leave their cloaks and long robes, and appear in short clothes in the streets, in order to give the children of justice a low window of his house, with a loaded blunderbuss in his hand, and his
door surrounded by guards. He showed himself capricious, abrupt, and cruel, though cruelty does not appear to have been
his most marked characteristic. His overweening pride
entranced the multitude; the rebel government besides
required money; and, as the only expedient, taxes upon eat-
ables were resorted to again from sheer necessity. Masaniello
evidently had no fixed or regular plan; his only idea was
to remove the taxes and to humble the nobility, but he had no
notion of setting aside the sovereignty of the King of Spain.
In his hatred against the Neapolitan nobility, he devoted
himself to destruction six palaces, only twenty-four of which,
however, were completed. He afterwards published, a book with
brightly volubility. His lazzaroni were animated with
similar feelings: they carried boat-hooks in their hands, which
they said were for the purpose of pulling the gentle-
men's boats, and removing the empty stone drinking fountains
of his grace's palace. He talked of abdicating his power and returning
to his fishing-nets; but he had gone already too far. Some
wretches, among whom was the old priest Genoico, who
had been bribed to effect Masaniello's ruin, encouraged him in
his mad career. On the 14th of July, being the eighth day of
the inscription, Masaniello took it into his head to pro-
ceed on a party of pleasure by sea to the Cape of Pousillo.
The viceroys ordered his barges to be got ready for him; and
Masaniello went, accompanied by musiquers and followed by
an immense multitude, who crowded to meet him at his
landing. On arriving, he went to mass, it being Sunday,
and then threw himself into the sea with his clothes on.
Adorning the Prince of Naples with an extensive, and
enormous quantity of the strongest country wine, and was
carried home in a state of intoxication. Next day he re-
paired, as usual, to his judgment-seat; but the people still clung
to him, and he was still all-powerful; but he behaved so
courageously on that day, that his friends became convinced
of his insanity, and watched him during the night. On
the morning of the 16th, being the great holyday of the Virgin,
Masaniello escaped from the care of his friends and ran to
the praetorials, who had the misfortune to be present.
At the end of the service, Masaniello ascended the pulpit, with a crucifix in his hand, and harangued the
numerous audience. He earnestly and pathetically reminded the people of his services for the kingdom, his
breast, and showed his body, extenuated by watching and
continual anxiety. He entreated them not to abandon him
into the hands of his enemies. The people were affected
by his address, but all at once poor Masaniello relapsed into
one of his fits of ab ration; he lost the thread of his discourse,
and talked incoherently and wildly. The people began
to laugh, and many left the church; Masaniello was taken
down from the pulpit by the priests; the archbishop spoke to
him kindly, and advised him to rest and calm himself while
in the adjoining convent. He was taken into one of the
places, where a change of clothes was given him, and he lay
down on a couch and rested a few minutes. He soon started
up again, and stood looking out of the window in a rage.
A discharge from his bone was heard expressed in a
rude cloister, in which the vessel and beautiful bay of Naples,
which lay stretched before him, thinking, perhaps, of the
happier times when he used to glide on the waters in his
fishing-boat, when all at once cries were heard in the
corridor, and carried to him the news of his arrest upon a
call-door. Masaniello turned towards them: 'Here I am—
do you want me? A discharge from their arquebuses
was the wretches' answer; and Masaniello fell, exclaiming:
'Until from their hands was heard expressed in a
rope, and carried to the vicery, the body dragged
through the streets by a troop of boys, as he had himself
foretold a few days before, and then thrown into a ditch.
The revolt, however, was not yet quelled: the people, after
the murder, chose Gennaro Annese, one of the vil-
lains who had plotted against Masaniello's life. This chief
was soon captured by the Duke of Guisa, who came to try
his fortune at Naples, and the representative of the ancient
house of Anjou. [See Guisa.]

ANIMAL, the general name for living organized beings.
This is not intended as a definition: we purposely abstain
from attempts at definition in this work. The following
according to Cuivre's system, is given under the head of Ani-

ANIMAL MAGNETISM, a pretended agent of a pec-
cular nature, has been supposed to be of some mysterious
mode, of producing the most powerful effects on the human
body. The rise and progress of animal magnetism affords
one of the most striking examples on record of the influence,
through the imagination, of the mind upon the body, and at
the same time it affords an interesting and conclusive credit
in the history of the delusions of the human mind.
A brief account of it may be without amusement and
instruction.

It was in the year 1734 that Mannburg in Swabia had the
honour of giving birth to Anton Mesmer, the discoverer of
animal magnetism. This celebrated man studied physic at
Vienna, and took his degree of doctor of medicine in the
university of that place, in the year 1776. On that occasion
he published the first edition of his book 'Experiences and
Observations on the Human Body.' It chanced that the professor
of astronomy at Vienna, a Jesuit, named father Hehl, the
friend of Mesmer, had great faith in the influence of the
planet of Mars, and he determined to experiment upon
a peculiar form which he impregnated with the virtues of
the magnet, and applied to the cure of diseases with
extraordinary success. Mesmer, who had his own notion of
the virtues of the magnet, availed himself of his friend's steel
plates to employ the magnet according to his own peculiar
views. Wonderful were the results; on the communication
of which to father Hehl, his friend published an account of
them; but in this account he attributed all the cures to the
virtues of the plates, and spoke of Mesmer as a person
of no account because he had employed to make his experiments. Mesmer, ex-
pressing great indignation at this representation, accused
Hehl of treachery, and of endeavouring to turn to his own
ruin the honour and reputation which had been brought
on him in the confidence of friendship. Hereupon arose a violent
controversy which ended in the total defeat of Mesmer, who,
as it deriving fresh energy from discomfort, went on work-
ing greater cures than before, and making incomparably
greater noise about them. Nevertheless, being despised by
all men of science, who universally regarded him as an im-
postor, he was obliged to quit Vienna. After travelling
some time in different parts of Germany and Switzerland,
he continued his experiments, and in 1778, he had a
lucky hour set he out for Paris, where he arrived in the
year 1778. His first care, on reaching this new and favour-
able theatre for his exploits, was to procure public apart-
tments and a considerable sum of money; but he was
drowned by the number of his patients. His name was
docked peer and peasant in such numbers that his apart-
ments were crowded, and hundreds were ready to attest
the wonderful cures wrought upon their own persons by the
great magnetizer. In the general excitement, it would have
been wonderful if no regular member of the medical faculty
had become a convert. Mesmer found a highly useful one
in a certain M. d'Eston, who openly professed his conversion
to the system, and who practised with it so much success
that he said he had received in fees from his patients no
less a sum than 100,000/. The disciple in this proceeded
further than was altogether satisfactory to the master.
Mesmer complained bitterly that he was betrayed and
robbed; and that the fruit of long study and immense
watchings, which it had been the labour of his life to bring
to perfection, was snatched from him by another. He now
applied to the government, and succeeded in obtaining the
patronage of the queen. 'A chateau and its lands, where
he might be left to conduct his experiments in absolute
independence of persecution,' was what he asked A
life-rent of twenty thousand francs per annum, and in lieu
of the chateau and its lands another sum of ten thousand
francs a year must be given him to enable him to select a proper situation for
the treatment of his patients, were actually offered him.
The offer, however, was coupled with one condition, namely, that three persons named by the government should witness any report his proceedings. He stipulated that, even if the report of these persons should prove unfavourable, the sums promised him should not be
forfeit, while, if favourable, he might look for the most splendid rewards. But Meisser was sharp-eyed enough to foresee that the report would not be favourable, and that the reward would not be continued if undeserved. He therefore suddenly quitted France and repaired to Spa. There he met other chemists of rank and fortune, who, on condition that he would communicate to them his doctrine and practice, bound themselves to find one hundred persons who would pay him each 240 francs for his instructions. The chemist really received this subscription amounted to 340,000 francs, nearly equal to 14,000, sterling. On receiving this sum, Meisser returned to Paris and recommended his public treatments. Meantime his disciples, who had paid liberally for his instruction, formed the body which they termed Société de l’Harmonie, for the purpose of gratuitously propagating the doctrine of animal magnetism. But the master disputed their right to do this: the disciples, on the other hand, maintained that they had purchased the privilege; at all events they resolved to exercise it, and set about doing so; and now Meisser, seeing no prospect of making any further personal advantage by his discovery, quietly put the money in his purse, quitted France, retired to his native place, and gave himself no further trouble about the success or the failure of animal magnetism.

Such is the history of the discoverer: of the discovery Meisser himself gives a following account. Animal magnetism is a universally diffused; it is the embrace of a mutual influence between the heavenly bodies, the earth, and animated bodies; it is continuous, so as to leave no void; its subtlety admits of no comparison; it is capable of a double effect; it is subject to a powerful modification of motion; it is susceptible of flux and of reflux. The animal body experiences the effects of this agent; by insinuating itself into the substance of the nerves it affects them imme-
diately. There are observed, particularly in the living body, properties analogous to those of the magnet; and in it are discerned poles equally different and opposite. The action and the virtues of animal magnetism may be communicated from one body to another bodies, and in animals by means of the air, without the aid of any intermediate body; it is increased, re-
lected by mirrors; comminuted, propagated, augmented by sound; its virtues may be accumulated, concentrated, transported. Although this fluid is universal, all animal bodies are not equally susceptible of it; there are even some, though a very small number, which have properties so opposite, that their very presence destroys all the effects of this fluid on other bodies. Animal magnetism is capable of healing diseases of the nerves immediately, and otherwise. Medically it perfects the action of medicines; it excites and directs salutary crises in such a manner, that the phar-
macist may be almost indifferent as to the nature of the medicinal, nor does it know the state of health of each individual, and judges with certainty of the origin, the nature, and the progress of the most complicated diseases: be prevents their increase, and succeeds in healing them, without at any time exposing his patient to the least degree of pain, to whatever be the age, the temperament, and the sex. In animal magnetism nature presents a universal method of healing and preserving mankind. (Mémoire sur la Découverte du Magnétisme Animal, par M. Meisser, Paris, 1779, pp. 71, et seq. Ibid. Avis au Lecteur, p. 6.)

The mode of bringing the magnetised under the influence of the magnetic fluid was peculiar. In the middle of each room of the house, and at a little distance from it, was placed a large circular vessel, made of oak-wood about a foot or a foot and a half in height: the interior of this vessel was filled with pounded glass, iron filings, and bottles containing magnetised water arranged symmetrically; the cover or upper part of the vessel was studded with numerous holes, in which were placed polished iron rods of various lengths, bent and capable of being moved: this was called the baquet or magnetic tub. The patients were placed in succession, and the doctor placed the end of the baquet on the head of iron, the end of which he applied to the part of the body which was supposed to be the seat of his disease: a cord passed around their bodies united the patient to one side of the baquet, while they were raised by this cord to the height of the doctor's arms, and thus taking hold of each other's thumbs. A piano-forte was placed in the corner of the room, and various airs were played upon it, sometimes accompanied with the sound of the voice and song. The magnetiser held in his hand a polished and pointed rod of iron from ten to twelve inches long. The baquet was a reservoir of magnetic virtues; its interior arrangement was for the purpose of concentrating the magnetic fluid; the rods were the conductors for transmitting it. The cords around the bodies of the patients and that with them by the conductor of the rods forming the instrument. The sound coming out more or less strong, the patient was put to music. The sick persons arranged in great numbers and in several rows around the baquet, thus receive the magnetism by all these means; by the iron rods which convey to them that of the baquet; by the cords round wound their bodies; by the connexion of the thumbs which communicate to them that of their neighbours; by the sound of the piano-forte or of an agreeable voice diffusing the magnetism in the air; by the finger and rod of the magnetiser moved before their faces, above or behind their heads, and on the diseased parts, always observing the direction of the poles; by the eye of the magnetiser; but above all by the application of the rod. All these operations are executed with a noise and action very easy and agreeable; the operation often continued for a long time, sometimes for several hours. Meanwhile the patients in their different conditions present a varied picture. Some are calm, tranquil, and experience no sensation; others feel a general feeling of joy, of general heat, and have sweatings; others again are agitated or tormented with convulsions. These convulsions are remarkable in regard to the number affected with them and to their duration and force; and are caused by the precipitous involuntary motions of all the limbs and of the whole body, by the constriction of the throat, by the leaping motions of the hypochondria and the epigastrium; by the dimness and wandering of the eyes; by piercing shrieks, groans, sobs, and tears, sobbing and groans, a sudden ced or followed by a state of languor and reverie, a kind of depression, and even drowsiness. The smallest unforeseen noise occasions shudders; even a change of tone and measure in the airs played on the piano-forte influences the patients, a quicker motion agitating them more and renewing the vivacity of their convulsions. Nothing is more astonishing than the spectacle of these convulsions: one who has not seen them can form no idea of them. The spectator is equally astonished at the profound repose of one part of the patients and the agitation of the rest; at the various accidents which are repeated and the sympathies which are exchanged. The doctor pays particular attention to each other, rushing towards one another, smiling, speaking with affection and mutually soothing their cries. All are under the power of the magnetiser; it matters not in what state of drowsiness they may be—his voice, a look, a gesture bring back to them the sense of their wishes.

Such is the account of M. Baillié, who, together with La-
voisier, Franklin, and other distinguished men were ap-
pointed by the French government to examine into these splendid pretensions. These commissioners report that this pretended agent certainly is not common magnetism, for that, on examining the baquet, the grand reservoir of this wonderful fluid, by means of a needle and electrometer, the magnetism of either of the two parts of the baquet, or magnetism or of electricity was afforded; that it is wholly inappreciable by any of the senses or by any mechanical or chemical process; that they tried it upon themselves and upon many others without being able to perceive anything; that on weaving those who seemed to be most suscepti-
bile to its influence, all its ordinary effects were produced when nothing was done to them but when they imagined they were magnetised, while none of its effects were pro-
duced when they were actually magnetised.
out danger, since the convulsions excited were very violent and exceedingly apt to spread, especially among men feeble in body and weak in mind, and almost universally among women: and finally, that there were parts of the operation of which he might have been termed, to various purposes, and that immoral practices had actually already grown out of them.'

Notwithstanding such a report from men so well qualified to form a judgment, animal magnetism was continued in the state of Franklin's health while it was to be continued. A time after this report had become public, and advertising to the prominence of mankind to credulity, states that Mesmer was at that time getting more money in the shape of fees than all the physicians in Paris put together. To this day the belief of it is common. If not general, in Holland, Germany, and other continental nations. The thing never took root in England. There was at one time some danger of it, but it was prevented by the skilful management of a physician of eminence. A man of the name of Perkins had invented a wonderfully convenient instrument for collecting, condensing, and applying animal magnetism, composed of a metallic substance, and called the metallic tractors. For this instrument he had obtained a patent, and its virtues he set forth in a work bearing the following title:—The Efficacy of Perkins's Patent Metallic Tractors in Various Diseases of the Human Body and Animals; exemplified by two hundred cases drawn from the practice of practitioners in Europe and America. With a Preliminary Discourse in Refutation of the Objections made by Interest and Prejudice to the Metallic Practice. Dr. William Falconer, of Bath, having made tractors of wood so exactly resembling the genuine, for the eye to distinguish between the one and the other, tried, in conjunction with Dr. Haygarth, the effect of these fictitious tractors on a large scale on patients in the Bath Hospital, and produced precisely the same effects with the fictitious as with the genuine, arguing a demonstration that whatever effects were produced, were produced solely by the imagination. The publication of these cases put an end to the virtues of the metallic tractors, and we have little occasion to congratulate ourselves on a greater exemption from credulity than our continental neighbours, as we all know by very recent instances. Nothing can prevent the success of such impostors, or put an end to the grievous evils they occasion, but the diffusion among the people of sound knowledge relative to the functions of the animal economy, the nature of diseases, and the mode in which remedies operate in their prevention and cure. See Report of Benj. Franklin and other Commissioners charged by the King of France with the Examination of Animal Magnetism as now practised at Paris. Translated from the French, with an Historical Introduction, Bvo. 1785; The Foreign Review and Continental Miscellany, No. IX. Nov. 1829, art. Animal Magnetism. ANIMAL PHYSIOLOGY. [See PHYSIOLOGY.] ANIMA/ÇULES, in zoology, is the name which has been applied to small animals of various classes, which cannot be distinguished, but which without the term the minute radiata animal of the coral, the worms found in paste, vinegar, and vegetable infusions, or the smaller crustaceans found in pools, as the minoucil. Some of these will be referred to under their proper heads; and a general notice of them will be found under INFUSORIA.

ANIO. [See TREVONES.] ANISE. [See PIMPERNELLA.]

ANJAR, a small district in the province of Cutch, in the province of the English in 1816, and was again transferred to the Rao of Cutch in 1819, in consideration of an annual sum of 86,000 rupees to be paid to the East India Company out of the surplus revenues. The government of the district is still, however, virtually exercised by the Company, by means of a resident commissioner deputed from the presidency of Bombay.

The country of Anjar is extremely arid, and suffers much from scarcity of water, which cannot be obtained without artesian wells, and even then the wells are so loose that they liend as to present obstacles to forming tanks. It has been the custom, that any person who sinks a well at his own expense, in an uncultivated tract, should become entitled to the water and all future advantages of the country, which he could irrigate by means of its water. The Bombay government having an interest in the prosperity of the cultivators, has caused several tanks to be constructed, in consequence of which tillage has been extended, and the district much improved. (Report of the House of Commons on the affairs of India, Session 1832; Hamilton's East India Gazetteer.)

ANJAR, the capital of the district of the same name, is in 23° 3' N. lat., and 70° 11' E. long.

The town is built on the site of a hill, about ten miles from the Gulf of Cutch. The fortifications are not strong, though there are strong walls around the fort, and a ditch. Anjar was besieged and taken in 1816 by a British corps. In 1819 it experienced the shock of an earthquake, by which nearly one-half of the houses were thrown down, and about 200 persons were killed. The population in the following year was estimated at 10,000 souls. (Hamilton's East India Gazetteer.)

ANJOU, one of the provinces or military governments into which France was divided before the revolution. It includes the present departments of Maine and Loire, with portions of several of the surrounding ones, especially of Sarthe, Mayenne, and Vienne. It comprehends a part of the valley of the Loire, by which river it is traversed in a direction from east to west, and it is watered also by the navigable rivers Loir and Sarthe, which, entering the country from the north-east, unite their streams and fall into the Mayenne, (also navigable,) which, rising in Normandy and crossing Maine, enters Anjou from the north. The Mayenne, the Loire, and the Sarthe, are the principal rivers of the town of Angers, and falls into the Loire. Another feeder of the Mayenne, the Oudon, which flows from the north-west, is also navigable; so that few countries are more favoured by nature with the means of water-conveyance than the province of Anjou. The west coast of that great river has only one navigable stream, the Thouet, which falls into the Loire at Saumur, near the western extremity of the province.

Anjou is bounded on the north by Maine, on the east by Touraine, on the south by Poitou, and on the west by Bretagne. Its form is very irregular, especially in the east, where the district of Saumurois runs out to the south-east beyond Tours, and where it is intersected by the Loire at Angers (see Angers) and nearly the whole country was included in the bishopric of which that town was the seat.

The climate of Anjou is healthy and mild; and the soil, which is agreeably diversified with hills and plains, is rich in various productions. (Encyclopédie Méthodique; Dict. Univ. de la France, &c.)

ANJOU, the DUKES and COUNTS of, were amongst the earliest noblesse of France. Some chronicler gives the title to the famous Roland. Charles the Bald, it is said, bestowed the province upon one of his courtiers, from whom the first family of counts, in general named Fulke, were descended. One of this name was amongst the peers who raised Hugh Capet to the throne; and his descendants galantly maintained their county and the house of Capet, of which the last point was induced to select Charles as his champion by the report of his great wealth, and Charles was forced to accept by the ambition of his wife, who could not endure that she alone of all her sisters was the wife of a count. His purpose was therefore made his preparations in men and money for the conquest of Naples, whilst his ally, the pope, opposed to him his spiritual treasures, by preaching a crusade in favour
of Charles against Manfred. The Angevin prince invaded Italy with an army of 30,000 men, in 1255, but that year, and almost another, passed away, before the French entered the kingdom of Naples. Manfred, with a force of Neapolitans, Saracens, and Arabians, took post not far from Beneventum in the plain of Cosenza. The French came and with alacrity the battle that was offered, and it was fought with the utmost gallantry on both sides. The Neapolitan nobles, however, at last deserted their prince, who instantly tearing from him his broken shield and being recaptured, rushed into the thickest of the fight and was slain. The victory declared for Charles, who made the most cruel use of it. Not only was no mercy shown in the field, but the numbers of the sediment were entirely expelled from the north of Italy by an invasion of Saracens. After this consummation of his crusade, Charles of Anjou made his triumphant entry into Naples. His government bore the same stamp with his conquest; it was but a succession of oppression and rapine. The pope himself was obliged to reproach the new sovereign of his choice, with employing "none but robbers and brigands, to whom brutality and rapine were as familiar as spoliations." Such is the pope's record of the effects of the crusade preached by himself.

Charles of Anjou, as head of the Guelphic party in Italy, was more than sovereign of Naples. Ramifications of the two great parties disputed Tuscan aisle, and Charles marched to the support of some part of this enterprise also he succeeded, and the Guelphs of Florence procured his nomination as political chief of that city for a period of ten years. But all this was, however, rallied. They summoned young Conradin, nephew of Manfred, from Germany to support their cause, and the young prince advanced with a small but valiant army of Germans into Italy. Recalled by the south of the disaffection of the Guelphs, Charles was able to offer no effective resistance to Conradin, till the invader penetrated through the Abruzzi into the kingdom of Naples. "Never a country," says Simmonido, "more fam'd for a protracted war of defence by its mountains and its nature, and its innumerable Holstenstausen, shriven of every holy sanctuary, and managed in the space of a few days to be decided by battle in the plain." (See Abruzzi.) So was it now. The armies met at Tagliacozzo, 5000 on the German, and 3000 on the Neapolitan side. Of these 3000, Charles placed 800 in ambush, and with them waited till the Germans, having routed the rest, were scattered in the pursuit. He then quitted his ambush, and gained an easy victory. Conradin was taken in flight. Charles did not blush to bring his young competitor to a mock trial, when he was of course convicted of high treason, and the young man, instead of the rightful prince, so stirred up the indignation even of Charles's friends, that his very son-in-law, Robert of Flanders, struck the judge, whilst in the act of pronouncing the sentence. The young Conradin had prepared to present young Conradin, together with his friends, amongst whom was the duke of Austria, from being brought to execution, which took place in one of the great squares of Naples. Charles was present with all his court. When Conradin laid down his head for the executioner, he flung his glove amongst the weeping crowd, thus challenging an avenger. The glove was picked up and carried to pope Peter of Aragon, who had married the daughter of Charles, and who, under this claim, became the successor of the House of Anjou.

For the time, however, Charles reigned without opposition, not only over Naples, but over the whole of Italy. An immediate invincibility. He stood with his own strong army, whilst almost all the cities of Lombardy imitated Florence in acknowledging him as their protector, and in swearing allegiance to him. Had Charles limited his views to Italy, he might perhaps have formed an independent kingdom of that country, but his boundless ambition drew him off to other enterprises, and instead of founding his dominion in Italy, he began to aspire after that of the East. His superintendence, too, seemed to lead him astray; he was not contented with his dominion in Italy, but he expressed so fully to the intentions and feelings of all present, that the cry of 'Death to the French' ran from mouth to mouth. The deed accomplished the word, and every Frenchman in the procession was assassinated whilst the vesper bell was still sounding. Excited by blood, the massas rushed back to Palermo to complete their massacre. Not a Frenchman, save one, escaped. All, to the number of 4000, were butchered; and even Sicilian women, who had married Frenchmen, offered no resistance. All the progeny of the hated strangers might be eradicated from the island.

This massacre, notorious under the name of the Sicilian Vespers, was of our European John, Precida hastened to Peter of Aragon, who after some days landed in Sicily, and assumed the title of his monarch. His admiral, Roger de Loria, sailed for Messina, to which
place Charles had laid siege, and experienced no difficulty in capturing Charles’s fleet, and defeating all his projects of vengeance. The Angevin prince, in despair, acknowledged these disasters as the just judgment of Providence, and only prayed that his inevitable ruin might not at least be precipitate. His anger against his competitors was not the less ostensible because it was shared by the numerous inhabitants of the city. In the second year of the war, in the presence of the monarchs in person, each supported by a hundred knights: and it was solemnly agreed on, that Sicily was to be the prize of the victor. On the day appointed, the 10th of May, 1283, Charles of Anjou appeared as the champion of the king, led by his brother King Philip the Hardy of France, approached with an army. Peter, however, demurred. He complained of the presence of a French army, of the insecurity of the place of rendezvous, not guaranteed, as was agreed on, by the king of England. The king of Anjou, therefore, either did not make his appearance, or appeared but for a moment to make his protest, and instantly retreated to Spain. Thus the challenge of Charles served, as might have been expected, to delay, rather than to conclude, a decisive slaughter.

Charles now set about collecting a new fleet and forces in Provence, to which the pope contributed, as usual, the promise of an indulgence, and the sacred name of a crusade. But whilst engaged in recruiting, the fleet was caught by a storm, and his admiral, Roger de Loria, and his son, who commanded it, was taken prisoner. Charles hastened to repair this fresh disaster; but in vain. The vigour of his character, as well as of his cause, was seen whilst embodied and forming a junction between his fleets, Charles of Anjou died at Foggia in the kingdom of Naples, at the age of seventy-five years, in the early part of 1285. Villani, the Florentine historian, has sketched his character minutely, calling him severe, severe, and much dreaded, more famed than any prince for royal dignity, of few words, but great activity, sleeping little, laughing never, and taking no pleasure in minces or poets, or causing the greatness of Anjou to shew itself, and in fact, many have qualities; and no prince certainly had ever greater opportunities. Had he made the most of them, he might perhaps have founded an empire in Italy. His reign, however, not only destroyed his own hopes of such an achievement, but that of his countrymen ever after. Henceforth the hatred borne to the French by the Italians was greater than the hate borne by them to the Germans, who have ever since preserved, with the exception of a few intervals, their prepare everything.

The power of Charles of Anjou continued, notwithstanding, to fill for a time the thrones of Naples and also that of Hungary. It is rather as monarchs of these countries, than as princes, that their history is to be read or written, since of course they had become utter strangers to this province, and to France itself.

In consideration of this, king John of France reunited Anjou to the crown, giving it soon after in appanage to his son, Louis, who thus commenced the third house of Anjou. The county was elevated into a duchy, by an ordinance of John, in 1360, and Louis is thus the first of the ducal house. He was born in 1339, was taken prisoner with his father at the battle of Poitiers, and remained a prisoner in England. Weary of length with captivity, he fled from that country, and refused to return, notwithstanding all the persuasions of John, who entreated him to keep his parole and return. After the death of king John, the duke of Anjou was entrusted with many commands by his brother Charles Vernon, all of which he displayed rapacity and cruelty. The title of Anjou seemed contagious in conveying these qualities. Still Charles at his death appointed Louis regent of the kingdom of Naples, and his power was instantly and freely conceded. Instead of consulting the prosperity of France, the regent sought to amassed wealth for the purpose of after wards conquering the kingdom of Naples, to which Jeanne, the queen of Naples, had given him in marriage by adhesion. The pope, as usual, seconded the attempts of the French prince, and Louis was accordingly crowned king of Sicily and Jerusalem at Avignon in 1382. He then led his armies to the conquest of Naples, but they perished, as Louis did himself, by disease, in 1384.

His son, Louis II, duke of Anjou, was also crowned king of Sicily by the pope. Three times he essayed to render himself master of Naples, and on one occasion he defeated his rival, Ladislas, in battle. But all his efforts, united to the papal support, were unable to lessen the repugnance of the southern Italians to the French. Far from conquering Naples, he was unable to prevent Anjou from the English, who continually ravaged it. He died in 1417.

Louis III, son of the last duke, attacked Naples, in 1420, with some success, but was beaten off by his competitor, Alphonso of Viscount, who renewed the attempts aided by the duke of Milan. The armies of this prince brought Louis in triumph to Naples, but while he was victorious in Italy, Alphonso was ravaging Provence. Louis, however, was at the head of a small force, and was in constant siege to Tarentum, but died soon after at Cosenza, in 1434.

He was succeeded, not so much in his kingdom as in his claims, by his brother René, whom the Good king René, who not only failed in recovering the Italian empire of his family, but was dispossessed of Anjou itself by Louis XI. [See René.]

From the days of Louis XI the title of Anjou lay dormant, whilst the sovereigns of France themselves proselytized the claims of the Anjou princes. Francis II, with the hope of securing the Anjou claimants in their claims, at least, to the Anjou princes with Francis I, these hopes expired. His successor, Henry II, bestowed the duchy of Anjou upon his third son, who bore this title when elevated to the throne of Poland. As this prince, however, succeeded to the throne of France, all the rights of the French claimants to which the reader is referred. Henry’s younger brother, at first duke of Alençon, succeeding to the title of Anjou, is best known under this latter name.

This young prince was first christened Hercules, a name that was afterwards changed for that of Francis at confirmation. He had the small-pox very young, and was so ‘horribly spoiled’ that his mother, Catherine of Medici, took a dislike to the boy, and sent him to Amboseli to be educated apart from his brothers and from the court. Having once visited this place, Catherine spoke of him as ‘a little moricand (black), who had nothing but war and tempest in his head.’ The young prince naturally revolted against his mother, in fact, many have been the original cause of his liberty of opinion, since it threw him into the confidence and friendship of Catherine’s enemies, the Huguenots. The duke of Alençon, such was the title he first bore, was much attached to Coligny, their leader, who exercised himself to draw the young prince to his party. According to queen Margaret’s Memoirs, the Huguenots had promised her brother Francis, at a very early epoch, to procure for him the principality of Flanders; and when, finding the situations between the houses of France and Montmorency in person persuaded prince Francis as a husband to the queen of England. She wrote over for an account of his person, which was far from favourable. He was too young, it seems, and too small; and though Catherine de Medici wrote to remind Elizabeth that heroes were of small stature, Du Guesclin himself, the famous constable, being no more than four feet high, and added in excuse of his son’s youth, that his beard was beginning to grow, still Elizabeth showed herself more a captive than anything else, with Henry of Navarre, the future Henry IV, as his companion. Rivalry in their amours prevented the princes from agreeing perfectly, but the king was better advised himself, and the projects and conspiracies of the Huguenots. They now conceived other hopes for him. Charles IX was lingering under a mortal malady; his brother, the next heir, was in Poland. The Protestants hoped to elevate the duke of Alençon to the throne in his place; thus exchanging a monarch whom they detested, for one who favoured their own opinions.
A plot was accordingly formed. A Huguenot insurrection was to take place; the duke of Alençon, Henry of Navarre, and the prince of Condé were to fly secretly from court and join with Coligny and the Gallicans at St. Germain. This promising scheme utterly failed through the perfidy and weakness of him whom it was designed chiefly to benefit. The duke of Alençon, instead of escaping at the appointed moment, hurried to his mother's feet with the tidings of the whole affair. The consequence was the arrest of all who were implicated, and the failure of the enterprise. To render the act more base on the part of Alençon, the whole weight of vengeance fell upon his confidants and the followers of Huguenots, as it was design. Whatever had been the motive which had influenced the duke of Alençon in betraying his friends, he reaped no advantage from the act. Catherine of Medicis took him and Henry of Navarre with her, when, after the death of Clément IX, she went to welcome Henry III. on his return from Poland. She presented them as prisoners to the new king, who at first seemed severe, but inflicted no punishment. The duke of Alençon continued at court, the rallying point of opposition to Henry; opposition, however, which was as trivial as the character of the two princes.

At length the duke of Alençon, becoming reconciled to the Huguenots, who once more trusted him, entered into more amicable relations of vengeance. He escaped from court in August 1576, and joined the band of armies raised by the reformers. The king had not the vigour requisite to march against his brother; and he knew, perunds, that under such a chief his enemies were not to be lightly treated. Instead of deserting and rounding her person with a score of beauties, and proceeded to entice the munificent princes to colloquies, where seduction was the means of negotiation. A truce first, and a perpetual afterwards, were the fruit of a year's show of hostility. The duke of Alençon secretly proposed to desert his party once more; but the Huguenots chiefs insisted upon favourable terms, which they obtained, in name at least, in 1576. The duke, on his part, obtained advantages equally favourable; and being well assured of success, which gave him the duchies of Anjou, Touraine, and Berry.

In this arrangement, however, the negotiators on both sides may be said truly to have reckoned without their host. The Catholics, disgusted with the weakness of the monarch, formed the league, which soon rendered the articles of peace null. The Protestants on their side, little trusting to empty promises, kept armed and in an hostile posture, and Henry of Navarre was now rising amongst them to fill the place of honour that the now duke of Anjou had ceded. War, in consequence, recommenced, and, strange to say, the duke of Anjou himself appeared in command of a Catholic army.

By the history of these times, it is difficult to say where most fickleness is found, whether in princes, or in the people. After having turned against the Huguenots, and even sacked one of their towns, the duke of Anjou was still trusted by the queen and country. He was trusted by the people as much upon his being one of the malcontents of the Low Countries, several of the leading Protestants forsook Henry of Navarre for the banner of the duke of Anjou. Sully himself was of this number. Henry was afflicted by this desertion, but remained, that Anjou had 'so little courage, so little address, and so false a heart, that he would soon throw away all the advantages that fortune placed at his command.'

Catherine of Medicis and Henry III., reconciled to their son, now recovered and assured the duke of Anjou those very prizes that Coligny had before sought to give him—the sovereignty of Flanders, and the hand of queen Elizabeth. When the States asked for French aid, every facility and support was given by the king towards that end. The following year, the duke of Anjou marched against John of Austria. He had at first some success, but not being so well received by the Flemings as he expected, his career of conquest was soon ended. The States of the Reformation sent a bill to his successor, and he had deputed to Elizabeth his envoy, Simier.

The French manners and gallantry of this personage quite won the English queen, who threw off much of her habitual prudery, and went to entertain serious thoughts of marrying him. She had obtained from him a promise of a considerable sum of money, and went so far that articles of marriage were drawn up. Fortune seemed on all sides to favour the duke.

He was elected sovereign of the Netherlands in 1581, and took possession of Cambray in spite of the prince of Parma. Thus, crowned with honour, the duke hastened over to England to receive his person with the suit of the queen. Nothing could be more brilliant or warmer than his reception. When he stooped to kiss the hand of Elizabeth, she substituted the English custom of offering the muff. Agreements of the closest alliances were concluded, and in a manner so taken of her heart, that she dedicated him to the arrest of all who were implicated, and the failure of the enterprise. To render the act more base on the part of Alençon, the whole weight of vengeance fell upon his confidants and the followers of Huguenots, as it was designed. Whatever had been the motive which had influenced the duke of Alençon in betraying his friends, he reaped no advantage from the act. Catherine of Medicis took him and Henry of Navarre with her, when, after the death of Clément IX, she went to welcome Henry III. on his return from Poland. She presented them as prisoners to the new king, who at first seemed severe, but inflicted no punishment. The duke of Alençon continued at court, the rallying point of opposition to Henry; opposition, however, which was as trivial as the character of the two princes. At length the duke of Alençon, becoming reconciled to the Huguenots, who once more trusted him, entered into more amicable relations of vengeance. He escaped from court in August 1576, and joined the band of armies raised by the reformers. The king had not the vigour requisite to march against his brother; and he knew, perunds, that under such a chief his enemies were not to be lightly treated. Instead of deserting and rounding her person with a score of beauties, and proceeded to entice the munificent princes to colloquies, where seduction was the means of negotiation. A truce first, and a perpetual afterwards, were the fruit of a year's show of hostility. The duke of Alençon secretly proposed to desert his party once more; but the Huguenots chiefs insisted upon favourable terms, which they obtained, in name at least, in 1576. The duke, on his part, obtained advantages equally favourable; and being well assured of success, which gave him the duchies of Anjou, Touraine, and Berry.

In this arrangement, however, the negotiators on both sides may be said truly to have reckoned without their host. The Catholics, disgusted with the weakness of the monarch, formed the league, which soon rendered the articles of peace null. The Protestants on their side, little trusting to empty promises, kept armed and in an hostile posture, and Henry of Navarre was now rising amongst them to fill the place of honour that the now duke of Anjou had ceded. War, in consequence, recommenced, and, strange to say, the duke of Anjou himself appeared in command of a Catholic army.

By the history of these times, it is difficult to say where most fickleness is found, whether in princes, or in the people. After having turned against the Huguenots, and even sacked one of their towns, the duke of Anjou was still trusted by the queen and country. He was trusted by the people as much upon his being one of the malcontents of the Low Countries, several of the leading Protestants forsook Henry of Navarre for the banner of the duke of Anjou. Sully himself was of this number. Henry was afflicted by this desertion, but remained, that Anjou had 'so little courage, so little address, and so false a heart, that he would soon throw away all the advantages that fortune placed at his command.'

Catherine of Medicis and Henry III., reconciled to their son, now recovered and assured the duke of Anjou those very prizes that Coligny had before sought to give him—the sovereignty of Flanders, and the hand of queen Elizabeth. When the States asked for French aid, every facility and support was given by the king towards that end. The following year, the duke of Anjou marched against John of Austria. He had at first some success, but not being so well received by the Flemings as he expected, his career of conquest was soon ended. The States of the Reformation sent a bill to his successor, and he had deputed to Elizabeth his envoy, Simier. The French manners and gallantry of this personage quite won the English queen, who threw off much of her habitual prudery, and went to entertain serious thoughts of marrying him. She had obtained from him a promise of a considerable sum of money, and went so far that articles of marriage were drawn up. Fortune seemed on all sides to favour the duke.

Anker, a measure of wine and spirits, particularly of the latter, formerly in use, containing 10 old wine gallons, or 81 imperial gallons, that is, 230"cubic inches. This measure is still used in Holland, where it is especially employed in comparison between the ankers of different places is in the table underneath. A full account of the other measures connected with it may be found in Kelly's Cambist.
The king had expired a few days after receiving the wound. Ankarstrom went to the seashore with resignation; he was then only twenty years of age. Two of his servants were arrested and tried; two of them destroyed themselves, but none were executed. Count Horn and Ribbing, and colonel Liljestrom, were banished for life. The report of Ankarstrom was published.

ANGLAM, a strong town of Hither Pomerania, in Prussia, lying on the river Peene, twenty miles south-east of Greifswald. Its port enables it to carry on a brisk intercourse with other countries, and it is the principal manufactory of woollens, linens, leather, and tobacco. By the census of 1831, its population appears to have amounted to 6,286.

Anklam is the capital also of a circle of the same name in the government of Stettin, which circle contains 23,400 inhabitants.

ANNA BOLEYN. [See BOLEYN.]

ANNA COMENIUS, the daughter of Anna Comenius I., emperor of Constantinople, born Dec. 1, 1683, best known as the author of the Alexiad, a work written in Greek containing the history of her father's life. She was the favourite child of Alexius, and her talents were sedulously cultivated by an education comprehending the study of eloquence, poetry, mathematics, natural science, and the philosophy of Plato and Aristotle (see her preface to the Alexiad); and the voice of loyal admiration soon pronounced that her acquirements surpassed those of her most skilful masters. She was named Anna, crowned Nika, and pronounced the most accomplished and agreeable maiden of her sex. She was a woman of high literary attainments. Presuming on parental partiality, she solicited Alexius to name her husband for his successor, to the exclusion of her brothers, John and Isaac; and in this attempt she was assisted, if not mainly prompted, by her mother, the Empress, who, in her passionate discourse to her dying emperor uttered some allusion to the vanities of the world, which drew from Irene the unsparing application, ‘You die, as you have lived, a hypocrite. Alexius died Aug. 15, 1118, and John Comnenus the law-breaker, painter, and on whose person was laid the royal signet, and became master of the palace, and of the empire. Disappointed ambition drove Anna to conspire against her brother's life. All was prepared, but fear or remorse induced Bryennius to absolve himself at the moment of execution, and in his passion for death the princess exclaimed, that ‘nature had mistook the two sexes, and endowed Bryennius with the soul of a woman.' On the discovery of the meditated treason, the life and fortunes of Anna became justly forfeited, her life was spared by the clemency of John, the best and greatest of the Comenian princes; but her palace and treasures were confiscated, and bestowed upon a friend of the emperor who proved how well he deserved favour, by declining the gift, and refusing the riches, among others, the crown of the king of Ankarstrom's resentment against Gustavus. It appears that it was then that he first thought of murdering the king, without being connected with any other conspirators; but falling in with a person of sees, solicited others counts Horn and Ribbing, communicated to them his purpose, and they encouraged him in his determination. They first tried to seize the king at Gella, where he had convoked the Diet for 1792, but being thwarted in their design, they at last determined to strike the blow at a masked ball where the king was to be present, on the 16th March, 1792. Count Horn agreed that he should point out the king among the crowd to Ankarstrom. Gustavus received the other note warning him not to go to the ball, but he disregarded the advice, and went in a domino dress. As he was pacing down the hall, leaning on count Erven's arm, Horn, followed by Ankarstrom, accosted the king, saying, 'Good day, fair mask.' At these words, which were the signal to proceed, Ankarstrom fired a pistol loaded with two balls, and dangerously wounded the king in the thigh. He was not then recognized, and went out of the hall un molested. After the assembly had dispersed, a pistol placed under the table was found on the floor, whose name was on them, deposed that he had lately sold them to Ankarstrom, who was then arrested in his house; on his first examination he was subjected to the torture, but he firmly resisted the ordinary tribunals. He acknowledged his crime, but denied having any accomplices. He, however, confessed that several persons knew of his determination. He was condemned to be publicly whipped with rods for three successive days, and then to be beheaded after having his right hand cut off.
ANN. 39

ANN.

The first complete edition of it was published in Paris, 1651, by the Jault, Poussatne, with a Latin translation and glossary. It has been translated into French by the president Cousin. A series of valuable notes on it, by the learned Du Fregery, will be found at the end of the History of France. The editors of the council of war are by the ancient reigns of John and Manuel Connenus. There is a German translation of the Alexiad, in the historical collection of F. Schiller, Jena, 1760.

ANN. 40.

IWWNA. empress of Russia, was the second daughter of the czar Ivan or John I., the elder brother of Peter the Great, and for some time his associate on the throne. She was born on the 8th of February, 1670. In 1710 she was married to Frederick William, duke of Mecklenburg-Strelitz, and on the 29th of January, 1730, without issue, it was permitted by the Dolgoroucki, who for some time had been the ruling favourites of the late monarch, that he had left a will appointing their sister, the princess Catherine Dolgoroucki, to whom he had been betrothed, his successor. The project of raising that lady to the throne, however, miscarried, in consequence, it is said, of a want of union among the heads of the powerful family by whom it had been contrived. The duchess dowager of Courland was elected by the council of state, the senate, and the principal military officers then at Moscow, who assembled in the Kremlin immediately after the emperor's death for the purpose of choosing a successor.

The theme of the persons who composed this meeting unquestionably was to reduce the government of Russia to a limited monarchy, or rather, perhaps, to an aristocratic form. They did not discuss the wisdom of the Lascy, or of the Lazarevski, management or the biddiness requisite for so great an undertaking. For the present they deemed it necessary to name a successor to the late emperor, and the duchess Anna was unanimously fixed upon, being, it is believed, inclined for this preference to her residence at so great a distance from the capital as would give the projectors of the revolution time to strengthen themselves in their position before she could make her appearance. Her elder sister, the duchess of Courland, was recalled from the Continent, and passed over on the pretext that she had forfeited her claim to the throne of Russia by having married a foreigner. The princess Elizabeth also, the daughter of Peter the Great, who afterwards became empress, was in the palace; but although her surgeon, on hearing of the death of the emperor, ran immediately to her chamber, and pressed her to present herself to the people and assert her title to the crown, she could not be prevailed upon to leave the room.

The court, therefore, immediately fixed upon the vacant throne. Seven articles or conditions were attached to the invitation that was sent to her, to which she was required to give her consent before being permitted to the dignity of empress of all the Russias. She acceded to all the objects of the article, and declared the crown entirely to the power of the nobility; and it was possibly calculated by their authors that Anna would at once reject them. To take her by surprise, all those present at the meeting were forgotten, under pain of death, to reveal to any one what had been done. One individual, however, the count Jagouzinski, defeated this scheme by sending a courier to the duchess, who, in spite of the guards placed on the road, contrived to reach Mitau, where she was, just in time to make her acquiescence in that which had taken place before the deputies from the council of state arrived. The advice sent by Jagouzinski was, that she should unhesitatingly promise whatever was asked of her, and leave the rest to the discretion of the council. This was followed this counsel, and immediately set out for Moscow.

She arrived in the capital on the 20th of February. For a few days she assembled her deputies. But on the 8th of March, having previously made all the necessary arrangements to secure success, she assembled the council of state and the senate in the palace, at all the avenues of which her guards had been stationed with their pieces loaded, and displaying before them the papers which she had signed, declared the decrees already published, and announced herself empress and autocrat of all the Russias, with the full authority and prerogatives which her ancestors had enjoyed. The revolutionary party, struck with surprise at such a sudden occurrence, remained at first in a state of resistance; while by the people generally the intelligence of what had taken place was received with tumultuous rejoicings. Thus terminated the last of the only two attempts to limit the royal power which are recorded in the history of Russia; the former, which was equally unsuccessful, being that which was made in 1613, on the election of the czar Michael Fedorowits, the founder of the reigning house. The banishment of the Dolgorouckis, the dismissal of the council of state, and the demoralization of the remodelling of the army, quickly followed these events. In January, 1732, the empress left Moscow, and took up her residence at Petersburgh.

One of the more important acts of the new reign, what these domestic matters had been arranged, was to enter into a treaty with Denmark, with which power Russia had been in a state of hostility since the time of Peter the Great. Another treaty was also soon after made with Persia, by which several of the conquests which had been made by the Genoese with the help of the Venetians were restored to the power. About the same time an embassy arrived at Petersburgh from China, being the first which had ever been sent from that country to any European court.

This peace policy, however, was soon interrupted. On the 11th of February, 1733, Augustus II. king of Poland, died suddenly at Warsaw, and the three powers of France, Austria, and Russia, were immediately embodied in a contest respecting the succession to the vacant throne. France supported Stanislaus Lencinski, who had formerly been king, but had been deprived of his crown by the result of the great battle of Pultowa, in 1709; and the two other powers joined to fix the name of the Elector of Saxony, the son of the late sovereign, afterwards Augustus III. Before the end of the year Russia had marshaled a body of 20,000 troops into Poland; and on the 23rd of February, 1733, Count Russia, the lord of Lazary, sat down before Danzig, which held out for Stanislaus. Field-marshal Munich soon arrived and took the command; under whose conduct, notwithstanding all the efforts of the French to raise the siege, the Poles were obliged to surrender on the 30th of June. Count Lascy was the following year sent into Germany to assist the emperor Charles VI., with a body of 10,000 men, who advanced as far as the Rhine, and were the first Russian troops which had ever been seen in the heart of Germany.

In the course of the same year an expedition was sent to the Crimea against the Tartars inhabiting the steppe between that peninsula and the Ukraine, who had long been in the habit of making incursions into the Russian territory. This led, in 1736, to hostilities with Turkey. The war was conducted by field-marshal Munich; and the principal operations of the first campaign were the capture of Perekop on the 1st of June, after a short attack, and of Azof on the 29th, after a severe one. It is said that Sequincez, another place of less importance were also forced to surrender; and the Turks and Tartars were beaten wherever they showed themselves. The operations of the next season were on a larger scale. The whole of the Crimea was occupied; and though the war was terminated by the surrender of Moscow at discretion to the Russian troops after a bombardment of two days, the victors, however, being indebted for their speedy success to a fire which broke out in the town and threatened its destruction. A subsequent attempt of the Turks to recover the place was unsuccessful, after having cost them 20,000 men. In the course of this year also, Austria, in conformity with a treaty which had been concluded between the two powers, came to the aid of Russia in this new war. The operations of the emperor's troops, however, were as unfortunate as those of the Russian army were the reverse; and after the war had been continued in these circumstances for nearly two years long, the most important event was the capture by Marshal Munich of the town of Chockzim, on the 31st of August, 1739, Austria was compelled, on the 18th of September, in the same year, to conclude the peace which she gave up Belgrade and Servia to Turkey; and in consequence Russia, whose troops had now passed the Pruth, was also a few weeks after obliged to make peace, and to restore to the Turks Oczskow and all her other conquests, except the fortifications of which, however, it was stipulated should be destroyed. The year before the question of the Polish succession had been settled in favour of Augustus by the treaty of Vienna, concluded on the 18th of November, 1738.

The peace with Turkey was proclaimed at Petersburgh on the 25th of February, 1740. Towards the end of September the empire was taken ill, and although no
hensions were entertained at first, the attack soon assumed a serious form. When she found herself in this state, she proceeded to arrange the same plan. In the 18th of October, the son of Anthony Ulrick, duke of Brunswick, and the grandson by his mother of the empress's elder sister Catherine, being then a child only three months old, was publicly declared grand duke of Russia. The account of the matter having been settled, the empress died on the 28th of the same month.

The empress Anna had a considerable share of the ability which has long distinguished the imperial family of Russia. The manner in which she conducted herself, on coming to the throne, showed great decision of character, and the success with which the affairs of the empire were managed throughout her reign may be taken as a general proof of her superior talents and judgment. She was not, however, a very popular sovereign, and the system of oppression which were perpetrated in her name by her favourite Biron, as he called himself, his true name being Bière, a minion whom she had raised from a low condition to a gentleman of the chamber in her court at Courland, and whom having brought him with her to Russia, she eventually forced the nobility of Courland to elect as their duke. Biron was really the ruler of Russia during the whole of the reign of Anna. On her death-bed, she also appointed him captain-general of the empress's bodyguard, and that she might attain his eighteenth year; but her signature to the paper, by which this disposition was made, is said to have been obtained partly by fraud and partly by force. Biron did not long attain the age of majority, having not the end of the year been seized by a body of conspirators, and soon after banished to Siberia. In one important respect, Anna did something to reform the gross habits of the Russian court, namely, by disconsecrating the acts of the bishops, whose names were written in gold and placed under that of the iupa skhora, or Sacred Tables. Cicerio, both in the passage just quoted, and in another in his first book On Laws, (De Legibus,) speaks of them as being extremely well suited to the purposes of the empress, but however, he inferred from what he says, that parts of them at least were still in existence in his time, and some might be of considerable antiquity. Livy only says that most of the contents of the Pontificis Commentaries were lost at the burning of the city after its capture by the Swedes. It is evident, however, that they were not in Livy's time to be found in a perfect state even from the date of that event (A.D. 363); for he is often in doubt as to the succession of magistrates in subsequent periods, which it is to be supposed he could have been, if a complete series of these annals had been preserved.

The word annals, however, was also used by the Romans in a general sense; and it has been disputed among the critics what was the true distinction between annals and history. Cicerio, in the passage in his work De Oratione, says, that the first narrators of public events, both among the Greeks and Romans, followed the same mode of writing with that in the Annales Maximi; which he further describes as consisting in a mere statement of facts briefly and without ornament. In his work De Legibus he characterizes history as something quite distinct from this, and merely a statement of events which have been written in the Latin language. It belongs, he says, to the highest class of oration in composition (opus oratorium maxime).

This question has been considerably perplexed by the division which is commonly made of the historical works of classical antiquity, into annals and history. As what are called his annals are occupied with events which happened before he was born, while in his history he relates those of his own time, some critics have laid it down as the distinction between history and annals, that the former is a narration of what the writer has himself seen, or at least been contemporary with, and the latter of transactions which had preceded his own day. Aulus Gellius (Noctes Atticae, v. 16) has stated this doctrine, which, after his manner, is a matter of indifference to the etymology of the word history, from the Greek historia, properly to inquire in person.

It must be evident that this is quite an unfounded notion. Without being more familiar with the hundredst of an event than has been known, and which should make it exclusively applicable to accounts of past ages. We doubt if Tacitus himself ever gave the name of histories to any of his writings. If he gave either work a title at all, more probably he gave it both to that of annals only. We rather think that nowhere he mentions his historical writings, he refers to them by this name. It is, at any rate, by no means certain that the common division either originated with him, or was even recognised by others of his age.
Tacitus has himself in one passage intimated distinctly what he himself understood annals to be, as distinguished from history. In his Annals (commonly so called), lib. iv. cap. 71, he does not give the continuance and conclusion of a particular narrative which he had commenced, to be simply the necessity under which he had laid himself by the form of composition he had adopted of relating every event in the life of a man within the limits of one year before entering upon those of another. The substance of his remark is, that ‘the nature of his work required him to give each particular under the year in which it actually happened. This, then, was what Tacitus conceived of the office of an annalist, and to which he had assigned a writer of annals, ‘to keep everything to its year.’ Had he been writing a history (and in the instance quoted above, he insinuates he had the inclination, if not the ability, for once to try his hand at the work of a more formidable task, has the liberty to pursue the narrative he was engaged with to its close, not stopping until he had related the winding up of the whole. But remembering that he professed to be no more than an annalist, he restrains himself, and feels it to be his business to keep to the events of the year.

It is of no consequence that on some other occasions Tacitus may have deviated somewhat from the strict line which he thus, if not always, yet for the most part (it may have been a moment dropped the annalist and assumed the historian. If it should even be contended that his narrative does not in general exhibit a more slavish submission to the mere succession of years than others that have been digested with a similar title, it is in consequence of no such sequence. He may have satisfied himself with the more humble name of an annalist, when he had a right to the prouder one of an historian; or the other works referred to may be wrongly designated histories. It is more to the point, that he himself is as much an historian in what he calls his Annals as he is in what is called his History. In that case all we can say is, upon any interpretation of the words that may be assigned to the distinction intended the foolish one (proposed by Aulus Gellius), that one of the titles is wrong.

In lib. iii. cap. 65 of his Annals, Tacitus tells us that it formed part of the plan of his Annals, to give a certain length the sentiments and opinions of individuals, except they were signally characterized either by some honourable or disgraceful traits. In chap. 22 of the treatise on Oratory, attributed to Tacitus, the author expresses his opinion of the general character of the style of ancient annals; and (Annal. xiii. 31) be carefully marks the distinction between events fit to be incorporated into annals and those which were only adapted to the Acta Diurna. [See Acta Diurna.]

The distinction we have stated between history-writing and annal-writing seems to be the one that has commonly been adopted. An account of events digested into so many successive years may perhaps be called an annal, and the Ecclesiastical Annals of Baroinus, and the Annales of Scotland, by Sir David Dalrymple (Lord Hailies), are well-known examples. In such works so completely is the succession of years considered to be the governing principle of the narrative, that that succession is sometimes preserved unbroken even when the events themselves would not have required that it should, the year being formally enumerated although there is nothing to be told under it. The year is at least always stated with equal formality whether there be many events or hardly any to be related as having happened in it. In this respect annals differ from a catalogue of events with their dates, as, for instance, the Partian Chronicle. The object is to state his reason for not considering certain events happened; of the former, what events happened in each year. The history of the Peloponnesian war by Thucydides has the character of annals. The events are arranged distinctly under each year, and are related from sum to sum. All political reflections are, for the most part, placed in the mouths of the various commanders on each side.

In the Rheinisches Museum für Philologie, &c., ii. jahrg. 2 (1835), 393, &c., there is a disquisition by Niebuhr on the distinction between History and Annals, in which he limits the latter nearly as has been done above. But the greater part of the paper is taken up in endeavouring to account for the distinction given by Aufrecht. If the annal, as illustrated in a manner perhaps more fanciful and ingenious than convincing. There is a translation of it in the Sixth

In the Roman Church a mass said for any person every day during a whole year in the city in which he is buried, or sometimes the same word was applied to a mass said on a particular day of every year. (See De Cange, Glosiorium ad Scipiones Medici et lnfanum Latiniss.)

ANNAMBOE, or ANNAMBOOE, a town with a fort belonging to the English, on the Gold Coast in West Africa. It is ten miles east from Cape Coast Castle, and six miles east from the intervening Dutch fort of Nassau. In Mr. Bowdich's maps it is represented as a small town of N. lat. and 5° 40' W. long. The fort of Annamboe is considered to be the strongest on the coast. It is of a quadrangular form, and is built on a low site close to the shore, the town surrounding it in the form of a crescent, and coming down to the sea on both sides of it. The direction of the coast here, it will be recollected, is nearly due east and west. The fort of Annamboe is commanded by an officer who holds the rank of a captain in the service. According to Captain John Adams, in his Remarks on the Country extending from Cape Palmas to the River Congo, (1825), the population of the town then amounted only to 3000 or 4000 persons, most of whom, he says, had become indolent from the luxury of gold, with which this fort had long been the chief mart. Some among them are described as acting by a sort of hereditary right in the capacity of gold-takers to all ships that arrive, that is, of functionaries whose business it is to manage the trade and bargains between the traders and the natives, and to be responsible for the quality of the gold, by a per centage on the amount of which their services are paid. Mr. Meredith, however, in his Account of the Gold Coast (1847), says there was only about thirty men, and with difficulty withstand the assault of the immense host that encompassed it. A ledge of rocks extends in front of this town a few yards from the shore, which makes, Captain Adams says, a good breakwater.

ANNAMOOKA, island of. [See ROTTERDAM.] ANNAN. [See COCHIN CHINA.]

ANNAN, [See COCHIN CHINA.]

ANNAN, a town in the former stewartry of Annandale, and in the county of Dumfries, 79 miles S. of Edinburgh, 154 E. by S. of Dumfries, and 204 W. by N. of Carlisle, 54° 59' N. lat., 3° 14' W. long. of Greenwich.

The town is situated on the river Annan, not far from where it falls into the Solway Firth. Over this river there was formerly a bridge of five arches, now replaced by a more modern one of three; the river is navigable for vessels of 250 to 300 tons, to within half a mile of the town, and for vessels of 60 tons up to the bridge, forming a good natural harbour. The road from Carlisle to Dumfries runs along the principal street, and there are small lanes or closes leading to the right and left, but the increased size of the place has caused some new streets to be built; these are, in general, good; some handsome buildings have been lately erected; and the town is paved, and has a neat and improving appearance. The manufactures carried on are of an inferior kind, and those of any great extent. The trade of the place is chiefly consisting trade; there being little foreign commerce, except the annual importation of a cargo or two of British American timber. The exports are grain, malt, potatoes, bacon, freestone, and Scotch timber; the imports, coal, lime, slate, timber, herrings, Indian colonial produce, and general merchandise from Liverpool and Whitehaven. * There is a freestone quay to enable vessels to take in or discharge their lading. There is a salmon fishery in

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* See Appendix to Dr. Stieber's Agricultural Survey of Dumfries-hi-side (1819), from (Mr. the particulars)
the river, and the sea yields cod, turbot, and a variety of small fish. The rise of the tide on the coast is twenty-one feet.

The parish of Annan extends three miles along the coast, and two in breadth inland, and has an extent of 5035. It is intersected by the river. It yields a considerable quantity of potatoes, and contains quarries of freestone, limestone, and granite. The living is in the Presbytery of Annan, and in the Synod of Dumfries, and in the patronage of the Earl of Hopefield. There is a flourishing academy lately established and endowed by the baritons and the burgh council.

Annan is thought to have been a Roman station. It was held in fief, with the whole territory of Annandale, by the anonymous family in whose hereditary there was a state castle, of which the ruins may still be seen. Upon the succession of the Brusces to the throne, Annan became a royal burgh, and it now remains a member in conjunction with Dumfries, Sandil沉浸, Kirkcudbright, and Lochmaben. (Sir Clair's Statistical Account of Scotland, Sec.)

ANNA, a river of Scotland, which rises in the mountain region that runs along the northern boundary of Dumfriesshire. It has a general southern course in a long narrow valley, into which a number of small lateral valleys open. The Moffat Water, which is the chief branch of the river, rises in Loch Skene, at an elevation of 1300 feet. The whole course of the Annan is perhaps about forty miles.

The Annan Valley is divided into the north, the south, and the middle. The north district is part of the upper Annan, and the middle and lower Annan and the valley of the Annan. It formed, under the designation of the stewardship of Annandale, one of the three jurisdictions into which the shire of Dumfries was divided; the other were the shires of Wigton and the regality of Eastrick. A stewardship was a district governed by a sheriff or steward appointed by the king.

ANNAPOLYS, a town in Maryland, on the south-west bank of the Severn, near its outlet into Chesapeake Bay. 38° 57' N. lat., 76° 27' W. long., and twenty-five miles E.N.E. from Washington. Annapolis, though only an inconsiderable place with a population of about 3000, has been the seat of government for Maryland ever since 1799. The chief building is the state-house. The total tonnage of the district of Annapolis up to December 31, 1831, was only 3472, enrolled and licensed, of which 332 was employed in the coasting trade. Report on the Commerce and Navigation of the United States, 2d Congress, 32d Session.

ANNAPOLYS, a county of Nova Scotia, in the north-western part of the province, bordering on the Bay of Fundy. It contains six townships, and returns five members to the provincial parliament. The first European settlement in Nova Scotia was made by the French in this quarter, in the year 1604, at the place where the town of Annapolis Royal now stands. The French settlement was called Port Royal, and was twice taken by the English, once in 1614, and again in 1628. It was afterwards called Acadia and Annapolis, a name derived from the province of Annapolis in England. On this last occasion, the name of the town was changed to Annapolis, in honour of Queen Anne; at the same time the province, which had been called Acadia by the French, was renamed Nova Scotia. Under this name it was ceded to England by France in 1713, and has since continued in British possession.

The town of Annapolis remained the seat of the provincial government until 1750, when, upon the founding of Halifax by Governor Cornwallis, the government offices were transferred to the new town.

The town of Annapolis, situated in 44° 40' N. lat., and 66° 37' W. long., is built on a peninsula formed where the two rivers, the Severn and All, discharge into Annapolis Bay. Since the building of Halifax, it has lost much of its importance. The government buildings and fortifications have fallen to decay, and the trade of the place is much diminished.

The river Annapolis, which rises in the township of Cornwallis, King's County, runs parallel with the Bay of Fundy for about seventy miles, and falls into that bay through Digby's Gut, having previously expanded into a wide marine estuary. This Bay has been extensively navigated by boats and small vessels through the greater part of its course. The population of the county, at the census taken in 1827, was 14,651. (Bouchette's British Dominions in North America, 2d ed. Lett. from Nova Scotia; M'Gregor's British America.)

ANANTES, from annus, a year, a sum paid by the person presented to a church living, being the estimated value of the living for a whole year. It is the same thing that is otherwise called Primitia, or First Fruits, under the last of which terms the origin and history of the payment will be treated of. We may merely mention here that the payment of this amount of money, in England, and in 1831, in England, by a valuation of benefices, made by Walter, bishop of Norwich, under the direction of Pope Innocent IV. in the year 1254, in the reign of Henry III.—that a new statute passed in 1534 for the augmentation of the clergy and a third in 1554, in the reign of Henry VIII.—according to which last, commonly called the Liber Regis, or King's Book, the clergy are at present rated. These fines went formerly to the bishop or the pope; but on the king being recognised as the head of the Church, the fines were transferred to the crown. In the reign of queen Anne, however, they were given up in England to form a fund for the augmentation of poor livings. In Ireland, until the act of last session for the reform of the Church, they were applied in the first instance to the repair of churches, and to the augmentation of poor livings after that object had been satisfied. By the late act the demand of first fruits is abrogated in that country, and in lieu of it all ecclesiastical incomes above a certain amount are to be yearly a tax regulated by their value. In Scotland, by an act passed by the parliament of that kingdom in 1672, the heirs or executors of every holder of a spiritual benefice are allowed the fee of the same, but a fine of 12l. was levied on each, which was entitled at the time of his death; and this is called the Ann, or Annat. As it belongs to the executors of the clergyman, and not to himself, it can neither be assigned by him during his life, nor seized in payment of his debts. [See First Fruits.]

ANNE OF AUSTRIA, queen of Louis XIII. of France, and regent during the minority of Louis XIV., occupies a prominent place in French history. Daughter of Philip II. of Spain, she became the wife of the young Louis XIII., in the year 1615. It is worthy of remark, that the will and policy of the great princes who have governed France have always been counteracted by their queens or female favourites, thus exemplifying the witty saying of Louis XIV.'s grand-daughter, that when queens reign, men govern, and that when kings reign, women eventually decide the course of events. The great Henry IV. of France had for his daring project the humbling of the House of Austria. His queen, Mary of Medicis, was averse to this policy, and no sooner was Henry in his grave than she took measures for a reconciliation with Spain, and sealed it by a double marriage, one of which was that of young Louis XIII. with Anne of Austria. The administration, however, fell in a few years into the hands of that master-spirit, cardinal Richelieu, who resumed Henry IV.'s views of humbling the pride and ambition of the House of Austria. In this he instantly found an enemy in Anne of Austria, and a struggle ensued between the two, and a queen regnant, was compelled to yield, as long as he lived, to the great minister.

Had Anne been a woman of greater talents or more pleasing character, she might have been as great as the most illustrious who have bequeathed a name to the annals of education, her coldness and gravity of demeanour, which only covered frivolity of thought, alienated, rather than attracted Louis XIII. Upon this feeling Richelieu worked, and he was able at once to inspire Louis with dislike and jealousy of his queen. Her natural attachment to her native country was another fault which the cardinal represented as a crime, and his whispers as to her betraying intelligence brought about Anne the ignominy of having her person searched, and her letters perused, and her private correspondence was open to the vigilance of officers commissioned by Louis himself. When it was generally known that the queen was in disgrace, and was the object of Richelieu's anger and mistrust, this was sufficient to make her regent, without the aid of her husband, and consequently to get rid of him through conspiracy, in order to place Gaston, duke of Orleans, in his stead. Louis XIII. fully believed this malicious tale, and compelled his queen to appear at the council table, there to listen to this grave charge from
the royal mouth. In such a situation, Anne's dignity of character came to her aid. She scorned to reply directly to such a challenge; but on a second occasion, the little was to be gained by the change, to render such a design on her part probable.'

What gave most force to Richelieu's tale, was the criticism that perhaps was only due to the queen of France. Madame de Motteville, Anne's attendant, who has written the memoir of her life, gives a circumstantial account of the arrogant passion of Bucking-

ham, and confesses that the suit of the English duke pleased the queen's vanity, if it did not touch her heart. On one occasion, after having taken leave on his return to London, he hurried back from Amiens, found his way into the queen's sleeping-room, where it was usual for her to receive visitors after dinner. He had not been there ten minutes, and gave full vent to a passion that shocked the attendants, as passing beyond the bounds of etiquette. Anne gave but a gentle reprimand. Neglected by her husband (who partook not of her bed for twenty-three years after their mar-
riage), Anne was not insensible to the chivalric attachment of a noble and a statesman, and might perhaps have given some hand to malicious insinuation. At all events, she remained without influence, alienated from the king's affec-
tions and counsels of the minister, and left to Anne, as mother of the infant monarch, the undisputed reins of power.

There was then a change of policy similar to that which had taken place between England and France in the days of Madame de Medici, who had counseled and abandoned all his schemes for humbling Austria, by making peace with that rival power. Anne, of Austrian blood, now did the same, from hatred to Richel-

ieu's memory, as much perhaps as from family affections. She did this with less abruptness, indeed, than Mary, having the good fortune and good sense to have and to choose for her minister a man bred in Richelieu's school, one who had learned his address, but who had never been endowed with his disinterested and high views. This was Mazarin. Anne's selection of such a man for minister is the greatest proof of her discernment. As a foreigner, he was completely dependent on the hand that raised him; and consequently there was less danger of his becoming an independent power. For the same reason, he was unconnected with any powerful party, and the queen made full use of his abilities, without being in danger from his ambition.

Anne of Austria's policy in this choice, though perhaps the wisest, was still not the least fraught with danger. It alienated from her once the party of the noblesse, which, crushed by Richelieu, had made common cause with Anne in her opposition. She raised its head to claim vengeance and spoil. Amongst them were even the queen's peculiar friends, the duke of Beaufort, who was a kind of favourite, and the duke of Chevreuse, the bosom companion of Anne. Mazarin's advice compelled his mistress to resist the insinuations of these courtiers; but the consequence was a general conspiracy against the queen and her minister. Beaufort was sent to prison, and madame de Chevreuse again exiled. Mazarin, like his predecessor, might henceforth have plowed over the noblesse; but this class now called to its aid a new, and hitherto neglected body, that of the citizens, or bourgeois class.

These were easily inflamed against Mazarin as a foreigner, and as a financier, fertile in the invention of new taxes. In addition to this, the great offices of the judicature, which had become venal, had fallen into the hands of the middle or citizen-class, and the magistracy, being possessed of the power of sanctioning or resisting the royal edicts, made commu-

nications, and thus the royal counsellors were raised against the authority of Anne. An attempt on her part to treat the magistrates as she had treated the duke of Beaufort, by imprisoning them, gave birth to a popular insurrection, which proved successful. The queen and court were for a time prisoners in the Palais Royal, and compelled to submit to the dictates of the mob. The Spanish pride of the queen was with difficulty induced to submit to necessity. She threatened at first to fling the heads of the captive magistrates to the populace, rather than deliver their persons, and her indignation at the time provoked a powerful enemy in the future cardinal de Retz. But she was compelled to smother both pride and anger, as Richelieu had taught the court, how-
never, took the first opportunity of escaping from Paris and recurring to arms. A civil war commenced between Anne, her minister, and their adherents on one side; and the noblesse, the citizens, and people of Paris on the other.

One might think that the advantage in such a quarrel must necessarily remain to the latter. But Anne and Mazarin's address, after many vicissitudes of fortune, came off triumphant. First they rallied a considerable portion of the army, and the king's name was to them a tower of strength, which enabled them to resist the formidable rebellion of the capital. The Princesse too, as the insur-
rectionists were playfully called, were not very earnest in their rebellion. There was no enthusiasm, no fanaticism. The resistance was rather the effect of momentary impa-

tience and despite, which vented itself in epigrams more than in deadly missiles. The young noblesse considered the campaign as a frolic, and however the citizens and magistrates might wish to obtain a certain measure of political freedom, similar to that for which England had so lately struggled, it was evident that the nobles looked with no favour on such schemes, and would eventually concur to mar them. Seeing this, the magistracy determined to bring about an accommodation. It was no easy task. A suspension, or rather a cessation of hostilities, was produced by the retirement of Mazarin.

He returned, however, for Anne was but a cypher without her minister; and the war again broke out. The court had secured a defender in Turenne, who triumphed even over all the valour of the young noblesse, headed by the great Condé. The result of the rebellion, and of Anne of Austria's administration, was, that the nobles and middle classes, vanquished in the field, were never afterwards able to raise their heads, or to offer resistance to the royal power, up to the period of the great revolution. Louis XIV. is, in gene-
ral, said to have founded absolute monarchy in France. But it was rather the blunders and the frivolity of those who idly espoused the cause of freedom during that monarch's minority which produced this effect. Anne of Austria's triumph was that of monarchy. She, or almost the events of her regency, contributed far more to it than all the subse-
quent imperiousness of Louis XIV.; and hence the epoch of Anne's administration is one of the most important in French history.

Anne must have been of pleasing exterior, as not only the account of M. de Motteville, but her portrait in the Vienna gallery, testifies. That she was unchaste does not appear, notwithstanding all the accusations of her story-
telling times. Though not a very fortunate monarch, she was, at least fortunate in her regency; above all, in her choice of Mazarin. Her influence over the fate and the court of France continued for a long time; her Spanish haughtiness, her disregard of ceremonial, and of all the pride of power, were impressed by education upon the mind of her son, Louis XIV., who bears the blame and the credit of much that was hers. Anne of Austria died at the age of sixty-
four, in the year 1666.

ANNE, queen of England, the second daughter of James II. by his first wife Anne Hyde, was born at Twick-

enham on the 6th February, 1664. She was educated in the religion of the Church of England; and, in 1683, was mar-
rried by the bishop of London to Prince George, brother of Christian V., king of Denmark. At the revolution in 1688, Anne and her husband adhered to the dominant party of her brother-in-law William III.; and, by the act of settle-
ment, the English crown, in default of issue to William and Mary, was guaranteed to her and her children. During the
regain of William she appears to have lived in much discomfort, neglected by her sister, and treated with coldness by her husband, and also the heavier affliction of losing all her children in infancy, except one son, the duke of Gloucester, who died at twelve years of age, in 1699. This event, as well as the previous death of queen Mary, rendered her government in the act of settlement uncertain; and as the princess Sophia, dowager electress of Hanover, and her descendants being Protestants, were declared next heirs to the throne, in default of direct heirs to William and his sons, a new Act of Settlement was passed by the new favourite, Mr. Mildmay. The ministry of Godolphin and Sunderland was displaced by that of Bolingbroke and Oxford. The command of the army was taken from Marlborough and bestowed upon the duke of Ormond. The Orange party and the French, who were the principal actors in the changes, which must have been distracting enough to the quiet temper of Anne, was deprived of the sympathy of her placable husband. Prince George of Denmark died on the 28th October, 1708.

The first act of the Tory ministry was to enter upon arrangements to bring the war to a conclusion. In 1711 negotiations were entered into with France, amidst the protest of Walpole and the scarecrows of the ministry, and after various difficulties, were terminated by the memorable treaty of April 11, 1713. [See Utrecht, Peace of.] By the treaty of Utrecht the succession to the crown of Great Britain had been guaranteed to the House of Hanover. But a suspicion began to prevail that the queen and a portion of her government secretly favoured the pretensions of the son of James II. The minority in parliament attempted to carry several measures which would bring these supposed partialities to a test. The queen was compelled to invite the Electress of Hanover to England; and upon the death of that princess in June, 1714, to issue a proclamation, in which she asserted that her brother should be at tent to land in Great Britain or Ireland. It is affirmed by a writer in the Biographie Universelle, upon the authority of some secret memoirs, that the son of James II. at this juncture clandestinely visited England, and that he was to meet with his brother in France, when he should defeat the Hanoverian succession. The Tory ministry was, however, shattered by the quarrels of Oxford and Bolingbroke; the whigs carried the nation along with them in their denunciation of the peace of Utrecht, which had left the country little besides a barren glory; and the dissatisfaction with the union of Scotland threatened to break out in open insurrection. The health of the queen gave way under the news; she was prolonged parliament for a month, and falling almost immediately after into a state of weakness and lethargy, died on the succeeding 12th of August. It is said that her last words were an expression of pity for her brother.

Anne, the eldest daughter of James II., was born in Scotland, and spent the early years of her life there. Her early education was conducted by the Jesuits, who were then the fashionable diplomats of Europe. Anne's beauty and intelligence attracted the attention of the Prince of Orange, who was then the commander-in-chief of the English forces in Scotland. The young queen was taken under the protection of the English army, and was educated in the arts of war. She was a brilliant and accomplished woman, who was loved and respected by all who knew her. Anne's reign was marked by her devotion to the Protestant cause, and her support of the Whigs. She was a strong advocate for the restoration of the monarchy, and her influence was felt throughout the country. Anne's death was a great loss to the nation, and she is still remembered as one of the most remarkable women in English history. [See ANNE, Union of.]
plain surrounded by delightful eminences and lofty calca-
reous mountains, and at an elevation of 1456 E. feet (Sau-
sure) above the level of the sea. It is 32 miles N.N.E. of Cham-
pery, with all of which it is connected by a turnpike.

The Town of Anagny washes the edge of the town. Its
greatest length is about nine miles and a quarter, and its
average width three. The greatest depth is 196 E. feet.

This lake discharges itself by several canals, said to be
Roman work, all of which are walled. There is amina-
tery in Savoy, and between 5000 and 6000 in-
habitants, with establishments for cotton-spinning, calico-print-
ing, and a glass-house. Some iron-mines are worked in the
neighbourhood.

The name of Annecy washes the edge of the town. Its

ANNELIDA (Cuvier), an extensive division or class of
animals, established by modern naturalists partly at the
expense of Linnaeus's heterogeneous class of worms (serpents).

It was Baron Cuvier who first proposed to distinguish the
annelida in 1802, chiefly on account of their blood being of
a red colour, as in the leech, and circulating by means of a
double system of complicated blood-vessels.

The name is derived from the Latin word annulus, a ring,
because the animals arranged under this division always
have their bodies formed of a great number of smaller rings, as
in the annelida, which is divided into eight skin, is
soft and pliable, and their bodies, having no bony skeleton,
are soft, and in general more or less of a cylindrical form.

The annelida are for the most part oviparous, but the
leeches and earth-worms deposit what are termed capsules,
or eggs, in the walls of their tubes, and in many cases, the eggs
are fertilized externally.

There is little variety in their mode of life. Some live in
fresh and others in salt water; and others, like the hair-
worm (Gordius), are amphibious. Some species construct
tubes in the interior of stones, or in shells, which they perfor-
ate, or in madreporites. Some species again form calcareous
cases, or cement around them various foreign substances,
particularly sand. The sedimentary species are timid, and
when taken from their retreats can neither escape nor de-
fend themselves. The respiratory organs are, on the other hand, are fre-
quently very nimble, and can defend themselves well by
means of their bristles.

The researches of Baron Cuvier and M. Savigny did much
to produce a clear arrangement of the animals under notice
according to their physiological structure; and hence M.M.
Audouin and Mlle Edwards, who have more recently in-
vestigated the structure of many species, have in part adopted
the classification, slightly modified, of those naturalists. They
make four divisions, groups, orders, on the each differing in
structure and in manners—the Errantia, the Tubicolai, the
Terriola, and the Suctoria.

The Errantia (Nereidae, Savigny, Desmarchia, Cuvier) are
living shrimps, essentially fitted for walking or
swimming, and are rarely sedentary. They have in general
a head distinct from the body, with antenna and eyes.
Their mouth is furnished with a protractile tube, more
or less strengthened with a jaw.

The Tubicolai (Cuvier) are essentially sedentary, and live
almost uniformly in the interior of solid tubes, which their
structure forbids them to quit. Their respiratory organs
are usually observable on a certain number of the segments
of their bodies, commonly at the anterior extremity. The
feet are distinct, though short, and always armed with hooks
as well as bristles. The head is not distinct, and they have
no eyes, antennae, nor jaws.

The Suctoria live in a hole or gallery in the ground, and
are without feet, instead of which they have some short bristles to aid their movements. They have
no distinct head, eyes, antennae, or jaws. The mouth is always
terminal, and sometimes furnished with tentacles.

The Tubicolai differ from all the preceding in having nei-
ther feet nor bristles, and by being furnished at each extrem-
yty of the body with a prehensile cavity or sucker. They
have no distinct head, but may always be observed to
have eyes or antennae. They are chiefly parasites, and live
at the expense of other animals.

ANNIBAL. [See Hannibal.]

ANNIUS of Viterbo, a well-known Dominican monk,
who wrote a History of the Church. His real name was
Giovanni Nanni, but in conformity with the custom of the age
he Latinized it, and dropped the first letter, in order to
render it more completely classical. He was born at Viter-
bo, in 1435, and died in 1493. He entered early into the

DOMINICAN order, and became famous for his acquaintance
with the Eastern as well as the Greek and Latin languages.
His works are voluminous: the most remarkable is entitled
Historia Christianarum in qua prostratam Galliam
.mbaturus Fr. Joannis Anni Viterbiensis, in folio, Rome, 1498,
several times reprinted. This collection professes to contain
a number of historians of high antiquity, Berosus, Manetho,
Myrillus the Lesbian, Fabius Pictor, Marcus Cato, and
numerous others, whose works, being usually only in
unwritten form, have never been discovered at Mantua. That
these pretended historians were forgeries, there can now be no
doubt; whether Annius was deceived or the deceiver, whether
he forged them himself or suffered them to be forged,
that is a matter on which authorities are divided, and which it
is of little moment to discuss now. He published two other
works which excited a great sensation from the circum-
stances of the times, and the recent capture of Constanti-
nople, one entitled Tractatus de Imperio Turcorum, the
other, De Futurius Christianorum Triumphis in Turco-

Saracens ad Xystum IV., et Omnes Principes Christianos,
being the substance of a set of sermons preached by him at
Genoa on the Apocalypse. (Bibl. Universelle; see also
Bayle and Moreri.)

ANNIVERSARY, the yearly return of any remarkable
day, called, in old English, by the expressive term year-day.

An anniversary mass is one celebrated on the first day of
a Roman church in honour of the saints, or two or of whom
are assigned to every day in the year. The long catalogue of saints
being unknown to the church of England, anniversaries days
are not generally made a matter of religious observance. Some
matters, however, both religious and social, are
celebrated on a religious day, and have a religious observance.
The birth-day of the reigning monarch is very generally celebrated
by holidays and rejoicings; the anniversary of the
Gunpowder Plot has been rescued from oblivion by the love of
school-boys for fire-works and the pageant of Guy Fawkes,
and the oaken bough still preserves the remembrance of the
restoration of the Stuarts.

Literary and scientific associations generally celebrate
the anniversary of their original institution, and social parties
are still held in domestic life. Ascetics and the birth of peaki
summit is very steep and dangerous, owing to the looseness of the
numerous stones which cover the side of the slope, and are
in a state of decomposition. At the foot of this height is a
small shallow pond, the bottom of which is covered with a bottom of stiff bluish clay: the water was found to be
very sweet.

The regular winds from the S.W.: less rain falls here than in the higher mountains, and the whole of this
season is confined to April and May, and October and November.
The precise character of the climate as to health seems
still doubtful. This island is Chiefly visited for supplies of
sheep, goats, pigs, fish, cocoa-nuts, bananas, lemons, Seville
oranges, &c. Fowls are scarce. There is plenty of water
on the island, but the heavy surf on the shore makes it diffi-
cult to procure. The population is about 3000, who live
chiefly in a large village near the north-east point of the
island, off which is only tolerably safe roadstead for shipping round it. The natives are quite harmless. Their
houses, which are small, are rudely constructed of rough
boards, grass, mud, and the foot-stalks of the cocoa-nut tree.
This island was discovered by the Portuguese in 1473, but
now governs a native of the island, who, though independent of the Portuguese, but appears to have no great
authority.

Anno Bom lies in 1° 24 1/2 S. lat., and about 5° E. long.;
but we are not able to state its longitude approximately. Cay
Lopez is the nearest part of Africa to Anno Bom. (From
Memoir descriptive of Prince's Island and Anno Bom, by the late

ANNOYAY, a town in France near the northern ex-

tremity of the department of Ardèche, at the junction of
two rivers, the Durance (or Drom) and the Caneche, whose
united streams flow into the Rhone, from the right bank of
which Annoyay is only five or six miles distant. The town
ANNUAL REGISTER. The earliest English publication which has any claim to be considered as an Annual Register is Edward Chamberlayne's Anglia Notitia, or the Present State of England, which first appeared in 1668, and continued to be annually republished with the requisite alterations till the year 1705 inclusive. But this work, as its title indicates, presented merely an account of the country in its existing state, with lists of public functionaries, &c., and gave no register of occurrences. Our first history of the year, we believe, was that given in the Political State of Barbary, which ran in 1711, 1712, and 1713, by a Barbary refugee, and the author of the well-known French and English Dictionary. This publication was continued till the year 1739. Although this work appeared also in annual volumes, it was republished by numbers in the year 1716, commencing the Historical Register, a quarterly publication, which in like manner was republished in volumes at the end of each year. The regular publication having taken up the history of public affairs only from the 9th of January, 1716, two volumes were printed together in 1724, containing an account of events from the last day of July, 1714, up to that date, being the first seventeen months of the reign of George I. With these introductory volumes, the Historical Register forms a chronicle of the affairs of this and other countries of Europe from the accession of the House of Hanover. The compilers, to use their own words, confine themselves to mere "maters of fact, without making any descript hereon either of communication or reprehension." This work also, about the year 1737, began to appear in monthly numbers. The change was probably a dying effort, as the volume for 1738 was, we believe, the last that appeared. The Historical Register was reprinted, in July, 1739, by G. Brome, in the Old Bailey. The price, while it was published quarterly, was one shilling for each part.

The first Annual Register, properly so called, which appeared annually, was the one which is now published and which still continues to be published under that title. This work was projected by Robert Dodsley, the bookseller, in conjunction with Edmund Burke, who was already well-known in the literary circles of London as the author of the Essay on the Sublime and Beautiful, the Vindication of Natural Society, and other anonymous works. The first volume of Dodsley's Annual Register appeared in June, 1759, under the title of The Annual Register, or A View of the History, Politics, and Commerce of the Year 1759, and was printed for R. and J. Dodsley, in Pall-Mall. In the Preface are enumerated the several points of novelty in respect of which the work is conceived to have an advantage over its predecessors. These are the first after printed, and not a monthly publication. Others are, that it takes up the history of the war in which the country was then engaged, from its commencement in 1755; that it contains a collection of state-papers, illustrative of the historical narrative; and that by its miscellaneous department and its notices of new books, it unites the plans of the magazines and reviews. The history in this volume consists of seventy-six pages divided into thirteen chapters, the first seven of which are running into thirty-two pages, are occupied with the first three years of the war. Then follow in order the chronicle, extending to sixty-seven pages; the collection of state-papers; characters; extraordinary adventures, in chronological order, the author having taken care in the Black Hole at Calcutta in June, 1756; literary and miscellaneous essays; poetry, including pieces by Akenside, William Whitehead, and the king of Prussia; and lastly, an account of remarkable books published in 1758, among which are Jortin's Ermance and Walpole's Royal and Noble Authors. The volume consists of 496 pages in all, besides Preface, Contents, &c. This and several of the succeeding volumes were so popular that they quickly ran through five editions. Each of these contained a historical narrative which was written by Burke, who also probably edited the publication and selected the rest of its contents. He appears to have been paid for his services at the rate of 100l. for the volume, and 5l. for each number. The given engraved facsimile of two receipts signed by him for two sums of 50l. paid to him by Dodsley for the Annual Register of 1761, the first dated on the 26th of March in that year, and the second on the 30th of March in the year following. This volume was not republished by the preface, till a later period than usual in 1762. These receipts are in the possession of Mr. Upcott of the London Institution. Burke took a great interest in the conduct of the Annual Register almost as long as he lived; and Mr. Prior states that much of it was written from his dictation for about thirty years. Latterly it was written by a Mr. Ireland under his direction. It is generally believed that the work again received occasional contributions from Burke after the breaking out of the French revolution; and certainly some of the volumes belonging to that period are written with remarkable ability. To the departments above enumerated were afterwards added others of natural history, a daily list of prices in London, a daily list of motions, marriages, births, deaths, and patents; but some of these heads have been since discontinued. The difficulty of bringing out the work within six months of the close of the year, which was the time that the annual number in this Register has, for the first time, a different paging from the History, according to the plan which is still followed, having, as is stated in the preface, been put press before the History was ready, in order to expedite the publication. The work was, however, gradually cut into arrears, and at length, instead of some months, it was nearly as many years after the events they had taken place till their history appeared. The publication was in this state about the year 1770. The conductors of the Register then redeemed the conductors to recover their lost ground; on one occasion, two years, 1784 and 1785, were compressed into one volume, the 27th; and early in 1801 they had the satisfaction of publishing the volume for the year immediately preceding; thus closing the century with the work completed up to that date. Since then the publication has proceeded regularly at the rate of a volume each year. That last published, being the Annual Register for 1835, is the 174th of the series. Of the older volumes, several are wanting, several of late years in order to complete sets. An index to the work, from its commencement to the year 1780 inclusive, was published soon after the completion of the volume for that year. An index was published in 1820; a second index appeared, comprehending the former, and embracing also all the additional volumes up to that for 1819 inclusive.

In 1781 was published the first volume of the New Annual Register, containing the history of the preceding year. It was projected and originally edited by Dr. Kippis; after whose death, in 1775, it was conducted by the Reverend Thomas Morgan, L.L.D., the co-editor of Dr. Aikin in the preparation of his Dictioanary. In his Bibliotheca Britannica, states that this publication was at one time edited by the late Mr. John Mason Good; but we do not observe that this is mentioned in Dr. Olinthus Gregory's A New Register of the Year 1781. The New Annual Register was continued till 1825, but it never attained the reputation of its predecessor and rival.

The Edinburgh Annual Register was commenced in 1808, and was continued at least till 1825. We believe it is no longer published. The Edinburgh Annual Register was first edited by the late Dr. John Rippon; the Historical, Political, and Literary Register for 1789, published in 1787; and the Imperial and County Annual Register for 1818, in imitation of the English Annual Register, was commenced at Paris in 1818, under the title of
Annuaire Historique Annuel; and there is also the American Annual Register, published at New York.

ANNUALS. By this name gardeners design all plants of the annual species of vegetation, which, when the season is mild, come up and bloom, or if the season is severe, and perish in the course of the same season; if two seasons are generally requisite for this purpose, they then call plants biennials—but in fact they are both of the same natural order, and so known, being of the same nature as the sweet potato, and the latter, if sown early in the spring, will go through every stage of life in the same year; the only difference between them is, that biennials are rather longer in completing the term of their existence than annuals.

Physiologically considered, all plants belonging to a much more extensive body of vegetable than is usually supposed. Plants may be said to consist of two kinds, those which perish after once producing their fruit, and those which continue to grow and produce annually after they have flowered; to the first of these classes belong not only annual and biennial herbs, but also many palms, the agave, and several other monocotyledonous trees.

The usual mode of multiplying annually is by their seed. It is, however, possible to dispense with this mode, and to perpetuate them by cuttings, care only being taken that the part used for a cutting is not in a flowering state; in this way the subgenus of such plants as balsamum and the like can be propagated in the same manner. A seed, it may be renovated when in the last stage of decay by their young branches being cut off and made to put forth roots; and the different races of cabbages, the qualities of which can be transmitted by the same, by this plan of seed-saving, may be carried forward from year to year. (See Gardener's Magazine, vol. ix. p. 526.)

Gardeners distinguish annuals into two kinds, hardy and tender; the first comprehends all those which will grow if their seeds are sown at once in the open; the last consist of such as require to be raised in artificial heat. The management of both these is so simple and well known that little requires to be said upon the subject; there are, however, two or three points that deserve to be particularly adverted to. The seeds of hardy annuals are apt to be destroyed by birds, or to be scooped up by a continuance of dry weather; both these accidents may be prevented by inserting over the patch in which they are sown a common flower-pot; this should be examined daily, and as soon as the plants are found to be making their appearance, it should be elevated a little by resting its rim on two or three pebbles, so as to admit air and light. After a little while the plants will be fully established, and the pots may be removed.

Two things only are to be observed in the management of tender annuals beyond the ordinary practice of every gardener. Firstly, they should not be raised in a very high temperature, since an annuity is granted in consideration of money advanced, the annual payments may be considered as composed of two portions, one being in the nature of interest, the other a return of a portion of the principal, so calculated, that when the annuity shall have determined, the whole of the principal with an interest of annuitant shall be returned. The parties are entitled to the only security that can be given by persons who have themselves but a limited interest in their property, are frequently made in consideration of a loan. Besides this advantage, annuities for life, inasmuch as they are attended with risk, are not within the reach of the usury laws, and are therefore often used in order to evade them; the legislature has for this reason thought fit to require that certain formalities should be observed in creating them. It is enacted (by the 53 Geo. III., c. 141) 'That every annuity for life is granted shall be null and void, unless within thirty days after the execution thereof, there shall be enrolled, in the High Court of Chancery, a memorial containing the date, the names of the parties and witnesses, and the conditions of the contract; and if the lender does not really and truly advance the whole of the consideration money—that is, if part of it is returned, or is paid in notes which are after they are convertible into money, or obligate the person charged with the annuity (that is, the borrower) may, if any action should be brought against him for the payment of it, by application to the court, have it discharged and cancelled.' The same statute also enacts, that every contract for the purchase of an annuity, made with a minor, shall be void, and shall remain so, even though the minor, on coming of age, should attempt to confirm it. The pro-
visions of this act are intended to be confined to cases where the annuity is granted in consideration of a loan.

Annuities may be, and very frequently are, created by will, and in such cases the testator may, if he so desires, either make the annuity a general legacy and, in case of a deficiency in the estate of the testator, it will abate proportionately with the other legacies. The payment of an annuity may be charged either upon some particular part of the estate of the life in respect of the annuity (cases) or upon the whole personal estate of the grantor; which is usually effected by a deed of covenant, a bond, or a warrant of attorney. If the person charged with the payment of an annuity becomes bankrupt, such payments may be allowed as a debt before the Commissioners, and its value ascertained, according to the provisions of the bankrupt act (6 Geo. IV. c. 16, s. 54). The value thus ascertained becomes a debt charged upon the estate of the bankrupt; and thereby both his bankruptcy and his surety are discharged from all subsequent payments.

If the person on whose life an annuity is granted dies between two days of payment, the grantee has no claim whatever in respect of the time elapsed since the last day of payment (see Apportionment): from this rule, however, are excepted such annuities as are granted for the maintenance of the grantee, and the parties may in all cases, if they so choose it, by an express agreement, provide that the grantee shall have a receivable portion of the annuity for the time between the last payment and the death of the person on whose life it is granted. On government annuities a quarter's annuity is paid to the executors of an annuitant, if they come in and prove the death. (See Comyn's Digest, title: Annuity; Lumley On Annuities.)

ANNUITY, a term derived from the Latin annus, a year; signifying, in its most general sense, any fixed sum of money payable either in part or in full upon the giving of a certain portion of the time at stated periods of the year. Thus, the lease of a house, which lets for 50l. a year, and which has 17 years to run, is to the owner an annuity of 50l. for 17 years. In an ordinary use of the term, it signifies a sum of money payable at an indefinite or varying time during life. In the former case, it is called, in technical language, an annuity certain, and in the latter, a life annuity.

It is evident that every beneficial interest which is either to continue for ever, or to stop at the end of a given time, such as a freehold, a lease, a debt to be paid in yearly instalments, &c., is contained under the general head of an annuity certain, while every such interest which terminates with the lives of any one or more individuals, all that in law is called a life-estate, and all salaries, as well as what are most commonly known by the name of life annuities, fall under the latter term. Closely connected with this part of the subject are copyright, (which see,) in which an estate is held during the lives, but in which there is a power of renewing any life when it drops, that is, substituting another life in the place of the former, on payment of a fine—reversion, or the interest which the next proprietor has in any estate, after the death of the proprietors—and life-insurance (see Insurance,) in which the question is, what annuity must A. pay to B. during his life, in order that B. may pay a given sum to A.'s executors at his death.

If money could not be improved at interest, the value of an annuity certain would simply be the yearly sum multiplied by the number of years it is to continue to be paid. Thus, a lease for 3 years of a house which is worth 100l. a year, might either be bought by paying the rent yearly, or by paying 300l. at once. A life annuity, in such a case, will be worth an annuity certain, continued for the average number of years lived by individuals of the same age as the one to whom the annuity is granted. But if compound interest be supposed, which is always the case in real transactions of this kind, the landlord, in the case of the annuity certain just alluded to, must only receive such a sum, as when put out to interest, with 100l. subtracted every year for rent, will just be exhausted at the end of 3 years. To exemplify this, let us suppose that money can be improved at 4 per cent. In Table I., in the column headed 4 p.c. (4 per cent) we find 277-5½ opposite 3 in the first column, by which is meant that the present value of an annuity of one pound to last 3 years is 277-5½. The present value of an annuity of 100l. under the same circumstances is, therefore, 277-5½, or 277.10a. This is the value of a lease for three years corresponding to a yearly rent of 100l. This reduces this, and puts it out at 4 per cent, will, at the end of one year, have 268.12a. From this he subtracts 100l. for the rent which has become due, and puts out the remainder 188l. 12a. again at 4 per cent. At the end of a year this has increased to 196l. 12a. 10d., from which 100l. is subtracted for rent. The remainder, 96l. 2a. 10d., again put out at interest, becomes at the end of the year 99l. 12a. 3d., within three pence of the last year's rent. This little difference arises from the imperfection of the Table, which extends to three decimal places only.

The following table will shew the present value of 1l. per annum continued for 10 years, interest being at 5 per cent. In the column headed 5 p.c. there is a tabulated value for 1l. per annum for 10 years, the first column, will be found the value 7725l. or 71l. 14s. 6d.

This would be commonly said to be 7725l. year's purchase of the annuity. For a convenient rule for reducing decimals of a pound to shillings and pence, and the converse, see the Penny Magazine, No. 52. It may also be done by the following table:

<table>
<thead>
<tr>
<th>Dec.</th>
<th>1</th>
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<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>

For example, what is 665l. in shillings and pence?

Table II. 6 65 is £0 12 0 005 " 12 1

Again, what is 17s. 10d. in decimals of a pound?

Table III. £0 10 0 is £ 5 7 5 10 0 042 0 " 003 1

£0 17 10 0 895

These conversions are not made with perfect exactness, as only three decimal places are taken. The error will never be more than one farthing.
To use Table I, the number of years is not in the table, but is intermediate between two of those in the table, such a number must be taken between the annuities belonging to the nearest years above and below the given year, as the given year is between those two years. This will give the result with sufficient nearness. We must observe, that no table which gives the value of 100 persons' annuities differs in more than a first guess, so to speak, at the value required, such as may enable any one, who is master of common arithmetic, not to form a decisive opinion on the case before him, but to judge whether it is worth his while to make a more exact enquiry, either by taking the advice of a person versed in these tables, or consulting larger tables. As an example of the case mentioned, suppose we ask for the value of an annuity of 1l. continued for 12 years, interest being at 4 per cent. We find in Table I., column 4 per cent.

\[
\begin{array}{c}
\text{For 100 years:} & 8625 \\
\text{8111} & 11120
\end{array}
\]

\text{Difference: 3007.}

Since 5 years adds 3007 to the value of the annuity, every year will add about one-fifth part of this, or 601, and 2 years will add about 1202. This, added to 8111, gives 9313. The real value is more near to 9395, and the difference is not sufficient for more than a first guess, so to speak, at the value required, such as may enable any one, who is master of common arithmetic, not to form a decisive opinion on the case before him, but to judge whether it is worth his while to make a more exact enquiry, either by taking the advice of a person versed in these tables, or consulting larger tables. As an example of the case mentioned, suppose we ask for the value of an annuity of 1l. continued for 12 years, interest being at 4 per cent. We find in Table I., column 4 per cent.

\[
\begin{array}{c}
\text{For 100 years:} & 8625 \\
\text{8111} & 11120
\end{array}
\]

\text{Difference: 3007.}

Table IV.—Amount of an Annuity of One Pound.

\[
\begin{array}{cccc}
\text{Amount} & 1 & 2 & 3 \\
\text{Annuity} & 1000 & 2000 & 3000 \\
\text{Interest} & 500 & 1000 & 1500 \\
\text{Present Value} & 500 & 1000 & 1500 \\
\end{array}
\]

Since 5 years adds 3007 to the value of the annuity, every year will add about one-fifth part of this, or 601, and 2 years will add about 1202. This, added to 8111, gives 9313. The real value is more near to 9395, and the difference is not sufficient for more than a first guess, so to speak, at the value required, such as may enable any one, who is master of common arithmetic, not to form a decisive opinion on the case before him, but to judge whether it is worth his while to make a more exact enquiry, either by taking the advice of a person versed in these tables, or consulting larger tables. As an example of the case mentioned, suppose we ask for the value of an annuity of 1l. continued for 12 years, interest being at 4 per cent. We find in Table I., column 4 per cent.

\[
\begin{array}{c}
\text{For 100 years:} & 8625 \\
\text{8111} & 11120
\end{array}
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\[
\begin{array}{c}
\text{For 100 years:} & 8625 \\
\text{8111} & 11120
\end{array}
\]

\text{Difference: 3007.}


<table>
<thead>
<tr>
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<th>4 pr.</th>
<th>3 pr.</th>
<th>4 pr.</th>
<th>3 pr.</th>
<th>4 pr.</th>
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<td>16-1</td>
<td>19-6-10</td>
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<td>0-2</td>
</tr>
</tbody>
</table>

The first of these is calculated from the Northampton Table, formed by Dr. Price, from observations of burials, &c.
at Northampton. As compared with all other Tables of authority, it gives too high a mortality at all the younger and middle ages of life, and, consequently, too low a value of the annuity. The second is from the Carlisle Table, formed by Mr. Milne, from observations made at Carlisle. It gives much less mortality than most other Tables, and, therefore, gives higher values of the annuities; but it has since been noticed to represent too constant a state of life among the middle classes, in the century now ending, with much greater accuracy than could have been supposed, considering the local character of the observations from which it was derived. The Table is that compiled, from the observation of the mortality in the government tontines and among the holders of annuities granted by government in redemption of the national debt, and differs from the former two in distinguishing the lives of males from those of females. Most observations hitherto published unite in confirming the fact, that females, on the average, live longer than males, and in the annuities now granted by government, a distinction is made accordingly. The mean between the values of annuities on male and female lives, according to the Government Tables, agrees pretty nearly with the Carlisle Tables, the rate of interest being the same.

For the materials of Table V, we are indebted to the works of Dr. Price, on Annuities, and of Dr. Price, on Annuities and Mortality; and to Mr. Finlaison's Report to the House of Commons on Life Annuities; to all of which we refer the reader. The tables are of course very much abridged.

To use the Table V, suppose the value of an annuity of 100l. a year, on a life aged 55, is required, interest being at 4 per cent, which is nearly the actual value of money. We find in the column marked 4 per cent, opposite to 55, under the Northampton Tables 149, under the Carlisle 169, and under the Government Tables 157 or 169, according as the life is male or female. These are the numbers of pounds which ought to buy an annuity of 1l., according to these several authorities; and taking each of them 100 times, we have:—

Table V.—Annuity at age 55

<table>
<thead>
<tr>
<th>Age</th>
<th>Northampton</th>
<th>Carlisle</th>
<th>Government Table (males)</th>
<th>Government Table (females)</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>149</td>
<td>169</td>
<td>157</td>
<td>169</td>
</tr>
</tbody>
</table>

We cannot suppose that the annuity could be bought for less than would be required by the Carlisle Tables.

To find the value of an annuity on a life whose age lies between those of those given in the table, the process must be followed as before, and which has been already explained in treating of annuities certain.

An annuity on two joint lives is one which is payable only so long as both the persons on whose lives it is bought are alive to receive it.

Table VI.—Present Value or Purchase-money of an Annuity of 1l. on two Joint Lives.

<table>
<thead>
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<th>Age</th>
<th>Carlisle</th>
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<td>80</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>90</td>
</tr>
</tbody>
</table>

Table VI.—Annuity at age 25

<table>
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<td>4</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>60</td>
</tr>
</tbody>
</table>

The preceding table gives the results of the Carlisle and Northampton Tables on the value of this species of annuity, interest being at 4 per cent. The first column shows the age of the younger life, and the horizontal headings are not the age of the elder life, but the excess of the age of the elder life above that of the younger. For example, to know the value of an annuity in two joint lives, aged 25 and 55, in which the difference of age is 30 years. In the Carlisle Table opposite to 25, the younger, and under 30, the difference, we find 10:3; and 8:5 in the Northampton. For the value of an annuity of 100l., the first table gives, therefore, 1030l., the second 850l.

The value of an annuity on the longest of two lives, that is, which is to be payable as long as either of the two shall be alive to receive it, is found by adding together the values of the annuity on the two lives separately considered, and subtracting the value of the annuity on the joint lives. For the above species of annuity puts the office and the parties in precisely the same situation as if an annuity were granted to each party separately, but on condition that one of the annuitants should be returned to the office so long as both were alive, that is, during their joint lives, let the ages be 25 and 55 as before, and let the Carlisle Table be chosen, interest being at 4 per cent, we have then:

Table VI.—Joint annuity, 65 & 55

<table>
<thead>
<tr>
<th>Age</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>127</td>
</tr>
<tr>
<td>55</td>
<td>289</td>
</tr>
<tr>
<td>100</td>
<td>18:6</td>
</tr>
</tbody>
</table>

The value, therefore, of an annuity of 1l. per annum on the survivor is 18:6l.

The value of an annuity which is not to be payable till either one or other of two persons is dead, and which is to continue during the life of the survivor, is found as in the last case, only subtracting twice the value of the joint annuity, instead of that value itself. In the preceding case it is 8:3l. For this case only differs from the preceding, in that the annuity is not payable while it is during the joint lives. Consequently the value in this case is less than that in the last, by the value of an annuity on the joint lives.

The value of an annuity to be paid to A. from and after the death of B., if the latter should happen to die first, is the value of an annuity on the life of A. diminished by the value of an annuity on the joint lives of A. and B. For the situation is exactly the same as if the office granted an annuity to B. which is to return as long as he lives. The ages and Table being as before, and the life on whose survivorship the annuity depends being that aged 25, we have:

Table VI.—Annuity at age 25

<table>
<thead>
<tr>
<th>Age</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>17:6</td>
</tr>
</tbody>
</table>

Difference 7:3

whence the value of the required annuity of 1l. is 7:3l.

The following Table, extracted with abridgment from Morgan on Insurances, deduced from the Northampton Table, with interest at 4 per cent, gives the average sum to which the savings of an individual may be expected to amount at the end of his life, improved at compound interest from the time when he begins to lay by:

Table VII.—Probable amount of 1l. laid by yearly, and improved to the end of Life.

<table>
<thead>
<tr>
<th>Age</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>137:9</td>
</tr>
<tr>
<td>1</td>
<td>137:9</td>
</tr>
<tr>
<td>2</td>
<td>137:9</td>
</tr>
<tr>
<td>3</td>
<td>137:9</td>
</tr>
<tr>
<td>4</td>
<td>137:9</td>
</tr>
<tr>
<td>5</td>
<td>137:9</td>
</tr>
<tr>
<td>6</td>
<td>137:9</td>
</tr>
<tr>
<td>7</td>
<td>137:9</td>
</tr>
<tr>
<td>8</td>
<td>137:9</td>
</tr>
<tr>
<td>9</td>
<td>137:9</td>
</tr>
<tr>
<td>10</td>
<td>137:9</td>
</tr>
</tbody>
</table>

That is to say, according to the Northampton Tables, if a person were, at the age of 25, (that is, a year after 5,) to begin laying by 100l. a year at interest, he might expect the amount at the end of his life to be 792l. for each pound laid yearly, or 792l. Or to speak more strictly, if 100 persons were to do this, they might expect that the average amount of their savings, reckoning the accumulations at their deaths, would be 792l. each. As we have already observed, the mortality of the Northampton Table is greater
than the facts, and the average accumulations would be greater, from young ages considerably greater, than those shown in the preceding table.

The accuracy of the method for estimating the value of life annuities, depends upon the presumption that the average mortality of the buyers is known. This average cannot be expected to hold good, unless a large number of lives of the same kind, or of a single community, or of a few annuities, as a commercial speculation, should deserve no other name than gambling, even though the price demanded should be as high as that given in any tables whatever.

In the preceding tables, we would further remark, that our object has been simply to furnish the means of giving a moderately near determination of a few of the most simple cases. We should strongly recommend every one not to venture on important insurances without professional or other advice on which he can depend, unless he himself fully understands the principles on which tables are constructed. The liability to error, even in using the most simple table, is very great, without considerable knowledge of the subject, and most cases which arise in practice contain some circumstances peculiar to themselves, which have not and could not have been provided for in the general rules.

The following references to works on this subject may be found useful.

Annuités Certain. 1. Smart's Tables of Interest, &c. London, 1736. There is an edition published in 1750, which is said to be very incorrect. The values for the intermediate half years given in this work are not correctly the values of the annuities on the supposition of half yearly payments; in other respects it is to be depended upon.


Annulet, in architecture. This term is applied to the small semicircular rings or bands which enrich the lower part of the megaron, in the Doric order, and which it fills in going out of the top of the shaft, or trachæion. It is formed from the Latin word signifying a ring.

Annulus, the geometrical name of a ring, or solid formed by the revolution of a circle about a straight line exterior to its circumference as an axis, and in the plane of the said circle.

To find the surface of a ring, measure the interior and exterior diameters in feet or inches, &c. Multiply together the sum and difference of these diameters, and multiply this product by \(2\pi\), taking as many decimals as may be thought necessary. For common purposes it will be sufficient to divide 200 times the product of the sum and difference twice successively by 5. If still greater correctness may be required, subtract from the last result its 500th part. The result will be the number of square feet, or inches, &c., in the ring.

To find the solid content of a ring, measure the outer and inner diameters as before, multiply together their sum and the square of their difference, and multiply this product by \(\pi\). For common purposes, it will be sufficient to annex three cubits to the product of the sum and the square of the difference successively by 5. Therefore, the result will be the number of cubic feet or inches, &c., in the ring.

Anoa, a species of ruminating animal, so very imperfectly known, that zoologists are undecided whether to class it among the animals. The uncertainty arises from the fact, that though the animal has been noticed for many years, only a few fragments of skulls and horns have been hitherto brought to Europe, and even these too imperfect to acquaint us with the zoological characters of the animal. Judging, however, from these

materials, the anoa would really appear to be a species in many respects intermediate between the buffaloes and antelopes, as at present defined, agreeing with the former in the form of its horns, and with the latter in their position.

Mr. Pennant is the first naturalist who has mentioned this animal, but he has given no account of its characters, and merely relates, that it is about the size of a middling sheep, is wild and fierce, and therefore, the grazing of a species of a same community, or of a few antelopes, as a commercial speculation, would deserve no other name than gambling, even though the price demanded should be as high as that given in any tables whatever.

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horns are erect, perfectly straight and in the plane of the forehead; they are about the same length as the head, that is, about nine or ten inches, strongly depressed or flattened in front, of nearly the same breadth till within three inches of the extremities, whence they are rather attenuated to the tips which are bluntly pointed, and irregularly wrinkled, or rather crumpled throughout the greater part of their length. The head is long and narrow, terminating in a broad muzzle, and all the characters so different from those of antelopes, that we prefer, in the present state of our knowledge, describing the animal under its native name of anoa, to the risk of originating future error by associating it with a genus to which it appears to bear but a remote analogy.

Anodynes, from the Greek word ἀνόδοντος (anodōntos), which sometimes signifies, 'that which relieves from pain.' We may consider pain as an intimation of some derangement of the system, the continuance of which would be hurtful. It therefore prompts us to take measures to remove the cause of it, which being done, the pain generally ceases. But as pain itself, from the inconvenience and suffering which it occasions, frequently aggravates the disease of which it is the accompaniment, it becomes necessary to employ means to lessen or suspend it, even though we should not be able to control the disease; these means are termed anodynes, and are either applied externally, or given internally.

The seat of pain is evidently in the nervous system, but its cause and origin appear to be intimately connected with the state of the circulating system, particularly with the quantity of blood contained in the arteries, and the degree of force and rapidity with which it passes through them. Hence pain may be said to be of two kinds, that which occurs when the blood stagnates in the extreme vessels, or capillaries, while the larger vessels propel it with increased force, or the state termed inflammation; and that which occurs when there is a deficiency of blood
in the extreme vessels, from the action of the large vessels being too feeble to propel it, as happens after long abstinence from food, or other causes of exhaustion—such as prolonged sucking of infants by mothers. The discrimination between these two points of view is of practical importance; for while the first will be relieved by bleeding and anodynes, the second will be greatly aggravated by the employment of either of these means. It is therefore to the nature of the case of anodynes that we must limit our attention, which they appear to be productive of benefit in two ways: first, by rendering the nerves of the part less sensible; and, secondly, by diminishing the violence with which the large vessels propel the blood, when the anodynes are given in the proper manner. When this is done, the irritation is produced by a process extremely complex, which we need not explain here, the contractile power of the heart and arteries. As most of the articles termed anodynes have a powerful influence over the brain, they generally produce sleep, and given in a large dose: hence they are also denominated hypnotics; and from causing insensibility, they are also denominated narcotics. The knowledge of their possessing this power should lead us to observe great caution in their administration, lest by an over-dose we should produce a fatal coma, or very profound sleep, from which the patient might never be roused. It deserves also to be mentioned, that their frequent repetition produces an injurious effect on the frame, particularly on the nervous system, and function of nutrition; we should therefore carefully guard against acquiring a habit of having recourse to them on slight occasions, or without the sanction of a competent authority. The open mouth, it is true, does not certainly induce disease, and brings himself to an untimely end, than he who indulges in alcohols and spirits.

The substances used as anodynes are, with one exception, derived from the vegetable kingdom, and will be further treated of under the names of the plants which produce them. They are Opium, Hyoscyamus, or Hombone, Solanum Dulcamara, or Woody Night-shade, Atropa Belladonna, or Deadly Night-shade, Hydrocyanic, or Prussic acid, and Carbolic-acid-gas applied in the pest pestivorous, and other forms.

ANOLIS, in zoology, a genus of saurian reptiles, belonging to that section of the iguanian family which Baron Cuvier distinguishes by having teeth in the palate of the mouth as well as in the maxillary bones. They are readily distinguished from the iguanas, properly so called, the basilisks, and other genera of this division, by the peculiar form of the antepenultimate phalange of the toes, which is flat, tended beneath, and furnished with a kind of pad or cushion, grooved or striated transversely, and serving to make the animals adhere more firmly to those substances which they grasp in walking. In this particular point of their structure, in the action of the geckos, and indeed in the feet, they do not resemble them to exercise the singular power of walking with the legs uppermost, like flies on a ceiling, which some of these reptiles possess. The toes, however, are much longer and better adapted than those of the geckos, and the feet, instead of being short and flattened, are long, crooked, and sharp-pointed. The body and tail are long and slender, as are also the legs, particularly those behind, which are rather longer than the fore legs; each foot has five toes. The whole body and tail, both above and below, are covered irregularly with small round scales, which give the skin a granulated appearance like that of fine shagreen. The head is long and straight; the forehead and face flattened and covered with pairs of lingual and nodular scales; the tongue is flabby, short, round, undivided at the point, and not protracible, being almost throughout its whole length attached to the under jaw. The tail is in all cases as long or longer than the body, more or less compressed on the sides, with a few slight plicae or indistinct foldings, each comprising two or three circular rows of scales, and in some species provided with a crest supported by the erect spinous processes of the caudal vertebrae. The teeth, as well maxillary as molar, are small, sharp, and pointed, the skin of the throat forms, at least in the greater number of species, a loose hanging bag, which is capable of being dilated or distended with air at the will of the animal. Finally, the anal is perfectly united in front, and form complete circular loops round the body.

The anolis are entirely an American genus, and seem, in many respects, to supply, in the New World, the place which the chameleons occupy in the Old. The colours of their skins change with the same or even greater rapidity, especially on the loose skin of the throat, which is constantly distended when these animals are actuated by strong passions, either of fear, anger, or love, and in this state assume an endless succession of ever-varying hues. They differ from the chameleons, however, in their more slender and graceful proportions, and in the great activity of their movements, displaying all the readiness and celerity of the common green lizard of Europe, and being limited to the situations indifferently, climb and leap with such swiftness and facility that their pace has been compared to the flight of a bird; and when overheated or fatigued by their exertions, will stop, open their mouths, and pant like a dog. They are extremely timid and harmful; food for the most part upon flies and other small insects, though M. Cuvier found the stomach of one species filled with berries; and though often inhabiting the neighbourhood of marshes and other moist situations, do not appear to be aquatic. There are two small subgenera, distinguished from one another by the presence or absence of the carinated crest on the upper surface of the tail. The first of these divisions, comprising those which have the skin of the throat, a certain number of species definitely characterised by M. Cuvier, but formerly confounded under the denominations of Lacerta principalis and Lacerta binimarulata. The principal are,
sures about a foot in length, and the tail is nearly half as long again. It is of a light tawny colour, agreeably clouded in different parts with blotches of an ashly lilac tinge, but so blended and shaded off with the ground colour of the body, as never to assume the form of distinct spots. The skin of the throat is white, and a band of the same colour passes over each shoulder, and runs parallel to the back almost half way down each side. Though the crest on the tail does not appear externally, yet the spinous processes of the caudal vertebrae have the same elevated form as in the anolis of the first subgenus, and appear to be concealed only by the more flashy form of the tail. The habitat of this species has not been exactly determined.

4. The Anolis cepedi of Merrem is a pretty little species, found likewise in the Antilles about half the size of the last, of a green colour, with a short muzzle spotted with brown, and, except in the absence of the crest on the tail, very similar to the Anolis bimaculata. Its habits are well described by Lacépède.

5. Anolis lineatus of Daudin resembles the last species in its pure bright green colour, but it is rather larger, and is marked along each flank with two parallel lines of oblong black spots, the upper of which passes over the arms and thighs, and the under among the shoulders and hips. It inhabits different parts of South America.

6. The Anolis bullarius of Merrem, first described by Catesby in his Natural History of Carolina, under the name of green lizard, is a very beautiful species, of a greenish gold colour, particularly distinguished by a black band on the temples, and the elongated and flattened form of its muzzle. This and the two last-described species, as well as various others described by Daudin, prince Maximilian, and others, have the loose skin of the throat of a beautiful cherry colour when distended, and change from one hue to another with a facility and rapidity truly astonishing.

ANOMALISTIC YEAR, the interval which elapses between two successive times when the earth is at the least distance from the sun. If the earth's orbit were a perfect ellipse, this would be exactly equal to the common or tropical year; the orbit is, however, more nearly represented by an ellipse of which the axis revolves through 11° 8' in a year. That is, if we imagine a star which is always eclipsed by the sun's centre, at the moment when the earth is at its least distance, that star must follow the sun at the rate of 11° 8' in a year, or a revolution in 188,000 years, in round numbers. The anomalous year, or the time between two successive eclipses of the supposed star, is 25 minutes longer than the tropical year, being 365 days, 6 hours, 12 minutes, 43 seconds.

ANOMALY, (in Astronomy,) a term derived from the Greek anomaly (aneidosis), unequal or irregular, and applied in astronomy to the angle through which the radius drawn from a planet to the sun, has moved with the planet from the time when the planet was at its least distance from the sun. The term was applied to this angle, as being the angle whose irregularities were first observed; though it must be confessed that this is not a happy specimen of mathematical nomenclature.

Let S be the position of the sun, in the focus of the ellipse described by the planet, A the perihelion, or point of least distance from the sun, APM the ellipse described by the planet, AQM the circumscribed circle, P the place of the planet, and QPN a perpendicular to the axis AM. Let C be the centre of the ellipse and circle. The planet moves quickest at A, and slowest at M. Conceive a fictitious planet Z to move round the ellipse APM, with the average motion of the real planet, so as, without varying its motion, to make the angle AZS increase uniformly, and to describe the whole revolution in the same time as the real planet. Then, for the moment when the planet is at P, the angle ASP is called the true anomaly, AZS is called the mean anomaly, and ACQ the eccentric anomaly. In speaking of the sun or the moon, it is the earth which is supposed to be at S, and the sun or moon at P. Also, in speaking of the satellites of Jupiter or Saturn, the planet is supposed to be at S, and the satellite at P. For a double star, one star is supposed to be at S, and the other to revolve round it. The determination of either two anomalies from the third, is a problem of considerable difficulty, the discussion of which may be found in any mathematical work on astronomy.

[Anolis buvularis, or sour sop.]
cultivated in the West Indies and South America. Finally, the bark of some species readily into fibers which make excellent cordage: a large tree called, in Brazil, pinhao, and by botanists *zylophora sericea*, is advantageously employed for this purpose.

The natural order Anonaceae is known from all other dicotyledonous orders by its flowers having the calyx and sepals arranged in threes, a number of carpels occupying the centre, as in a ranunculus, and by the curious circumstance of their albumen, which here constitutes the bulk of the seed, being what is called ruminated, that is, perforated in all directions by twisting and crossing passages, like the nutmeg.

The preceding cut will give an idea of the structure of this order:—1. A calyx opened, the petals having fallen away, showing the arrangement of the stamens and carpella in the inside of the flower; 2. a stamen; 3. a seed; 4. the same cut in half, to show the ruminated albumen; 5. the embryo; 6. a ripe fruit, much less than the natural size; the projections on its surface are the points of the carpella which grow together into one fleshy mass, as in the raspberry; 7. a view of the same fruit cut in half.

Of the edible fruited kinds above referred to, the most remarkable are the sweet sop, sour sop, and cherimoyer; all species of the genus Anona.

The sweet sop, *Anona squamosa*, is often only a small bush, growing in all the West Indian islands, where it bears a greenish fruit covered with scales, and having the appearance of a young pine cone. Its skin is half an inch thick, and contains an abundance of thick, sweet, juicy pulp; in many parts of the Indian Archipelago, it is a favourite fruit.

The custard apple, *Anona reticulata*, is an inferior kind, resembling the foregoing, but forming a larger tree, and having a much larger dark-brown fruit, the surface of which is netted all over. The bulb is yellowish, or reddish, and of about the consistence of custard.

The sour sop, *Anona muricata*, forms in the West Indies a picturesque small tree, resembling a great bay-tree. The flowers are yellow, and have an unpleasant odour. The fruit is often as heavy as 2 lb., or even 3 lb.; it is covered all over with weak prickles; its skin is yellowish-green, and very thin; its pulp is more like pith, is as white as milk, and is sweet, mixed with a most agreeable acid.

The cherimoyer, *Anona cherimola*, is easily known from the preceding by its leaves not being shining and bright-green, but hoary, with short down, and very blunt. It forms a small tree about twelve or fourteen feet high, and is exceedingly valued in Peru, where it is cultivated on account of the excellence of its fruit. The flowers are very fragrant, the fruit heart-shaped, greyish-brown, or black, when ripe, with a scaly rind; the fruit is white, sweet, and rich. In the garden of the archbishop of Granada, in Spain, there were specimens of this which fruited every year, and were found to be really excellent even to a European palate.

The following spirited sketch, by Mr. Westall, of the appearance of the sour sop tree, will give some idea of the effect it would be likely to produce on the scenery of the country where it grows.

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ANOPLETHERIUM (from *a* privative, *de-*ve, and *theia*, that is, a beast without offensive arms or teeth), in fossil zoology, a genus of extinct pachydermous quadrupeds, discovered and characterized by Baron Cuvier. The bones of these singular inhabitants of a former world, occur in great quantities, mixed with those of the palæotherium, another extinct genus of the same order, likewise described by M. Cuvier, in the gypsum or plaster quarries in the neighbourhood of Paris, and they are occasionally, though more rarely, met with in the neighbourhood of Orleans and Genoa. It was only after researches continued for many years, that M. Cuvier succeeded in uniting the disjointed and broken fragments of bones belonging to the different parts and members of this genus, so as to reconstruct the complete skeleton of the animal, and obtain a definite and correct idea of its external form and appearance. The great labour and admirable skill which he has displayed in these profound and difficult inquiries were, however, finally crowned with success, and rewarded him not only with a knowledge of six distinct species, but even enabled him, in some instances, to depict their external forms, and infer, by an admirable chain of inductive reasoning, their probable habits and economy. Without entering into the minute and profound osteological comparisons which engaged the attention of M. Cuvier, and which those who desire to pursue the subject farther will find at length in the third volume of the *Osteum Foetens, we shall here give the result of his inquiries, and endeavour to supply a correct idea of the form and affinities of these antediluvian inhabitants of our earth.

The first character in which the anopletheria differ essentially from all other pachyderms, whether extinct or recent, is found in the number and arrangement of their teeth, which consist of six incisors, two canines, and fourteen molars in each jaw, making in the whole forty-four teeth. These, as in the human subject, are arranged in a continued...
and uninterrupted series, without any vacancies between the molars or incisors and the canines, a circumstance peculiar to this genus of animals among the pachydermata, and which, besides man, it shares only with the shrews and hedgehogs; but they resorted to the lakes and marshes of the anteludian world, not for the purpose of preying upon other animals, but in search of aquatic plants, whilst the depressed form of their tails shows that they must have swam and plunged with greater ease and facility than either the tapir or hippopotamus. Like these animals, their ears were probably short and erect, and their bodies sparingly covered with hair, as in all the existing pachydermata. The following outline conveys a just idea of the external figure of this animal, as drawn from the skeleton by M. Cuvier.

The subgenus Anoploterium contains three species, all established from the observation of detached bones, and of the actual forms of which it is consequently impossible to give a correct idea. They differed from the species contained in the two former subdivisions, principally by having a small additional or false hoof both on the fore and hind feet; and this character is so well marked in all the three subgenera of M. Cuvier, that, besides other considerations, it would suffice, among existing animals, to distinguish three separate genera, and perhaps should do so in the present instance. The dichobones were all of small stature: the largest of the three known species (A. loxorugum) was about the size of a has; the other two (A. murinum and A. obtusum), about that of the guinea-pig, were in all probability the smallest of hoofed quadrupeds. M. Cuvier supposes them to have been the hares and rabbits of the anteludian world, but their whole structure seems to approximate them more correctly to the munks of the present time, and they probably differed little from these animals either in form or habits.
ANQUETIL DU PERRON (Abraham Hyacint) was born at Paris on the 7th December, 1731. He received his early education, which was left incomplete, at the Jesuits' College, where he was placed, with a view to the study of the Hebrew language and literature. M. de Caylus, then bishop of Auxerre, induced him to study divinity, for which purpose Anquetil visited two theological seminaries. But his fondness for the literature of the East, and the encouragement of his patron the Abbé Barthélemy, allowed him long to pursue his theological studies; and he returned to Paris, where he made use of the ample stores of oriental learning collected in the Bibliothèque du Roi. Accolade de la Bibliothèque of the Fendicad Sadi came under his eyes, and this circumstance first turned his attention and inquiries towards India and the Parsees. A French army was just at that time fitted out for India. Anquetil resolved to avail himself of the opportunity to visit India and enroll himself as a private soldier, which capacity he quitted Paris on the 7th of November, 1754.

It was only after his departure that his friends obtained for him a small pension (300 livres) from the French government, to assist him in the pursuit of his inquiries. Anquetil disembarked at Pondicherry, on the Coromandel coast, the 10th of August, 1755; hence he proceeded to Chanderanagar, in Bengal, but was disappointed in his hope of finding the Remains of learning in the Sanskrit language. At this place he was taken ill, and the capture of Chanderanagar by the English soon obliged him to leave, and return on foot, by a journey of a hundred days, to Pondicherry, where he embarked on board a vessel which was bound to Mahaimba in the Malabar coast, and continued his way by land, and again on foot. At Surat he became acquainted with some desturs, or Parsi priests from Guzerat, whose assistance enabled him to make the necessary labours. In 1757 he published the translation of the Zend Avesta, which he published after his return home. The progress of the British power induced Anquetil to leave India. He embarked for Europe in an English ship, arrived at London, on the 14th of May, 1761, and on the 4th of May, 1762, went to Paris. The Abbé Barthélemy secured him an appointment in the Bibliothèque du Roi, and in 1763 he was elected a member of the Académie des Sciences. From this time Anquetil devoted himself entirely to literary labours. In 1771 he published his principal work, a translation into French of the Zend Avesta, or the sacred writings of the Parsees, attributed by them to Zaroster. This work had scarcely appeared, when it was attacked with undeserved severity by Mr. (afterwards Sir William) Jones, in his Lettre à M. A. de P., dans laquelle est compris l'Examen de sa Traduction des livres attribués à Zarostere. (London, 1771, 4to.) Jones himself seems to have subsequently felt that he went too far, when he published the translation of the Zend Avesta in a more judicious edition of modern times. But the question concerning the genuineness or authenticity and the exact date of these writings is not yet ultimately settled. A lithograph founded on the beautiful descriptions of Auguste Bonamy of the important of them, the Vendidad-Sadi, which Anquetil brought home from India, is now appearing at Paris, and several French and German Orientalists, especially Eugène Burnouf of Paris and Bopp of Berlin, have, by means of Anquetil's translation, analyzed the original language, and shown its close affinity to the Sanskrit. Of Anquetil's other works we shall here only notice his Recueils Historiques et Biographiques sur l'Inde, which he published in 1792; and his Latin interpretation of Dara Shikoh's Persian translation of the Sanskrit Upanishads, or antient and sacred treatises on the theology of the Brahmins, which appeared under the title Oupahnkhat seetum tgen-don, &c. (Strasbourg, 1804, 2 vols. 4to.) Anquetil died on the 15th of January, 1805. (The biographical notices in the above sketch of Anquetil's life are taken chiefly from the Biographie Universelle.)

ANQUETIL DU PERRON (LOUIS PIERRE), the elder, was the subject of the preceding article. He was born at Paris in 1723, and having studied theology, was, at an early age, appointed director of the Episcopal Seminary at Rheims. From this place he was removed in 1750 to that of the College of Senlis, which situation he held for ten years. He then became Curé of Château-Renard near Montargis, where he spent twenty years of his life, performing his sacred duties in a manner which greatly endeared him to his parochioners. The new ecclesiastical arrangements made at the revolution transferred him from this village to that of La Villette near Paris; and here he remained until his death. Though deprived of the office of clergy, he was seized and thrown into the prison of St. Lazare. The citadelle of the 9th Thermidor (27th of July, 1794) delivered Anquetil along with the other victims of the overthrown tyranny. He had before this been a correspondent member of the French Academy, and the director of the establishment of the Institute in 1795, he was nominated one of the members of the second class. He was soon after appointed to a place under government in the foreign office. He remained there until the year 1808, at the age of eighty-four. Anquetil had all his life been fond of literary occupation; and up to its close is said to have continued his early habit of studying regularly ten hours a day. He is the author of a considerable number of historical and philological works, of which, however, none are now held in much esteem. His best performance is considered to be a History of the City of Rheims, which appeared in three volumes, 12mo, in 1756-7. M. Felix de la Salle, however, is understood to have been conjoined with Anquetil in the composition of this work. His Histoire de la Ligue, which first appeared in three volumes, 12mo, in 1767, being a history of the troubles which distressed France after the death of Louis XIII, is said to have been very much in print. Another of his works is his Prés de l'histoire Universelle, a considerable part of which was written in St. Lazare, and which was first published in nine volumes, 12mo, in 1797. This work has been translated into English, German, and Spanish, and has been translated into several other languages to the great number. There is also a History of France by this writer in fourteen volumes, 12mo, the first of which appeared in 1805: he is besides the author of numerous papers and pamphlets. He published his History of the last two years of the life of his brother, the oriental scholar. (Bibliographie Universelle; Biographie Nouvelle des Contemporains; Encyclopédie des Gens du Monde, Paris, 1833.)

ANSBACH, ANSBACH, or ONOLZBACH, formed a portion of the princedom of the city of Ansbach, which was in the southern part of Franconia, but it is at present merged in the circle of the Rezat, which surpasses every other province of the kingdom of Bavaria in relative population, trade, and manufactories. In 1726 it came under the possession of the Margraves of Brandenburg. It afterwards became the property of the collateral branch of Baireuth, and, on the extinction of that branch in 1726, descended to the subsequent Margraves of Ansbach-Baireuth. The last of this family, who intermarried with the celebrated Lady Craven, youngest daughter of Earl of Craven, and the eldest daughter of Prince of Prussia, his feudal lord, on the 2d December, 1791. The latter, however, was compelled by the French emperor to relinquish it to him in 1806; and Napoleon shortly after the fall of his dynasty restored this portion of the principality to the house of Badeck, which had possessed its former title for the duration of the house of Hohenzollern. Baireuth, the other portion of the united principality, was also extorted from Prussia, after the disastrous conflict at Tilsit, and, by the same distributor of crowns and kingdoms, transferred to the Bavarian sovereign in 1809.

ANSBACH, formerly ONOLZBACH, the capital of the extinct principality of that name, and now the capital of the circle of the Rezat in Bavaria, lies in a fertile and richly-cultivated valley, traversed by the river Rezat, and is built round the confluence of that river with the Holzbach, 40° 14' N., 10° 33' E. long., and about thirty miles south-west of Nuremberg. The town is embellished with handsome squares, and public, as well as private, buildings; the regularity with which the new town is constructed, combined with the attractive country which surrounds it, render Ansbach a pleasant residence. The palace of the former Margraves, a handsome structure in the Italian style, though at present a solitude, retains its gallery of paintings and library; and the good taste, are still kept up for the recreation of the inhabitants. Ansbach is the seat of a court of justice and court of appeal, as well as of a Protestant consistory; it contains also one of the eighteen academies established by the government to promote design and music, and a society of arts and manufactures. The principal manufactures of the place are earthenware, tobacco, linens, cottons, woolens, and white-leads; the number of its inhabitants, which in 1825 was 14,600, is now between 10,000 and 17,000, and in this respect it ranks as
the seventh town in the Bavarian dominions. The holy
fraternity of St. Gumbert, who showed something better
than a mere display of architectural beauty for their abiding-place,
may be looked upon as the founders of Ansbach. Under its native virtues, it
gradually grew into a busy, thriving spot; but, at the present day, it
partakes in no small degree of the character of a remote
quaintness, and still retains some of the picture-like
appearance of a mediaeval cathedral. The aspect of the place
is distinguishable by a singular costume, consisting of a long black
frock, scarlet waistcoat with white buttons, black leather
breaches, and a Lilliputian round hat. The women of Ansbach
are accounted the loveliest and most lively of the Fran-
conian females. Cronesg, a dramatic, and Us, a lyric, poet,
who stand high in the estimation of their fellow-countrymen,
were both of them natives of Ansbach, and a monument has
been erected to the memory of the latter in the grounds attached
to the monastery of Anserac, which is remarkable for its elegance and fidelity.

ANSELM, archbishop of Canterbury in the reigns of
William Rufus and Henry I, commonly called St. Anselm,
was born at Bec, as were many of the great men of
his age, in a town on the Alphe, belonging to the Duke of Savoy. He took
the monastic habit in 1060, at the age of twenty-seven, at Bec in Normandy, where Lanfranc, afterwards archbishop of Can-
terbury, was prior. Three years after, when Lanfranc was
promoted to the abbacy of Caen, Anselm succeeded him as prior of Bec, and when Herluin the abbot of that monastery
died, Anselm became abbot of the house. Anselm came to
England about a.d. 1092, by the invitation of Hugh Lupus,
Earl of Chester, who required his aid in sickness. Soon after his arrival, William Rufus, who was ill at Gloucester,
also required Anselm's assistance, and finally nominated him
(though with great difficulty of acceptance on Anselm's part)
to the see of Canterbury, which had lain vacant so long
from Lanfranc's death in 1069, as to touch the king's conscience with remorse. Anselm, having first stipulated for
the restitution of the possessions of the see as they had stood
in his predecessor's time, was consecrated with great solemnity,
December the 4th, 1093. In the following year, when William Rufus was endeavouring to wrest Normandy from his
brother Robert, a stinted offer, as the king thought it,
of 500,000, was the first cause of the royal displeasure towards
Anselm; for when he obstinately refused to leave Ireland
to go to Rome to receive the pall from Pope Urban II.,
whom the king refused to acknowledge as pope, being in-
clined to favour the party of his competitor Gubert, or
rather being desirous that Anselm should give the papal
pall to himself. At a great council held at Rockingham
castle, when charges were made against Anselm, the ma-
jority of the bishops sided with the king, and renounced
their canonical obedience to the archbishop, while the tem-
poral barons supported him. During this conflict, Walter,
bishop of Alba, the pope's nuncio, brought the pall into Eng-
lard, which it was at last agreed should be carried to Can-
terbury, and placed upon the altar of the cathedral, whence
Anselm was to receive it as if it had been put into his hands
by St. Peter himself. In short, the king pretended to be
reconciled. He soon, however, took an opportunity of again
quarrelling with Anselm for having furnished, as he alleged,
an ill-equipped proportion of troops for the expedition against
Wales. Anselm, now seeing the probability of terminating
his disputes with the king, proposed a visit to Rome to con-
sult the pope, but was personally refused the royal permis-
sion to depart. His resolution, however, was fixed: he went a second time to court to ask for leave, and was again
refused, but gave his blessing to the king, and embarked
at Dover. As soon as the king had ascertained that Anselm
had crossed the channel, he seized upon the archbishoprick,
and, as the king is reported to have said, to the exclusion of
the archbishop got safe to Rome, and was honourably received
by the pope, whom he afterwards accompanied to Capua.
Here he wrote a book upon our Saviour's incarnation; sub-
sequent to which he assisted the pope at the synod or coun-
cil at Rome in 1099. He continued to reside till he heard
of William Rufus's death, with that of Pope Urban shortly
after. Henry I, immediately upon his accession, invited
Anselm to return to England, but fearing his brother Ro-
bert's arrival at the court, he determined to have him
christened 'Emo'. The last Margrave, whenever he could
persuade himself to abandon the more seductive charms
which England, France, and Italy presented, was accus-
tomed to dress himself in the plume and chalice and
table at his neighbouring seat, Triesdorf, which was better
known among his subjects by the name of the 'Falcon's Nest',
and was in high repute throughout the continent for its
creatures. The present archbishop was distinguished by a singular costume, consisting of a long black
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who stand high in the estimation of their fellow-countrymen,
reprinted in 1721; and again at Venice, 1744, in two volumes folio. In the library of Lyons there is a beautiful manuscript of his meditations and prayers. Some of his pieces in the Cologne edition of 1612, and the Lyons edition of 1630, are thought to be suppositional.

Anselm was a man of piety and learning according to the measure of the age in which he lived; but by promoting with zeal and obstinacy the ambitious views of the court of Rome, he involved both his king and country in many troubles, and set an example of opposition which was too well imitated by some of his successors. He was the first who restrained the marriage of the English clergy, by passing the ecclesiastical canons of the years 1192 and 1198. Eadmer the historian, who had been the archbishop's secretary, was the first who wrote his life; and there is another life of him by John of Salisbury, which is preserved by the relation of many supposed miracles which the archbishop is said to have wrought. The canonization of Anselm took place in the reign of Henry VII. at the instance of cardinal Morton, then archbishop of Canterbury,—a singular mark of veneration for one who had been dead so long. (Godwin, de Presulibus; Biogr. Brit. edit. 1778, vol. i. p. 205; Henry, Hist. Brit. b. iii. c. 2; Chalmers' Biogr. Dict. vol. ii. p. 280.)

Anser, the goose, a genus of birds which M. Brisson, vouched properly as a think, separated from the genus of Linnæus. Brisson has been followed in this by Baron Cuvier, Vieillot, Lesson, Drapiez, and Fleming; while Latam adheres to Linnæus, and Temminck confines Anser to a section of Anas. The following are M. Vieillot's characteristics, with some slight modifications. The bill shorter than the head, and higher than wide, but as thick as it is broad, in some species bulged at the base near the forehead, straight, rounded at the point, denticulated with conical and pointed lamellae; the upper mandible is convex and unguiculated at the tip; the lower mandible is flat and rather narrow. The wings are of moderate length, and on some species furnished with tubercles. The legs are considerably longer, and more in the middle of the body than in Anas, and hence geese are better than ducks. There is no enlargement at the base of the windpipe.

The species, twenty-eight in number, will be described under Goose.

ANSON, GEORGE, LORD, was the third son of William Anson, Esq., a gentleman of a good family, long established in Staffordshire. Anson's inclination to the seafaring life discovered itself early. It was his greatest pleasure to read and hear stories of eminent voyagers and admirals; his father, therefore, gave him such an education as was likely to foster and improve the natural bent of his genius. In 1722, he was made master and commander of the Weazel sloop, and the year following was raised to the rank of post-captain, and to the command of the Scarborough man-of-war. In this station in the profession, he was employed on various services, which he discharged with credit.

It was at the breaking out of the Spanish war that he first became an historical character. In 1746, he was appointed to the command of a small squadron, which was ordered to sail for the South Sea, a quarter where no attack was anticipated, to harass the coasts of Chili and Peru, and to cooperate occasionally with Admiral Vernon across the Isthmus of Darien. The scheme was well laid, but frustrated by unaccountable delays in the first instance, and afterwards by some unforeseen accidents. Anson was not able to sail until September; but the dilatoriness which retarded his departure till so late in the year was yet less explicable than the negligence which sent him out with ships ill-fitted for the dangerous navigation on which he was bound. He doubled Cape Horn, in March 1747, after experiencing most tremendous storms. One of the quarters of the squadron was dispersed. He arrived, with only his own ship the Centurion, at Juan Fernandez, on the 9th W. long., June 10, after suffering for near three months from a series of violent gales and terrific storms, and the plagues of the scurry, which in that short time had carried off upwards of 200 from a crew of between 400 and 500 men, and left scarce enough of the remainder in health to work the ship. At that island he was rejoined by the remains of his squadron, except the Gloucester, man-of-war, his sloop, and a vessel, called in the phraseology of the times a pink, laden with provisions. His men were now reduced to the number of three hundred and thirty-five. With this small force he sailed the next day from Juan Fernández, keeping the Spanish coast for eight months in continual alarm, made prize of several small vessels, and burned the town of Paita. The original design of the expedition being frustrated, he conceived the project of intercepting the Manilla or Acapulco galleon, a Spanish ship provisioned with bullion and other valuables to a vast amount, which sailed annually between Acapulco in Mexico, and Manilla, one of the Philippin Islands. With this view he hoisted anchor off Portobello, on the west coast of Peru, on the 6th of April 1742, till the 18th of May, when he sailed to cross the Pacific Ocean. In the course of this voyage, the Gloucester and the other vessels were destroyed for want of men to navigate them, and he proceeded with only the Centurion, and that but half manned, owing to the sickness of the crew and massy losses which had befallen them. The ship endured on this part of the voyage was extreme, from the shattered condition of the ship, as well as the prevalence of scurvy. The first land which the voyagers reached was the uninhabited island of Tinur, one of the Ladrone, of which a most fascinating description is given. Here the commodore remained some time to refresh his crew; and his constancy and equanimity were signalized during this period. The Centurion was then taken from her moorings out to sea, leaving her and the greater part of the sailors and officers on shore. In this emergency his calmness and spirits never failed. He gave orders immediately for the construction of a vessel, engaging personally in the most considerable employments; and the greatness of his anxiety would have remained unknown, but for his transports of joy on the unbloped return of the Centurion.

The health of the crews being in some degree recruited, Anson proceeded on his course to China; and arrived at Macao, an island and town in the bay of Canton, November 12, 1742. He remained there till the beginning of 1743, during which interval the vessel was new-sailed, and a reinforcement procured. He now conceived the design of intercepting the Spanish galleon, and he steered his course back to the Straits of Manilla. He met and took her after a short but sharp engagement, June 20. In the moment of victory, he broke out with the Centurion, the extinction of which was owing to the commodore's calm promptitude. The prize was mounted with forty guns, manned by six hundred sailors, and laden with treasure and effects to the value of 313,000l. He returned to China for the purpose of selling her; and thence proceeded round the Cape of Good Hope to England, and arrived at Spithead in safety, June 15, 1744. The contrast between the disasters of the earlier and the good fortune of the latter half of his voyage is remarkable, for dangers beset him to the last. On his arrival in England, he discovered that he had passed in a fog through the midst of a French fleet then cruising in the Channel. The commander himself was exulted by this expedition, and the character of Great Britain as a sea and intercolonial power was confirmed and heightened; but in a political view, the nation was not indemnified for the expense. The object, as a general measure of warlike operations, was frustrated. The thinking in with it against the Manilla, that it had the chapter of accidents, so eventful in maritime occurrences, terminated unfavourably in spite of all his vigilance, he might have been superannuated on his return to England, and have been put out of office. But his talents as an officer were rendered influential by the bulk; he was heard as an oracle in all naval deliberations, and rose by uninterrupted gradations to the highest honours of his profession, and also to the peerage.

Soon after his return, Anson was appointed Rear Admiral.
of the Blue, and one of the Lords of the Admiralty. In April, 1746, he was made Rear-admiral of the White, and in July, 1746, Vice-admiral of the Blue. He was also elected parliamentary representative of the borough of Haydon, in the county of Cumberland, last year, and commanded the Channel squadron in a long and tempestuous cruise. In the following spring, May 3, being in command of a powerful fleet of fourteen ships, besides a large frigate, he fell in with four Spanish ships and two frigates, bound to the East and West Indies, laden with merchandise, treasurers, and warlike stores, protected by a strong convoy. On this occasion he captured six ships of war, not on enemy's service, together with the East and East Indies. M. St. Germain, captain of the Invincible, was presenting his sword to the conqueror, said, in allusion to the names of two of the captured ships, in the characteristic epigrammatic style of French compliment, 'Sir, you have conquered the Invincible, and carry Glory in your train.

For his signal services, King George II. rewarded Admiral Anson with a peerage, by the title of Lord Anson, Baron of Sebergen, in Hants. In the same year he was appointed Vice-admiral of the Red; and on the death of Sir John Norris, Vice-admiral of England, an appointment rather of a civil than a naval character, but always given to a naval man. In 1748, he was appointed Admiral of England, and was despatched to the West Indies, to the command of George II. to and from Holland. He ever after attended the king in his voyages to the Continent. In 1751, he was appointed First Lord of the Admiralty, in which capacity he sailed to the West Indies, and, it is supposed, to his death. The occasion of his temporary retirement was the unpopularity incurred by the government in consequence of the untoward events of which Admiral Byng was the victim; but those events belong more properly to the internal history of the period, than to the personal transactions of Lord Anson's life.

In 1758, being then Admiral of the White, he hoisted his flag on board the Royal George, 100 guns, and sailed from Spithead on the 11th of May, under command of the Earl Edward Hawke. By cruising continually before Brest, he covered the descent which was made that summer at St. Maloés and Cherbourg. On the succession of George III., he was appointed Admiral and Commander-in-chief of his Majesty's fleets. He died suddenly, June 6, 1762, aged 65, at his seat at Moor Park, in Hertfordshire, having for some time been in a shattered state of health. He married the eldest daughter of Lord Chancellor Hardwicke, who died before him without issue.

His professional characteristics were those of discretion, coolness, and steadiness. In contemplating the risk of his own ship being lost in doubling Cape Horn, he gave such directions to those whom he commanded that he secured the success of the voyage. At Juan Fernandez he set the example, and compelled his officers to assist, in carrying the sick sailors, in their hammocks, ashore. He so ordered the vessels, that the benefit of the prize was shared equally among the men; and he prevented the snare of the individual gentleman for the benefit of future voyagers. He was a strict disciplinarian, and his methods were attended with such success, that at the taking of Plassa, only one of his men so far neglected his duty as to get drunk. When discussions arose concerning the distribution of the plunder seized there, he showed his generosity by throwing up his own share to augment the portions of his officers and men. His humanity was eminently displayed in his kind treatment of his prisoners, and in the respectful manner in which he treated the American Spaniards, and did much to remove the opinion of the excessive cruelty of the English, arising out of the atrocities committed in past times by the buccaneers. He directed his attention to the improvements of geography and navigation, by making careful surveys of the coasts which he visited. It has been said that he was addicted to gambling, and a dupe to sharpers. The charge is contradicted by Dr. Kippis in the Biographia Britannica; but the appearance which he presented, was as a man of fortune, who had a whole he neither won nor lost by gaming; and he made it, like hundreds of others who pass unconsidered, his amusement rather than his business. A witty remark that 'he had lost a lord of the Admiralty, but none the less like many similar sayings, hasardé for the sake of the point rather than for its strict applicability. Lord Anson's Voyage round the World went through four large impressions the first year, and has been translated into most European languages. It was written by Mr. Benjamin Reines, from materials furnished by Lord Anson, and digested under his own inspection. A journal of Anson's voyage was published in 1746, by Puces Thomas, teacher of the mathematics on board Anson's ship last year. Mr. Anson, a poet of the last century, born October 21, 1724, now little known except as the author of the Bath Guide. He received the rudiments of his education at Oxford, at King's College. In 1746, he took his degree of Bachelor of Arts, and was presented to a fellowship at King's College, Cambridge. He took his bachelor's degree in 1746, but was prevented from proceeding at the regular time to the degree of M.A., by illness. He was elected to the University in the same year. In consequence of this, he was refused his master's degree, in 1749; but he continued to hold his fellowship, and occasionally resided at college.

On his mother's death, in 1754, he succeeded to the estates of his maternal grandfather, at Trumpington, near Cambridge, and abandoned his fellowship. In the year 1766 he published his Bath Guide, a satire on the follies of fashionable life, especially as developed at that time in Bath. This is one of the lightest, wittiest, and most amusing satires of the kind in the English language, and obtained great popularity; insomuch, that Dodside the bookseller, who had purchased the copyright for 400l., after two editions had failed, asked Anstey to write him another, which he did, and that he had made more by it than he ever had made by any book in the same length of time. It should be mentioned to Mr. Anstey's honour, that he presented the profits of the work to the University of Cambridge, and the proceeds of the work are tarnished by a broadness of humour, and an occasional irreverence in speaking of things connected with religion, which, though aimed at hypocrisy, and versefdi with elegance and correctness. He spent the latter years of his life at Bath, and died there in 1786.

ANSTRUTHER EASTER and WESTER, two royal burghs in Fifehire, Scotland; situated on the sea-coast facing the S.S.E., and on each side of the mouth of a small stream, called the Crail, about a mile inland, calculated to give security to the navy. Anstruther Easter is considerably the larger place of the two, having a population (in 1831) of 1007 persons; Anstruther Wester has only 430. Till the year 1836 Anstruther Easter was the parish church; then the present church, St. Andrew's, was placed in charge and the church built. It is in the Presbytery of St. Andrews and the Synod of Fife: Sir John Anstruther is the patron. In 1710 it was made a port, and the custom-house established; and, in 1732, a new quay was erected. The town lies on, and the only good street is that which runs along the quay. Ship-building, tanning, and fishing, are the chief occupations of the inhabitants. There is a post-office. Lat. 56° 14' N., long. 2° 44' W. of Greenwich. Anstruther is described as a picturesque village, having been previously a burgh of Barony. The parish church is a very antient structure. The inhabitants were zealous covenanters in the time of Charles I., and suffered severe loss in the battle of Kilsyth against the Mass of Montrose in 1645. The author of the account of this parish in Sir John Sinclair's Statistical Account of Scotland, remarks with great naiveté, 'Since the battle of Kilsyth the people here have a strong aversion to a military life. 'The town is built on an elevation, with two inquisitions of the sea, one in 1676, which destroyed or choked up the harbour, and another towards the end of the same century, which destroyed almost all the houses by sea. The land on which the present town is built is covered by the sea every spring-tide. The trade of this and other towns on this part of the coast is thought to have suffered from the union with England. The harbour does not admit ships of burden; but a little to the westward
is a creek, called Westhaven, much used in the fishing season, which might easily be made a good harbour.

The creek between Easter and Wester Anstruther is said to have been the seat of a considerable salmon fishery. A variety of fish is still caught and sent to Edinburgh, Glasgow, and other places in Scotland. Several vessels belong to these towns; and some coarse lines are made in the different families. The Anstrutherers are included in the St. Andrews' district of burghs, which district returns one representative.

Opposite to the Anstrutherers is the Isle of May, a mile long and three-quarters of a mile broad, which is considered an excellent place for improving the flocks of sheep kept there, though only for one season: there is a lighthouse on it.

At Anstruther is a fine bird-lost, where several different kinds of birds have attracted attention from the earliest ages, on account of the singular economy and extraordinary industry manifested by the different species. In various parts of the three volumes on insects in the Library of Entertaining Knowledge there are numerous minute details are given of the interesting proceedings of ants; but at present we shall confine ourselves to a more brief but more methodical outline of their natural history. In tracing the history of most insects, it is best, perhaps, to begin with the mode of action of a single species. In the laying and hatching of the eggs could not be well understood without an acquaintance with their singular manner of pairing, with which, therefore, we shall begin.

It may be necessary to premise here, that, similar to bees, a community of ants, whatever the species may be, consists of males, which have always four wings, of females, much larger in size than the males, which differ from the males during the pairing season; and of a sort of barren females, which have been variously termed neuters, workers, or nurse-ants, and which, so far as we know, have never been observed to have wings in any stage of their existences.

If an ant hill is examined any time after midsummer up to the close of autumn, there may be seen, mixed with the wingless workers, a number of both males and females furnished with white glistening wings. These, however, are neither numerous in the first few days of the domain of action is concerned, for they are not allowed to move without a guard of workers to prevent their leaving the boundaries, and if one struggles away unawares, it is for the most part dragged back by the vigourous sentinels, three or four of whom may, in such cases, be seen hunting along a single desertor by the wings and limbs. The workers, so far from ever facilitating the exit, much less the departure, of the winged ones, more particularly the females, guard them tenaciously, and are not satisfied until one of those that are forced to acquiesce in it when the winged ones become too numerous either to be guarded or fed. There seems, indeed, to be a uniform disposition in the winged ones to desert their native colony, they never return after pairing, it would soon become depopulated in consequence.

The actual pairing does not seem to take place within the ant-hill, and we have observed scouts posted aall around, ready to discover and carry back to the colony as many fertile females as they could meet with. Nay, we are quite certain that whole colonies have been thus dispersed; and when they did not find fertile females near their encampment, they have gone farther and farther till they found them, and, if they had gone very far, never returned, but commenced a number of new establishments, according to their convenience. It is probable that, soon after pairing, the males die, as do the males of bees and other insects; for, as the workers never bring any of them back, nor take any notice of them after leaving the ant-hill, they must perish, being entirely defenceless, and destitute both of a sting and of mandibles to provide for their subsistence. The subsequent proceedings of the females are very different, and of curious interest. It was supposed for a long time that all ants, at a certain age, acquired wings; but it was reserved for the younger Huber, in particular, by means of his artifices and by what means, and by a curious process, which was first hinted at by Gould in his interesting account of English Ants, we have repeatedly witnessed—the females extending their wings, bringing out the male, well-developed, crossing them over the body, and throwing them from side to side, till at length they are disjoined from the body and fall off. Those, however, who are desirous of verifying the observation, must procure winged females immediately after pairing, and place them under a glass with some moist earth.

Foundation of Colonies.—Some of the females are, after pairing, usually captured by the working ants, and conveyed them to the ant-hill. They are then held by the workers, who do not return to the parent community, but commence small colonies on their own account. This explains the locality of the town of a great number of small colonies being formed in the immediate vicinity of each other, while sometimes the parent community is thereby quite broken up and the hill deserted. This happens frequently in the case of the red ant (Myrmica rubra) and the ash-coloured ant (Formica fusca), and still more frequently in the case of the wood ants (F. rufa), in the case of the wood ant (F. rufa), this rarely occurs, the parent community often remaining in the same spot for years together.

When a female, after pairing, does not chance to fall in with any scouting parties of workers, she proceeds without their assistance to found a colony herself in the same manner as is always done by the females of the social wasps and hornets. The most remarkable fact in the case of the red ant is, both by confining a single female after pairing, and witnessing her proceedings, and by discovering in the fields single females occupied in laying the foundations of a future city for their own account. Some single females when they have just begun to form the first cell for the reception of their eggs; when the eggs have just been laid; when the eggs have been hatched; and also when a few workers have been reared to the full development.

To verify the latter observations, however, many hundreds of stones must be turned over in August or September in a place where ants abound; and even with all this the naturalist will probably not discover more than three or four solitary females at work in the course of a season.

We have ourselves met with only ten or a dozen instances in the course of several years.

The Laying and Hatching of the Eggs.—The younger Huber says that to far as far as he and his father observed, the eggs of ants, I remarked that they were of different sizes, shades, and forms. The smallest were white, opaque, and cylindrical; the largest transparent, and slightly arched at both ends; while those of a middle size were semi-transparent. On holding them up to the light, I observed a sort of white oblong cloud; in some, a transparent point might be remarked at the superior extremity; in others, a clear zone above and underneath the little cloud. The largest presented a deep shining black spot, like the head of a fly, near the middle; and the latter of a milky whiteness, completely opaque, and smaller by one-half, so that I had no reason to doubt of the eggs of ants receiving a very considerable increase in size; that in elongating they become transparent, but do not at this time disclose the form of the grub, which is always arched.

Contrary to what takes place in most insects, the eggs of ants are not, when laid, placed in any fixed place, but are found in parcels of half a dozen or more loosely attached, so that they can be removed at pleasure during the hatching. It has been shown in the Penny Magazine, (vol. i. p. 60,) by a series of minute observations, that the female earwig moves her eggs with the utmost care, from a place which she judges too dry, to one which is sufficiently moist; and in the same way the female ant, when she finds a colony without assistance, or the nurse-ants in a community, change the situation of the eggs according to the state of the weather, or of the day and night,—a circumstance first observed by Dr. King in the reign of King Charles II. Heat being indispensable to their successful hatching, the eggs are carefully placed during the day near the surface of the ant-hill, but so sheltered from the direct influence of the sun as to prevent the too rapid evaporation of their moisture. During the night, or in cold weather, the eggs are not placed so high to prevent the radiation and escape of the heat which they naturally possess. The attention to the state of temperature occupies much of the assiduity of the female and the nurse-ants.
When the eggs are at length hatched, (and during this process, we have already seen that they enlarge in size,) the young grubs are similarly teated with respect to temperature, but greater care is now taken to preserve them from exposure to heat, which might prove more injurious than before hatching.

The grubs are fed by the nurse-ants when any of these are in the colony, and by the mother when she is alone, by a liquid which they secrete on the eggs, and which is conveyed to them by way of wasps, humble bees, pigeons, and canary birds. It consequently requires no little industry on the part of a solitary female to procure for herself sufficient food to supply nourishment for a brood of perhaps a dozen or twenty grubs, which are inevitably voracious.

When the grubs are full grown, they spin for themselves cocoons of a membranous texture, and of a brownish-white colour, not unlike barleycorns in appearance, and indeed mistaken for these by early observers,—a mistake which led to the unfounded notion that ants store up corn for winter provision, though, from their always becoming torpid in the winter, they could have no need of this; and even were this not so, they never feed on corn, and would probably starve rather than taste it. The authority of Scripture, which has been supposed to countenance the popular notion, is shown by the Rev. Dr. Harris, Messrs. Kirby and Spence, and others.

The cocoons are treated precisely like the eggs and the grubs with regard to exposure to heat; and the anxiety of the nurse-ants to shelter them from the dire effects of the sun is taken advantage of on the Continent to collect the cocoons. The ants are prevailing their singleness to a greater quantity as food for nightingales and larks. The cocoons of the wood-ant are the only species chosen; and in most of the towns in Germany one or more individuals make a living for themselves by the business. In 1832 we visited an old woman at Dettendorf, near Bonn, who had collected for fourteen years. She went to the woods in the morning, and collected in a bag the surfaces of a number of ant-hills where the cocoons were to be found, taking care to destroy the ant-hill; several times she prolonged her visit to her cottage, near which she had a small tiled shed covering a circular area, hollowed out in the centre, with a trench full of water around it. After covering the hollow in the centre with leafy boughs of walnut or hazel, she strewed the contents of her bag on the level part of the area within the trench, when the nurse-ants immediately seized the cocoons and carried them into the hollow under the boughs. The cocoons were thus brought into one place, and after being from time to time removed, and black ones separated by a boy who spread them out on a table, and swept off what were bad with a strong feather, they were ready for market, being sold for about 4d. or 6d. a quart. We have seen temperate, or even cold, a dozen or more days without rain, just for want of a confining trench of water, many cocoons were carried off by the ants. Considerable quantities of these cocoons are dried for winter food of birds, and are sold in the markets.

In the case of moths, ichneumons, and other insects which spin themselves up in cocoons, the included insect, when the time of its change arrives, is enabled to make its own way through the envelope; but though it would appear, from some observations made by Swammerdam, that ants may, when forced thereto, effect their own disengagement, this is not the usual process. It is the nurse-ants that cut a passage for them with their mandibles, as was first minutely described by Baron de Cocker and the Rev. Dr. Huber. Several instances of this are recorded, and females, says the latter, lay in their envelopes in one of the largest cavities of my glazed ant-hill. The labourer-ants assembled together, and appeared to be in continual motion around them. I noticed three or four mounted upon one of these cocoons, endeavouring to open it with their teeth at that extremity answering to the head of the pupa. They began to thin it by tearing away some threads of silk where they wished to pierce it, and at length, by dint of persistence, forced a passage. During the rainy weather. On a sudden, the whole brood would break, they formed in it a vast number of apertures. To expedite the work, some raised up a little slip cut out in the length of the cocoon, whilst others drew the insect gently from the envelope, and endeavoured to open it with their enveloping membrane, the body was still confined by another membrane, from which it could not by its own exertions disengage itself. The labourer-ants removed the satiny pellicle which encompassed every part of the body, drew the antennae gently from their investment, then disengaged the feet and the wings, and lastly the body, with the abdomen and its peduncle. The insect was now in a condition to walk and receive nourishment, or which it appeared there was urgent need. The first attention, therefore, paid by the guardians was that of giving it the food I had placed within their reach.

Labour of the Working Ants.—We have already seen that workers or nurse-ants have to labour assiduously in the course of the year, and the conditions of the colony are governed by the temperature; that they have to feed the grubs by a liquid disgorged from the stomach, and have to disengage the insect at periods of change from the envelope of the cocoon. They have also to perform the task of formers, galleries, and chambers for the habitation and protection of the colony, and they exhibit in the work such perseverance and skill as must excite the admiration of every observer.

Many of their processes, indeed, is not a little difficult to account for and explain, though these have been very carefully investigated, particularly by the younger Huber, in whose work, and in Insect Architecture, (p. 254 et seq.) may be found copious details of the mining, masonry, and carpentry of various species. We shall here give an instance of each of those operations.

Mining.—There is an interesting species called the sanguinary ant (F. sangvinaria, Latreille), reported to have been seen near London, but not in the city, if rare, if it is found in England. In the summer of 1827, Professor Huber vouched several colonies of this ant on the brow of the heath above Godesberg, on the Rhine, and being desirous of taking a number of them alive to England for the purpose of obtaining them for his table, we were waiting on them in the last days of October, when they had ceased to work, and had retired for the winter to their galleries underground. After uncovering the thick coping of dry heath twigs and grass stems which was placed over the subterranean city of the colony, as far as to defend it from rain and cold, we found several convergent dugs into the clay, wide enough to allow two or three ants to walk abreast; but not an individual now resided within, and in one week provision we had observed thousands in all the bustle of industry; and we began to fear the whole had migrated elsewhere. Being anxious, however, to see the interior structure, we dug in the direction of the covert-wants to the depth of about six or nine inches, when we came upon a number of chambers communicating with each other by galleries, and from an inch to two or three inches in extent, in each of which a number of ants were lying along the floor in a half torpid state, being so sluggish that they could not be brought to run with their usual agility even when irritated.

The point which we wish to call attention to here is that the whole of the apartments which we laid open, amounting to about sixty, were perfectly dry, and there were provisions to which we did not penetrate, must have been dug out of the solid clay by the jaws (mandibula) of these little miners. We deemed it singular that we could see none of the rubbish lying about, which must have been cleared away from the galleries interior, and we accordingly searched the whole colony long established, and the rubbish battered into the clay by the weather.

In other instances of mining, such as in the case of the turf-ant (F. Canis), the clay taken from the interior is built up on the outside, using the herbage for buttresses to support the walls thus formed. In the case of the sanguinary ants, however, we observed nothing of this kind, and do not think they ever employ the exterior man. The dried and cut grass forms the roof.

Masonry.—The most common of our English ants which employ masonry is the yellow ant (F. flavus), whose hills are so usually found built up in old pastures, a foot or more in height, and from six inches to two feet in diameter. For the materials of their building they are wholly indebted to the soil below, which they quarry out with great assiduity; but as they have no means of tempering the clay when it is dry, they are always forced to execute their principal works in the rainy weather. It was, says Dr. J. R. Forster, in the habit of visiting, almost daily, for a month, an extensive nest of red ants, of which a large flat stone formed the roof. During my visits for the first three weeks, scarcely a drop of rain had fallen, and the nest remained uninjured by the continual falling in of loose earth, which these little creatures with amazing industry removed, whenever it happened any of the avenues were blocked up. No attempt was ever made towards repair; but what was my surprise, on visiting my little friends after a two days heavy
main, to find that the repairs were already completed, and that the upper surface of their habitation presented as smooth a surface as if a trowel had been passed over it; yet all their work they had industriously effected by kneading with the rain-water the loose earth into a sort of paste. From the nearness of the water in the midst of a extensive meadow, there where could be no supply of water, and from its re-

main unrepairied during the dry weather, it amounts to a full conviction that ants employ no other cement than water in the construction of their various habitations.

Incredibly, they are so industrious in their work, that in the native alphabet of the black ant, (F. fuliginosa), on the other hand, the wood of the tree selected for their colony is always hard and tough, the easiness of working it being apparently considered a disadvantage rather than a recommendation. We have seen similar habits in other insects, in growing trees, the oak seeming to be preferred to all others; the honeycomb-like work does not seem to stop the vegetation, the tree con-

continuing to put forth leaves and shoots as before it was exca-

vated for the use of the colony. In the instance which gives rise to these remarks, the willow tree was indeed dilapidated and shorn of its leaves and branches, yet it was untouched with dry rot, and the wood was hard and tough.

Poecilus Ants.—Some species of ants are carnivorous and will eat insects, fruits, and almost anything eaten by other animals, but honey is the most universal favourite among all the species, particularly the excretion of the various species of aphides called honey-dew. It is on this account that we observe aphides abound in the vicinity of trees where ants congregate, and then try to meet with ants carefully attending their motions and greed-

ily drinking the honey-dew, which becomes so injurious to plants when it increases in quantity so as to obstruct the passage of light and air to the bottom of the leaves. The authors, that during winter the ants imprison some aphides in their cells, or, at all events, take advantage of indi-

viduals of the grass aphis (Aphis Graminum) in the vicinity of

their hils to obtain honey-dew. We strongly suspect there

must be some fallacy in this statement; for among nu-

merous colonies which we have carefully examined during

winter, we always found the whole population torpid or

nearly so, and not inclined to touch even honey when

we placed a drop of it near them. Germany already mentioned, we have seen that they had becom-

tored as early as October, when the weather was still fine and far from being cold. We are therefore of op-

inion that the statement will be found as void of accurate

foundation as that which represents ants as storing up corn

for the winter.

Migrations.—We have already seen, under the head of pairing, one principle in operation for spreading around a new country the species of ants, and forming a number of colonies. This indeed may be considered the main principle of migration; but be-

sides this, the whole of a populous ant-hill which has been established for several years will, for some cause beyond our observation, be destroyed and must be rebuilt by the works of more convenient forage, at once desert their homes and march to a new station. Among the yellow ants, the emets, and the wood-ants or pismires, this is by no means common; but it is an every-day occurrence among the red ants, the sub-coloured ants, the turf ants, and other species of colonies never become very populous, and are consequently both more easily moved and more easily provided with lodging.

Immeasurably swarms of ants," to use the words of Dr. Roper, 'are occasionally met with, and some have been recorded of such prodigious density and magnitude as to darken the air like a thick cloud, and to cover the ground to a considerable depth with their bodies.' We have observed this phenomenon of migration, that is to arise from the iron contained in the saliva of the ants acting on the gallic acid of the wood, in a similar way as the same wood becomes black when cut with a knife. The fine glossy black of the colony may originate from the same phenomena as the principle, and this is rendered more probable from the excavations made by other species, such as the rusty ant, (F. Nucia, Latrilliee,) not being tinged with this black colour.
different directions, having a singular intestine motion in each column, and also a general motion of rotation. About some of them, all the filaments of their cuticle, they were found to belong to the Formica nigra of Linnaeus.

Wares and Expeditions to capture Slaves.—In the same way as the bees and the wasps of different hive manifest idea they meet, ants, and the terrerants, or of different species assail one another when they meet during their foraging excursions. Besides the individual skirmishes which these occasionally arise, pitched battles are sometimes fought between the whole or nearly the whole force of populous ant colonies. We have ourselves witnessed any very extensive battles of this kind, such as Huber describes, in which thousands of combatants were engaged, but we have seen as many as fifty of the workers of one species fight in the Amazon for a few inches on what were supposed to be the boundaries of their several territories; their bite is so sharp, and the acid fluid which they infuse is so deleterious, that many are thus disabled or killed outside Huber witnessed on such occasions very extensive carnage.

Besides these skirmishes and battles which occur among all the species, there are whole communities of warrior-ants, as was first discovered by Huber, whose history is so extra-ordinary which bear the mark of the little devils who have hitherto been credited chiefly, if not solely, on the well-known versatility of Huber: but in the autumn of 1832 we had an opportunity of verifying them both in the Black Forest and in Greece. While we were on the plains which he terms the Amazon ant, (P. furiosa, Latreille,) and on the Rhine with respect to the sanguinary ant.

Both of these species make war on the ants of a different species from themselves, particularly the dusky ant, (P. fulva) not for the purpose merely of gratifying a propensity to combat, but to make slaves of the vanquished to do the drudgery of the conquerors at home. The manner in which they proceed in this affair manifests, so far as we can judge, deep design, such as might be conceived to the counsels of a cunning diplomatist. They do not capture the adult ants and carry them into slavery, but make booty of the eggs and cocoons, which, after the contest is decided, and the war is always commenced, are carried into the Amazonian citadels, and being hatched there, the poor slaves are most probably not aware that but that it is their native colony. Huber repeatedly witnessed such expeditions for the purpose of capturing slaves; but though we were not so fortunate, we witnessed, in a great number of instances, the slaves at work for their warlike captors.

The Amazons have not hitherto been found in Britain, and we were unsuccessful in our attempt to bring over from the Continent to ours a few, which were sent to us in a box for the purpose. We succeeded indeed in bringing safe home two nests of the sanguinary ants already alluded to under Mining, together with a number of their slaves, but they at length died in about two months, having been kept for too long a time in the atmosphere of the north. The respect the Amazons have for their own countrymen is remarkable. The few slaves which we were able to procure for our cabinet are of no account, for we believe that the Amazons have neither the capacity, nor the inclination, nor the necessity of taking care of any foreign species; they are contented with their own species.

We have now to give an account of the ant which is of the greatest importance, viz. the ant which has been longest known to the naturalist, the ant which is the subject of the greatest number of scientific studies, viz. the ant which is the object of our next article.

ANT-EATER. (Myrmecophaga, Linnaeus.) in zoology, a genus of Edentata, distinguished by their total want of teeth and hairy being. The latter circumstance separates them from the pangolins (Manis), or scaly anteaters of Africa and Asia, which resemble closely in other respects, as well in their general anatomy as in their food and habits. These two genera form a small but very distinct family of the Cetacea, differing from the common animals comprised in that singular group, as well as from all other known mammalia, by their entire deprivation of the organs of mastication, and acquiring an additional interest by the light which their osteology throws upon the structure and organisation of the megatherium and megaslonza, these extraordinary antediluvian animals, whose fossil remains have lately attracted so much of the attention, not only of the naturalist but of the public, on account of the size of the animal. The relations which these extinct inhabitants of a former world bear to another small family of Edentata mammalia have already been pointed out in the article A., and their general organisation and affinities will be formed a separate subject for our next article.

We shall therefore merely observe at present, that as the osteology of their skulls and teeths presents the closest analogies with that of the corresponding parts in the sloths, so the whole construction of the teeth appears to have been formed after the same model as that of the corresponding organs of the ant-eaters. The head of these latter animals, indeed, is altogether different from that of the sloths; not only does it want the organs of mastication, of which they are deficient only in the lower jaw, but there are two teeth in which they are short and round like those of apes and monkeys, are prolonged in the ant-eaters, particularly in the great ant-eater, (M. jubata), to double the length of the skull. This singular elongation comes from the form of the maxillary or jaw bones, and those of the nose, which form together a kind of long tube, very small in proportion to its length, and almost cylindrical. This prolongation of the nasals is not casual, but the construction here described differs only in degree, and presents, on a more contracted scale, all the characteristics of the Myrmecophaga jubata.

It is in the construction of the anterior extremities, however, that these animals offer the greatest singularities, and become most important in their relations to the fossil species. The phalanges or joints of the toes, particularly the last, are all long, and permit them to be bent inwards only, as in the sloths; and the variety which they are provided with powerful ligaments which keep them, in a state of repose, bent in along the sole of the foot and never permit the hand to be completely opened, but only extended, and thereby adapted to movement in gouty or rheumatic people. The toes themselves are of very unequal size, and even differ in number in different species. The great ant-bear and tamandua have four on the anterior and five on the posterior extremities, whilst the smallest species, called, from that circumstance, M. didactyla, has only two on the fore feet and four on the hind. The toes themselves, as in the sloths, are united closely together as far as the claws, and are consequently incapable of any separate or individual motion; but the disadvantages arising from this circumstance are more than counterbalanced by the increased strength which it produces, and the consequent adaptation of the organ to the peculiar purposes of these animals economy. The claws are all large and powerful, especially that of the middle toe, of which the dimensions are quite enormous. Nor do the ant-eaters, in walking, tread flatly upon the sole of the foot like the generality of mammalia; on the contrary, they are prest entirely upon its outer edge, which is provided with a large callous pad for that purpose, whilst their toes being bent inwards along the palms, the sharp points of their powerful claws are preserved from being injured by the pressure of the hands, and in respect to the ant-eaters are remarkable for their long cylindrical tongues, covered with a glutinous saliva, by means of which they entrap and devour the insects upon which they live, and for which they derive their names, both among naturalists and among the Indians, literally signifying ant-eater. This tongue is protractile, and capable of being extended to a surprising distance beyond the snout; it is nearly twice the length of the whole head and muzzle together, and when not extended is kept doubled up in the mouth with the point directed backwards. The eyes are particularly small, the ears short and round, the legs robust and amazingly powerful, but so unfavourably formed for locomotion, that the pace of these animals is almost as tardy as that of the sloths themselves, their great exertions not enabling them to surpass the ordinary walk of a man. The tail is always long; in the great species lax and thickly covered with very long flowing hair, in the other two, strongly provascular and naked underneath. These species consequently climb trees and reside principally among their branches, feeding upon the wild bees and termites which inhabit the same situations; the great ant-bear, on the contrary, never quits the surface of the earth, and confines his depredations entirely to the numerous species of large ants which inhabit his native regions, and furnish him at all times with an abundant and easily procured source of nourishment. The species comes into America, and contains at present only three distinct and well-defined species.

1. The Great Ant-Bear, (M. jubata, Lin.) called grousor or gogius by the Guaranis and tamandua by the Portuguese; tamanser by the French of Guyana, is the largest ant-eater known by the English and Spanishs, is a large animal which mes-
sures, when full grown, four feet and a half from the extremity of the snout to the origin of the tail. The tail itself is three feet three inches in length, reckoning to the extremity of the hair, or measured only along the stump, two feet four inches; the head, thirteen inches and a half from the snout to the base of the ear, and ten inches and a half to the anterior angle of the eye; its circumference immediately before the eyes, where it is the thickest, is fourteen inches, but from this part it gradually diminishes and is reduced to five inches, where it measures only five inches and a quarter. The height of the animal at the shoulder is three feet three inches, and at the croup only two feet ten, because, being

The toes both before and behind are covered with one common integument, and are only distinguishable by their separate claws. The hair, over the whole body, is coarse, hard, and dry, resembling in texture the bristles of the wild boar, but a little harder and stouter; the under parts of the mouth are clothed with silvery, white, hair. A broad black band, bordered on each side with a similar one of a white or light greyish-brown colour, commences on the chest, and passes obliquely over each shoulder, diminishing gradually as it approaches the loins, where it ends in a point. The sides, arms, and thighs are silvery grey, with a slight mixture of brown, marked with two deep black spots, one on the carpus, and the other on the toes; the hind legs are almost perfectly black, and the breast and belly of a deep brown, almost equally obscure.

The habits of the great ant-bear are slothful and solitary; the greater part of his life is consumed in sleeping, notwithstanding which, he is never fat, and rarely even in good condition. When about to sleep, he lies upon one side, conceals his long snout in the fur of the breast, locks the hind and fore claws into one another, so as to cover the head and belly, and turns his long bushy tail over the whole body in such a manner as to protect it from the rays of the sun. The female bears a single young one at a birth, which attaches itself to her back, and is carried about with her wherever she goes, rarely quitting her, even for a year after it has acquired sufficient strength to walk and provide for itself. This unphilosophic conduct, and the tardy growth of the young, account for the comparative rarity of these animals, which are said to be seldom, seen, even in their native regions. The female has only two mammarys situated on the breast, like those of apes, monkeys, and bats.

In its natural state the ant-bear lives exclusively upon ants, to procure which it opens their hills with its powerful crooked claws, and at the moment that the insects, according to their nature, flock from all quarters to defend their dwellings, draws over them his long flexible tongue, covered with glutinous saliva, to which they consequently adhere; and so quickly does he repeat this operation, that we are assured he will thus expel his tongue and draw it in again covered with insects, twice in a second. He never actually introduces it into the holes or breaches which he makes in the hills themselves, but only draws it lightly over the surface of the earth, with which he then forms a paste.

'Tt seems almost incredible,' says Azara, 'that so robust and powerful an animal can procure sufficient sustenance from ants alone; but this circumstance has nothing strange in it for those who are acquainted with the tropical parts of America, and who have seen the enormous mounds, and the vast number of ants, which swarm in all parts of the country to that degree, that their hills often almost touch one another for miles together. The same author informs us, that domestic ant-bears were occasionally kept by different persons in Paraguay, and that they had even been sent alive to Spain, being fed upon bread and milk, mixed with morsels of flesh minced very small. Like all animals which live upon insects, they were gradual weakened through the habitual and continual deprivation of nourishment for an almost incredible time.

The great ant-bear is found in all the warm and tropical parts of South America, from Colombia to Paraguay, and from the shores of the Atlantic to the foot of the Andes. His favourite resorts are the low damp savannahs, along the banks of rivers and stagnant ponds, also frequenting the humid forests, but never climbing trees, as falsely reported by Buffon, on the authority of La Borde. His pace is slow, and his walk heavy, and when he plunges into the ground his snout is depressed, and the hind feet are raised. He is easy to be approached, and yet her greatest velocity never half equals the ordinary running of a man. So great is his stupidity, that those who encounter him in the woods or plains may drive him before them by merely pushing him with a stick, so long at least
as he is not compelled to proceed beyond a moderate gallop; but if pressed too hard, or urged to extremity, he turns obstinate, sits up on his hindquarters like a bear, and defends himself with his powerful claws. Having thus disposed of the animal, its usual, and indeed only, mode of assault is by seizing his adversary with his fore-paws, wrapping his arms round him, and endeavouring, by this means, to squeeze him to death. His great strength and powerful muscles would easily enable him to accomplish his purpose in this respect, even against the largest animals of his native forests; were it but guided by ordinary intelligence, or accompanied with a common degree of acuity. But in these qualities there are few animals, indeed, which do not greatly surpass the ant-bear; so that the different stories handed down by writers on natural history from one to another, and copied, without question, into the histories and descriptions of this animal, may be regarded as pure fictions. For this statement, we have the express authority of Don Felix d’Azara, an excellent observer and credible writer, from whose Natural History of the Quadrupeds of Paraguay we have derived the greater portion of the preceding account of the habits and economy of this extraordinary animal. ‘It is supposed,’ says Don Felix, ‘that the jaguar itself dares not attack the ant-bear, and that if, pressed by hunger, or under some other strong excitement, he does so, the ant-bear embraces and hugs him so tightly, as very soon to deprive him of life, not even relaxing his hold for hours after life has been extinguished in his assailant. It is very certain that such is the manner in which the ant-bear defends himself; but it is not to be believed that his utmost efforts could prevail against the jaguar, which, by a single bite or blow of its paw, could kill the ant-bearer before he was prepared for resistance; for even in so extreme a case, its motions are so slow and so heavy, that he takes some time to get himself ready, and besides being unable to leap, or turn with even ordinary rapidity, he is necessarily forced to act solely upon the defensive. The flesh of the ant-bearer is esteemed a delicacy by the Indians and negro slaves, and, though black, and of a strong musky flavour, is sometimes even met with at the tables of Europeans.

2. The Tamandua, (M. tamandua, Cuvier,) or second species of ante-eater, is an animal much inferior to the great ant-bear in point of size, being scarcely so large as a good-sized cat, whilst the other exceeds the largest greyhound in length, though, from the shortness of its legs, it is much inferior in height. The head of the tamandua is not so disproportionately long and small as that of the great ant-bear. It is, however, of the same general cylindrical form, and equally truncated at the extremity, having the nostrils and mouth situated in the same position, and equally minute, when compared with the size of the animal. Its whole length, from the extremity of the muzzle to the root of the ear, is five inches, and to the anterior angle of the eye, three inches; the body, from the muzzle to the origin of the tail, measures two feet two inches, the tail itself being one foot four inches and a half more; the height at the shoulder is one foot three, and at the croup an inch lower; the length of the ear is an inch and a half, its greatest breadth than inch, and the greatest circumference of the head, that, namely, taken immediately in front of the ears, eight inches and a quarter. The conformation of the extremities, and the numbers of both hands and behind, is in every respect the same as in the great ant-eater already described; but the tamandua differs from this animal particularly in the prehensile power of its tail, which makes it essentially an arboreal quadruped, and altogether changes the most striking traits of its economy. The hair over the entire body, also, is of a very different texture; instead of being long, harsh, and shaggy, as in the great ant-bear, it is short, shining, and of a consistence something between the qualities of silk and wool; standing out from the body not as the latter, but as if the animal were smooth in every part.

The colours of this species, however, are by no means so uniform and invariable as those of the species already described; on the contrary, they differ more in the tamandua, according to the individual, than perhaps in any other. The colours of this animal, at a state of nature. Accordingly many eminent naturalists are disposed to consider them as forming distinct species, rather than mere varieties of the same; and it is impossible that any one who has been acquainted with this animal in its native woods, their opinion may be, at least partly, confirmed.

The eyes of the tamandua are minute, the ears small and round, the body long and cylindrical, the legs short and robust, the tail round and attenuated, covered with very short hair throughout its greater part, but naked underneath towards the point, and strongly prehensile. The following are the principal varieties, as regards the colours:

1. The stramineous or yellow tamandua, has a uniform straw-colour over the whole body, with a transverse triangular band passing obliquely over each shoulder, and encroaching from the opposite side, on the median line of the back. This band is only apparent in particular cases. The yellow colour is not produced by any difference of colour, but merely by a difference of shade, arising from the hair having an opposite inclination, or direction, from that on the rest of the body.

2. The second variety is, like the former, of a uniform straw colour, but has a good deal of black about and particularly in front of the eye. This variety is found in Paraguay, and is described by Azara, who suspects its colour, as well as those of the preceding, to arise from the tamandua’s age, an opinion which seems to be well founded.

3. The third variety is of a silvery-white colour, with a dirty brown band running transversely over each shoulder. The fourth variety is of the same silvery-white as the last, with similar dirty brown bands on the shoulders, and, besides, the croup, flanks, and belly of the same ob-scur colour.

4. The fifth is of a uniform clear brown, over all parts of the body, without any appearance of bands on the shoulders, or mixture of any other colour; and

5. The sixth and last variety is entirely black, with a little light brown on the tail. This variety is ascribed to Azara, who found it in Paraguay, and who reports that it has proportionally shorter hair and larger claws than the other varieties.

The tamandua is an inhabitant of the thick primeval forests of tropical America; it is never found on the ground, but resides exclusively in trees, where it lives upon termites, honey, and even, according to the report of Azara, bees, which in those countries form their hives among the loftiest branches of the forest, and, having no sting, are more readily depoited on their honey than their congersen of our own climate. When about to sleep, it hides its muzzle in the fur of its breast, falls on its belly, letting its fore-feet hang down on each side, and wrapping the whole tightly round with its tail. The female, as in the case of the great ant-eater, has but two pectoral mammae, and produces but a single cub at a birth, which she carries about with her, on her shoulders, for the first three or four months after. The young are at first exceedingly deformity and ugly, and of a uniform straw-colour.

This animal is called cagouré by the Guarani, on account of the noxious and infected vapours of the forests in which alone it is found. The word literally signifying, in the language of these Indians, the inhabitant of a stinking wood or marsh. Such at least is Azara’s interpretation of the term, though it appears more probable that it may refer to its strong disagreeable colour of the same name, by which this very author informs us, is so powerful that it may be perceived at a very great distance, particularly when the animal is irritated. Tamandua is the name by which it is known to the Portuguese of Brazil; the French and English call it fourmilier and little ant-bear.

It is difficult to imagine how M. de Buffon could have
been so far led astray as to mistake the stiffened skin of a coast-mondi for this animal, particularly after the severe "though just one which he passes upon Lobo for a similar mistake. A single glance at the plate of Buffon (Hist. Nat. Sulp. tom. iii. tab. 56) is sufficient to convince any person who ever saw a coasti, or who has any idea of the ani-

The little Ant-eater (M. didactyla, Lin.) is easily dis-
tinguished from all the other two species by its size, which does not exceed that of the common European squirrel, but likewise by the number of its toes, being four on the posterior and only two on the anterior extremities. The form and general proportions of its body resemble those of the tamandua, only on a very reduced scale. Its whole length, from the snout to the origin of the tail, is about six inches, that of the head not quite two inches, and of the tail seven inches and a quarter. This organ is consequently rather longer than the body: it is thick at the root, and covered with short fur, but tapers suddenly towards the point, where it is naked and strongly prehensile. The muzzle is not so long, in proportion, as in the other two species; the tongue also is shorter, and has a flatter form; the mouth opens farther back in the jaws, and has a much larger gap, the eye being situated close to its posterior angle; the ears are short, rather drooping, and concealed among the long fur which covers the head and cheeks; the legs are short and stout, and the hair very fine and soft to the touch, three-quarters of an inch in length on the body, but much shorter on the head, legs, and tail. The general colour is that of straw, more or less tinged with maroon on the shoulders, and particularly along the median line of the back, which usually exhibits a deep line of this shade. This species is said to have four mammae, two pectoral, as in those already described, and two others on the abdomen. It is reported, nevertheless, to have but a single cub at a birth, which it conceals in the hollow of some decayed tree. The native countries of the little ant-eater are Guyanas and Brazil, beyond which it appears not to extend farther towards the south, since Azara is not only unacquainted with it, but imagines, from Buffon's and Debeuttin's descriptions, that it must be the young of his tamandua. The habits and manners of this little animal, hitherto very imperfectly known to naturalists, are so well described by Von Suck, in his Narrative of a Voyage to Surinam, a book little known to general readers, that we cannot avoid quoting the entire passage which refers to it.  

'I have had, says he, 'two little ant-eaters or fourmillers, which were not larger than a squirrel; one was a bright yellow colour, with a brownish tinge; the other was a silverly grey and darker on the back; the hair of each was very soft and silky, a little crisped; the head was small and round, the nose long, gradually bending downwards to a point; the ears were short, but a very little flesh beneath, but a very little flesh beneath; the eyes were very small, round, and black; the legs rather short: the fore-feet had only two claws on each, the exterior being much longer and much stronger than the interior, which exactly filled the curve or hollow of the foot; the hind-feet had four claws, of which the exterior was in each pair the tail was prehensile, longer than the body, thick at the base and tapering to the end, which, for some inches on the under side, was bare. This little animal is called in Surinam Kissing-hand, as the Indians say it kisses without biting the host.' These animals are caught, but that it only licks its paws, in the same manner as the bear; that all trials to make it eat have proved in vain, and that it soon dies in confinement. When I got the first, I sent it to the forest for a nest of ants, and, during the interims, I put it into its cage some eggs, honey, milk, and meat; but it refused to touch any of them. At length the ant's nest arrived, but the animal did not pay the slightest attention to it either. By the shape of its forefeet, it seems to resemble those of the wood-ants, but differs very much from those of all the other different species of ant-eaters. I thought that this little creature might perhaps live on the nymphs of wasps, &c.; I therefore brought it a wasp's nest, and then it pulled out with its paws the nymphs from the nest, and began to eat them with the greatest eagerness, sitting in the posture of a squirrel. I showed this phenomenon to many of the inhabitants, who all assured me that it was the first time they had ever seen the species of animal to be any nourishment. The ant which I tried it with were the large white termites, upon which fowls are fed here.  

'As the natural history of this pretty little animal is not much known, I thought of trying if they would breed in a cage; but when I returned from my excursion into the country, I found them both dead, perhaps occasioned by the trouble given to procure the wasp's nests for them, though they are here very plentiful: wherever I go I can find a great many of them, and I always carry a bag to catch them with. I have tried them with the prehensile tails to one of the perches of the cage. When touched they erected themselves on their hind legs, and struck with the forepaws at the object which disturbed them, like the hammer of a clock striking the bell, with both paws at the same time, and with a great deal of strength. They never at-
tempts to run away, but were always ready for defence, when attacked. As soon as evening came, they waked, and led their enemies out of the cage, though they never jumped, nor did I ever hear their voices.'  

This valuable account, the only one, as far as we are aware, ever drawn from actual and continued observation of the living animal, leaves us little to the history and economy of this highly interesting species. The discovery of the true nature of its food is particularly valuable, and may enable us to have the animal brought alive to this country, which we believe, has not been attempted heretofore, and which, if attempted, has certainly never succeeded. To procure or carry ants during a long sea voyage is impracticable, but the larvae of wasps can be obtained in any quantity, and will keep for months; so that the most difficult difficulty to the introduction of the little ant-eater being thus removed, it only requires to be guarded from the effects of a colder climate, which may be as easily done in its case as in that of other South American mam-

ANTACIDS, from the Greek word, 'anti,' 'against,' and the Latin word 'acida,' ox acid, signify means used to correct acidity in the stomach. They are hydrochloric acid (formerly called muriatic acid, or spirit of salt) is present in a free state in the stomach during the process of healthy digestion, yet under particular circumstances it is apt to separate in the stomach. Hence, the acid is usually evolved in the stomach, probably from the fermentation of the articles, as vegetables and fruits of different kinds, by which the acetic acid is produced, or introduced ready formed, or by the hard beverage, as sorrel, which contains oxalic acid. The most frequent source of acidity, is that first mentioned, the secretion of
acid by the vessels of the stomach. It is, therefore, depen
dent upon irritation caused by, or in consequence of, the system generally. This is further proved by considering what kind of persons are most subject to it. These are individuals either naturally of a feeble and weak constitut
ion, or who have weakened the stomach and system gen
erally by over-repletion of its contents, or by too much exercise and other counteracting measures. Hence we see these persons, or their children, and even their children's children, subject to pot or gravel, and stone in the blad
er. As it has been ascertained (see the works of Mr. Murray Forbes, A Treatise on gravel and Gout, 1786; Wilson Philip, Marcot, Blane, Prout, and Muntjens) that the urine of a sickly person and of old people is, like the
nt of the stomach to the formation of an excess of acid, an in qlury into the causes of this, and the circumstances under which it takes place, is of great importance, as a means of preventing or counteracting it.

When an excess of acid is introduced into the blood, it occasions much irritation of the system generally, and the composition of the blood being different from its natural constitution, the secretions formed from it are unhealthy, proving a further source of disease. In consequence of the composition of the blood being altered, matters usually held in solution by it can no longer be kept in that state, but are precipitated; hence we have chalk stones, as they are termed, in the gall-bladder, in the gall-bladder itself, in the
r, or stones, of different kinds, in the kidney or bladder.

The signs or symptoms of acid being in excess, are not in general limited to the stomach, but show themselves in several parts of the body. There is heartburn (cardiaalgia), often following much meat, or much mixture of a fluid so extremely acid, as to cause offensiveness when it falls on a marble stone; the bowels are sometimes confined, sometimes too loose; the urine generally scanty, and high-
 coloured, from which, a sediment falls down; the skin dry, harsh, and often affected with eruptions of different kinds; and the mind of the patient fretful, and much given to take gloomy views of his health or circum-
stances, or both, in a very improper manner.

The medicinal means of remedying this state are all alkaline, either the pure alkalies, or some combination of them—such as solution of potash, or carbonates of soda, potash, magnesia, ammonia, or lime. Where the bowels are not disordered, but, on the contrary, denote that the excess of acid mostly finds an outlet by that channel, the prepara
tions of potash and soda are to be preferred; where the bowels are much confined, magnesia, or its preparations, may be combined with the other medicaments. Nothing is more hurtful than the frequent use of magnesia alone, it being apt to accumulate in the bowels: in the case of an individual much addicted to its use, a mass of it was found after death, six or seven inches in length, and upwards of six pounds. If, on the other hand, the bowels be in a loose state, prepared chalk may be given with advantage, or lime
dwater, which is a very useful addition to milk, where, from excess of acid, it disagrees, and hence most serviceable for weak children. Should the mind be much depressed, or general languor of the system exist, and no state of stomach be present forbidding its use, ammonia, in some form, may be exhibited.

Such are the medicines by which the effects of an excess of acid may be in some degree counteracted; but the most efficient means of preventing its formation, consist in a strict attention to diet and regimen. Great moderation must be observed in that which may be considered as confine
d to drink. The plainest and most digestible animal food should be taken once, or, at the utmost, twice a day, and sparingly. Hard-boiled puddings and dumplings must be avoided. Toast and water, or soda-water, or well-le
tened beer, or cider, are preferable as drinks, to wine or ardent spirits, the only one of which last that can be allowed, is Hollands, and never but under particular circumstances, and with the sanction of a medical adviser. But if weak indigestion trouble the stomach, such as flannel next the skin, which can keep up a free action of the skin, is a most important part of the prophylactic treatment.

ANT. This is a term used by architcts to designate the cornice or overhanging portion of the horizontal walls, or the base, of a Greek temple, where a plain face returns on each side, having some relation in general proportion to the columns with which they compose. The anta (for the word is used alike in the singular and in the plural) has a moulded and otherwise enriched cap or cornice, generally in a moulded base; in the simple Greek Doric style or order, both the cap and the base-moulding are of few parts, and the enrichments are few, and are confined to the mouldings, which may be either carved or painted; but in the florid order of Ionian or Venetian style, the anta is decorated with base of the anta in proportion deeper, are in a greater number of parts, and have ornamental ornaments besides the carving or painting of the mouldings of the cap, and the fluting or reeding of those of the base. Thus the bases of the foliated or Corinthian style will perhaps admit of still further enrichment, though the bold foliage and diagonal volutes of the capital of the column should never be placed on the cornice of the anta. The caps and bases of anta are, in Greek works, generally continued along the flank walls so as to form the cornice and base of the whole wall, and not of the protruded faces of its ends alone. In Roman works and in modern imitations of both, the sides are often made on the face of a wall with the caps and bases of anta, but more frequently with those of columns, and these are called pilasters, though indeed they are but an abuse of the Greek parapetis, in the plural parapetides, or anta. In classical Greek, and in the best Roman works, anta and pilasters are never either dimi
nished or divided. The term anta is of barbarous origin, and it would be difficult to say whether it is derived from a Greek or Latin root, for instance from enta, caused by Virgil in the second book of the Georgics, when he means of vine-dressing.

ANTAGONIST MUSCLE, from δύναμις, against, and δυ
νατόν, to strive, —a muscle the action of which is opposed to that of some other muscle, and thereby indirectly produced by, which in the animal body, motion is effected. The object of each muscle is to produce some specific motion: among the various motions which are needed in the animal economy, it necessarily happens that some are directly opposite to others, and the muscles which accomplish these directly opposite movements are said to be in relation to each other antagonists. When any part of the body is placed in a certain posture, such as sitting, standing, or lying, the action, the result of the combined action of such muscles is to keep that part steadily in a certain position. The form and position of the human mouth, for example, are maintained, such as they are, in a state of health and during re
pose of the features, by a number of muscles, composing the lips and cheeks, the action of some of which is directly con
tary to that of others: the natural figure and position of the mouth may, therefore, be truly said to be the result of the antagonistic action of these muscles. The consequence of the disturbance of this antagonizing action is to change the natural form and position of the mouth. This is shown by the effect of paralysis when it affects one side of the face. Paralysis is a disease depriving the muscles of its power of acting. In paralysis of one side of the face, the muscles of that side are deprived of their power of acting; and the consequence is that the muscles of the other side, which retain their usual power, pull the mouth to their side, because they do not meet with the resistance which formerly opposed their effort to do this. Hence comes dis	ortion of the mouth; and distortion is one of the most frequent and striking signs of apoplexy and paralysis, and, when dependent, it is obvious in the loss of the antagonizing power of the muscles of that part of the body in which the distortion takes place. Sometimes the elasticity of a part is put in opposition to a muscle, and becomes the antagonizing power, one muscle not only counteracting the wind, of the arteries, may be so considered.

ANTALKALIES, from anti, against, and alkali, an aloth, are means of counteracting the presence of alkalies in the system. As alkalis are well known not to be peculiar to old persons, and females. It may also be brought on by any cause which occasions either temporary or general deility. The prevalence of the depressive passions, as fear, anxiety, and any other which keeps a terror in the hearts of the sick, the frequent and continued use of mercury, of powerful pur
gatives in sickly frames, injuries of the back, or the previous existence of a very acid state of the system, will occasionally
ANTARES, a name given to the bright star marked  a in the constellation Scorpio, which see. In the latitude of Greenwich, it has not more than 12° of altitude when on the meridian, where it is at midnight in the beginning of July.

ANTECEDENT, a mathematical term used in proportion, meaning the first of the two terms of a ratio, in opposition to the consequent, or second term. Thus, in the continued proportion 2 : 4 :: 3 : 6, 4 is antecedent.

ANTECEDENTS, or ANTEFICE, for this term is more frequently used in the plural, for both singular and plural, than the singular. Antefice are men who have placed along over a cornice, in ancient Greek and Roman buildings, to hide the ends of the covering or joint tiles, and their faces are generally carved with a flower, leaf, or other enrichment to them ornament. Flora and Flora were in some instances furnished, and adorned with the foliage of the church of St. Pancras in London exhibit antefice ranged along over the cornice, but without the parts of which they are fitting accompaniment. The fronts of the Traveller's Club, at the Pall Mall and St. James's Park, and the houses in London show antefice more judiciously composed with the roof, with which they form an ornament to, and help to enrich, the elevation.

ANTELOPE, (Antilope, Pallas, in zoology, a genus of ruminating mammals, belonging to the hollow-horned family, and distinguished by the round, annulated form of their horns, the grace and symmetry of their external proportions, the presence of subdigital sinuses and inguinal pores in the majority of the species, and other less general and important characters. The great extent of this genus, comprising, as it does, above three-fourths of the known hollow-horned ruminants, and the numerous additions which have been made to it since the period of its formation, render it utterly impossible to define it by such simple logical terms as shall at once distinguish it from conterminous genera, and embrace all the species which are usually ascribed to it. It is, indeed, a genus which zoologists commonly assign to the genus antilope are not found either in box, ceris, or capra, and in so far may be fairly considered as differential, and peculiar to the former genus: but, in as much as we are not in any instance conscious to all the individual species which compose this group, and consequently cannot be made the basis of a general definition. Hence it is that naturalists, in treating of the genus antelope, have been led to construct a general description of its most important characteristics, or features, or even to define it by negative characters, such as the absence of a beard on the chin and a dewlap on the throat; and this mode of procedure, however unsatisfactory in general, appears to be unavoidable in this instance, on account of the peculiar difficulties of the subject.

Perhaps the most general character belonging to the antelopes consists in the form of the horns being round and annulated, or at least never exhibiting the prominent angles and ridges which distinguish those of the sheep and goats. In their particular forms and curvatures, however, they vary in almost every different species, as among domestic sheep there are few which are alike, and those birds seen a few miles to the northward. For further information on the climate, &c., the few pieces of land yet discovered in this part of the ocean, see the articles New South Shatlands, Sandwich Land, &c., and Polar Seas. For an account of Biscay, see Geographical Society, vol. iii., from which these facts are taken.
In many of the smaller species the bony core, or process of the os frontis which is inserted into the hollow sheath of the horn itself, is almost solid, or at least the osseous substance of it is penetrated only by very minute pores. M. Geoffrey St. Hilaire has proposed to make this character the distinctive mark of the genus, and his sentiments upon this subject have been adopted by M. Desmarest and most other subsequent writers, including Baron Cuvier himself; but it has been clearly shown by Colonel Hamilton Smith, that the cutaneous, the species in this genus, is but one of the larger species having the core of the horn more or less cellular, and some as completely hollow as the ox, the sheep, or the goat. In other respects the character proposed by M. Desmarest seems to be the same in all the animals, obtaining the same economy of the animals, and so unimportant even as an accidental distinction, that its practical failure is little to be regretted. A much more important, though unfortunately not a more general character, is found in the presence or absence of horns in the female sex. In this respect antelopes are as variable as in all their other characters; in both sexes the greater number of them have horns, but at the same time the females of many species are deprived of these organs, and this character, though not universal in the whole genus, is invariably constant in the species which possess it.

The possession of lachrymal sinuses, or, as they are very appropriately named with reference to the famous hollow-deer, tear-pits, is another circumstance which distinguishes the greater number of the antelopes, but which, like all their other characters, is far from being general. Many zoologists are of the opinion that the presence of these sinuses is due to the high altitude and rapidity of their life in the mountains, so as to enable the animals to breathe freely during their long and rapid flights when pursued or frightened: some even suppose them to be subservient to the sense of smell, and to serve for detecting the noxious qualities of the numerous poisons which live in the deserts, or spring up among the rank vegetation of tropical climates. It is certainly true that all these animals possess a most delicate sense of smell, and that no known quadruped can so well be relied upon, that it will not signalize for those who hunt, in the midst of the forests, the White, in his Natural History of Selborne, and Colonel Smith in the fourth volume of Griffith's edition of the Régne Animal, even assure us that they have observed the air passing in and out, and forwards through the subcutaneous sinuses of the hollow-deer and saumer (Cervus hippocrepus) whilst the animals drank with the nose completely plunged into the water; yet, notwithstanding the direct authority of these respected writers, we are strongly inclined to believe that their observations rest upon some accessory circumstance which escaped their attention at the time, since it is very certain, as is demonstrated by the anatomy of the animal, that there is a close connection between the lachrymal sinus and the nose, or indeed any other organ. The sinus itself is simply composed of a sack or fold of the skin, of greater or less extent according to the species, but always capable of being opened, and its orifice is formed by a pair of lips which usually lies at the bottom with a gland which secretes an oily, viscid substance of the color and consistency of ear-wax, but which hardens and turns black upon exposure to the air. The precise functions of these organs are entirely unknown; they serve some special purpose in the great economy of nature cannot be doubted for a moment by those who are in the least acquainted with the general principles of comparative anatomy, but the exact nature of their function can only be ascertained by those whom fortune has placed in a situation where they may have daily opportunities of observing a great many different species in their natural state and origin. The lachrymal sinus is so far different from that of the other animals, that it is not improbable that it forms a broad nuted muzzle, as in the ox; in others it is hairy and attenuated, like that of the goat; and finally, it sometimes assumes an intermediate form, and presents a variety of modifications of its own. They are generally furnished with either two or four teats, forming a smalludder; they usually bring forth but one at a birth, in a few cases, both sexes, and the period of gestation differs according to the species. Few animals, however, have been recorded upon this subject; the nyl-gau, and some of the larger species, are known to go with young about eight months, but it is probable that the smaller species do not go longer than the sheep and goat, or about five months. It is very seldom that the males and females in this genus, or indeed among mammalia in general, differ from one another
in colour, but when this does happen, as in the instances of the nyl-gnau and common Indian antelope, the young males always assume the female's colours for the first two or three years of their lives, and only gain the adult colours of their own sex as they advance in age.

The hair of the antelope is generally short and smooth, and of an equal length over every part of the body; some, however, have manes along the neck and on the shoulders, coarseness, or purplish or red in either of these, crossed towards the head as in the oryx; and a very few species, like the gnu, are furnished with a beard on the chin and throat. The ears are commonly long, narrow, and pointed, and either cut outwards and flared outwards, or, like the long white hair growing in five longitudinal lines, with four naked black spaces between, and forming the appearance which, in describing these animals, is usually denominated aristaed. The tails are generally short and tapering, and in many species are furnished with little tufts of long black hair, called scopo or knee-brushes, upon the upper part of the anterior canons, immediately below the carpal joint.

Generally speaking, the antelopes are gregarious and unite in large bands, either permanently, or at particular seasons of the year, but only for the purpose of migrating in search of more abundant and grateful pasture; some species, however, reside in pairs or small families, consisting of an old male and one or more females, with the young of the two foregoing seasons. They are always extremely cautious in guarding against surprise, placing sentinels in various parts of the cherno, and giving their feelings to warn of the approach of danger whilst grazing or reposeing, and their vision and sense of smell are so acute, that it is only by using the greatest caution and circumspection that the hunter can bring them within range of the gun. The names given to the different species in all languages, ancient as well as modern, have a direct reference to this quickness of sight, and to the brilliancy of the large black eyes which form so conspicuous a feature in the antelope. Thus the word dorcus, in the Greek, Roman name of the gazelle, or common Barbary antelope, is derived from the verb ἰπτεῖναι, to see. The common English word antelope, which zoologists have adopted as the generic name of the group, is taken from a form of the term ἰπτεῖσθαι, employed by Rasthatus to designate an animal of this genus, and literally signifying bright eyes; and, according to the learned Bochart, ἱπτάτης, the name of the disciple raised to life at Joppa, is derived from ἰπταμαι, the Hebrew name of the common gazelle, and alludes likewise to the beauty of her eyes. Among the Greeks and Romans also, as we learn from Agathiscus, and others, dorcas, dorcalis, and dasæa, are names of different antelopes, were common names of women likewise. We find a number of these names employed without any reference to the remarkable beauty of their eyes; and Prosper Alpinus, and more recent travellers, inform us, that 'Aine el azelal,' You have the eyes of an antelope, is the greatest compliment that a present day tourist can pay to his mistress. Eastern poetry, and romance, as well as the works of the Greeks and Romans, abound with similes and metaphors taken from the form and habits of these animals; they are universally the images of gentleness and timidity, of grace and fleetness. The inspired writer beautifully compares the speed of Asahel to that of the wild gazelle; the Gudiles also are said to have been as swift as mountain gazelles—for this is the proper signification of the Hebrew word ἰπταμαι, improperly translated roe in our English version of the Scriptures; and many other instances might be added, both from sacred and profane writers. Throughout the East, the fleetness and timidity of the antelope tribe is still proverbial, and furnishes the Persian and Arab poets with images of gentleness, beauty, grace, and affection. The swiftest dogs and horses are left far behind by the majority of these animals, and it is only by stratagem that they can be hunted with sufficient success. For this purpose the hawk or the cheetah (felis jubata) is commonly employed in the East, and the gun or various descriptions of snares and traps by the inhabitants of South Africa. The latter are generally employed to catch and exhaust these animals, and it is only by stratagem that they can be hunted with sufficient success. For this purpose the hawk or the cheetah is used to drive the gazelle into a trap, and the antelope escapes, there is no chance of taking it afterwards, and the cheetah, irritated by disappointment, is soothed only with considerable difficulty, and becomes unfit for the chase for a few days afterwards. The Bushmen of the Cape often destroy vast numbers of the antelopes with their poisoned arrows, but which their countrymen, by means of the springs and reservoirs to which they are known to resort, nor is the flesh ever known to be injured by this mode of slaughter; they also shoot them with poisoned arrows, but in this case the parts immediately around the wound must be boiled. Any skin which has been eaten by any bird or animal, which would otherwise penetrate through it, and render it unfit for food.

Africa may be considered as the head-quarters of the antelopes, with this numerous genus, consisting at present of nearly seventy different species, upwards of fifty species inhabit the African continent alone, two or three are common to it and Asia, about a dozen species are peculiar to this continent, and others are confined to South America. Africa, in the new world: the Rocky Mountain-goat, described by Colonel Smith under the name of antilopec lisoniger, belongs certainly to a different genus, and has no other character in common with the antelopes, except the round form and small size of its horns. Australia and Madagascar are, as far as we at present know, completely destitute of antelopes, as indeed they appear to be of all indigenous ruminants. The precise nature of the habitat frequented by these animals has nothing of a uniform character, but, as might naturally be expected from the different modifications of organic structure observable throughout the genus, differs according to the particular species. Some frequent the dry land or the sandy deserts, some are admirably adapted for the bulbous plants which spring up even in the most arid situations, where the stony nature of the ground gives a certain degree of adherence to the soil; some prefer the open stony plains, the grassy plains of South America, Central Africa, or the rocky mountains, and lea from cliff to cliff with the ease and security of a wild goat, whilst others are found only in the almost impenetrable forests of tropical countries.

The great extent of the genus antelope has obliged zoologists to subdivide it into a number of minor groups, or, as they are sometimes called, subgenera; and some have even gone so far as to bestow different names upon each of these different subdivisions. So long, however, as these animals are simply considered as different species of a common genus, this latter practice is merely sanctioned by example in other instances, nor productive of so much practical utility as to justify an exception to the general rule in the present. We shall therefore be so far guided by the example of Baron Cuvier, as to dispense with the names imposed upon them by the different zoologists. We shall, therefore, follow the plan of Dr. Cuvier and Mr. Blainville, and omit the names of the subgenera, sub-antelope, sub-antelope, and other writers; contenting ourselves, like the first-mentioned eminent zoologist, with designating the various subdivisions by appropriate numbers, which have been arranged in the same order by the two zoologists. Without misleading the judgment by false associations, or directing it to mistaken affinities and relations which have no existence, the too common consequences of an inconsiderate application of vague and imprecise terms. The principles of division and arrangement which we shall adopt are those which appear best calculated to distinguish the different groups in a definite manner, and at the same time to place in evidence those species which most nearly approximate to each other in their general characters and habits. M. Cuvier has, for this purpose, followed the example of Pennant and Erxleben by adopting simply the curvatures of the horns, and this method has indisputably the advantage of great clearness and simplicity; but it is, at the same time, purely arbitrary, and certainly does not arrange the different species of antelopes according to their natural affinities. The plan of M. Lichtenstein, De Blainville, and Colonel Smith, is, therefore, to be preferred in this respect, but is much more complicated, and their divisions are sometimes vague and indefinitely characterised. We shall, therefore, to unite the advantages of both systems, and in adopting both, but so as to make each the complement and influence of each, and rejecting all of those a secondary or variable nature.

I. The first of these subgenera or subdivisions of the genus antelope is the subgenus antilocapra by the French naturalists, and designated by Colonel Smith, comprises one or perhaps more species, remarkable
being the only hollow-horned ruminants in which the organs are provided with a snout or branch in front, like the antlers of the stag or roebuck; a peculiarity of conformation which, as well as the general form and habits of the animals themselves, assimilates them in a great measure to the deer kind, and seems to point thither the natural connexion between the solid and hollow-horned families of ruminating animals. Their horns are of a moderate size, hollow only for a short distance from the base, and almost straight till within a few inches of the points, where they bend suddenly backwards and form a complete hook, the arc of those of the chamois: from the root to this bend they are rough and scabrous like the antlers of deer, but the point is black, smooth, and shining, and the prong or antler, which in old animals is situated about half-way up from the root of the horn, is short and compressed, points forwards and a little backwards, and never exceeds an inch or an inch and a half in length. The females are without horns and have four teats, forming a small udder; the lips are hairy and tinged like those of the goat; there are neither suborbital sinuses nor inguinal pores as in the generality of the antelopes, but the fore-knees are furnished with large and copious brushes, and an erect mane of long hair runs from behind the ears half-way down the neck. Over the back is a remnant of dark brown hair, and, with a single exception, peculiar to it among horned ruminants, consists in the total deprivation of accessory or false horns, another affinity with the solid-horned family, which approximates it strongly to the giraffes, and forms an additional inducement to place it at the head of the genus antelope. These animals even seem in some manner to connect the otherwise anomalous genera of deer and antelopes with the ordinary antelopes, at the same time that they connect the hollow-horned family with the solid-horned, by means of the double affinity which they bear on the one hand to the deer in the form of their horns, and to the giraffes on the other by the absence of accessory horns. The horns are never being peculiarly confined, among ruminating animals, to the camels, the lamas, the giraffes, and the group of antelopes at present under consideration. Colonel Smith has described two species as belonging to this group, but Dr. Richardson, whose experience entitles his opinion to great weight, for considering the antilope palmae of that author, a species founded upon the inspection of a pair of horns in the Museum of the College of Surgeons, as nothing more than a very old specimen of the common species, A. furcifer. The same naturalist considers the present group (and though it consists of a single known species only, it is highly probable that the plains of the Sinaloa and California contains, if not two different species) to comprise the animals long since described by Hernandez under the generic name of Mazama; and it is at least certain that one of the species so denominated by the Spanish author very closely resembles A. furcifer, and has a horn as considerably assimilated by Hernandez himself to the antilope palmae comprehended all the deer kind under this term, and the various descriptions which he gives afterwards clearly refer to solid-horned ruminants. The prongbuck antelope seems therefore to have been associated with the deer, on account of its branched horns; but whether the animal referred to by Hernandez be the same as that which is known to the west of the great lakes is a question to be determined by future observers. The only species of which we have any certain knowledge at present is—

1. The Prongbuck, (A. furcifer, Ham. Smith.) called also by the Mexicans and Californians, and by the fur-traders. This animal measures four feet four inches from the nose to the root of the tail; its height is three feet at the shoulder, and the same at the croup; the ears are upwards of six inches long, and the tail about four and a-half. The horns rise perpendicularly from the skull, immediately above the orbita; they spread outwards, and are perfectly straight till within two or three inches of the points, where they curve suddenly backwards and inwards, forming a small hook, like those of the cervidæ. The great prong on these horns appears upon the anterior face, and in adult animals, about half-way up from the root; below it the horns are strongly compressed, rough and scabrous or pearly, like the antlers of deer; above it they are dressed down, and the horn itself is thick, hard, and also very much compressed; it is little more than an inch in length, and points forwards, upwards, and a little outwards. The ears are long, narrow, and pointed; the tail short and bushy; the eye large and lively; the limbs long and slender; and the whole form and appearance of the animal peculiarly graceful and elegant. The head, ears, and legs are covered with short close hair of the common description, but that of the body is long and padded, and of a texture softer that of other kinds of other animals. It is tuberous or hollow within like the feather of a bird, but so brittle and devoid of elasticity that it snaps with the slightest effort, and, when pressed between the finger and thumb, crushes like a reed and never regains its original form. It stands directly out at right angles to the hide, is about two inches long on the back, sides, and buttocks, but from the ears half-way down the neck it exceeds six inches in length, and forms an erect mane, equally conspicuous in both sexes. On the edges of the neck, shoulders, back, and hips, it is of a uniform light colour for half an inch at the point, and light-blue with a tinge of rose-colour at the root; on the sides, chest, and belly, the latter colour prevails at the root, and the point is of a pure and shining white. The extremities are uniform light brown-colour throughout, except on the interior of the fore-arms and thighs, which are white. A broad disk of pure white also surrounds the tail, and passes over the croup, and the throat is likewise marked with two transverse bands of the same colour. This is the winter dress of the animal; but Dr. Richardson, who has well described it in his Fauna Boreali-Americana, informs us that in summer when the new coat appears, it has, at first the ordinary texture and appearance of common hair, and that it only assumes the appearances here described on the approach of the cold season.

The prongbuck inhabits all the western parts of North America from the 52nd parallel of latitude to the plains of Mexico and California, that is, presuming this species to be the Mazama of Hernandez: it is particularly numerous on the banks of the southern branch of the Saskatchewan, and on the upper plains of the Columbia river, and a small herd annually visits the neighbourhood of Carlton House, where a few individuals even linger throughout the winter. They are gregarious, frequent the open plains and hills of moderate height, never inhabit closely-wooded districts, and migrate from north to south according to the season. When the ground is clear, their speed surpasses that of most other animals, but a good horse easily outstrips them after a slight fall of snow; they are easily exhausted, and become torpid, and, as we are informed by Dr. Godman, even the wolves, know how to take advantage of their curiosity to get within reach of them, by crouching down, and moving forwards, or stopping alternately. The antelopes wheel round and round the object of their attention, decreasing their distance at every turn, till at last they approach sufficiently near to be shot or captured. This habit renders them an easy prey, but as their flesh is not much esteemed by the Indians, they are only hunted in times of scarcity. The females produce one, and occasionally two kids early in the month of June.

II. The second group of the genus antelope is equally without lachrymal sinuses, inguinal pores, or horns in the female sex, and has hairy lips like the group already de-
sented; but the females have only two teats, the knees are destitute of brushes, and the horns are simple, and without the branch which so prominently characterises those of the prongbuck. This division likewise consists, at present, but of a single species, lately discovered by Mr. Hodgson, the Brussels Museum of Comparative Pathology of Nepal, as described in the Proceedings of the Zoological Society. It is

2. The Chiru, (A. Hodgsoni, Abel.), believed to be the unicorn of the Bhotias, and supposed by Colonel Smith to be the animal which Homer describes under the name of hemimerus (see also Homer, Iliad, x. 361) an opinion founded upon very slight and not easily tenable grounds. The whole length of this animal, from the muzzle to the root of the tail, is about five feet, its height three feet; the tail is short, ending in the hair; the horns, seven, one to the root of the horns, nine; the ears four inches, and the horns, measured along the curves, upwards of two feet. These grow upright from the skull, are strongly compressed on the sides, bend slightly backwards at first, and afterwards progress gradually forwards, thus assuming a lyrated form, but less strongly marked than in the common gazelle; they are surrounded, to within six inches of the points, with from fifteen to twenty annuli, forming prominent knobs in front, but more obscure towards the sides and rear. The last six inches are smooth and round, and the points rather attenuated. The legs are long and slender, but the symmetry of the head is destroyed by two large fleshy tumours about half the length of the horns, which grow close to the outer margins of the nostrils, as well as by a profusion of bristly hair which surrounds the mouth and nose. The body is furnished with two different kinds of hair, a long external coat of rough quality, and a short interior one of fine close wool. The prevalent colour of the latter is uniform greyish-blue, and the outer coat is likewise of the same colour at the base, but it is tipped with reddish-fawn, and thus gives the whole of the upper parts a tawny hue, through which the lower tinge is distinctly visible. The body and interior of the limbs are white, the nose and face black, and a dark brown band passes down the front of each leg.

The chiru, according to the information obtained by Mr. Hodgson, is an animal of elevated plains and mountain peaks, but beyond that approaches the mountains, and is altogether unknown on the Indian side of the great Himalayan chain. It is gregarious, residing in herds of many hundreds on the open plains, extremely shy and difficult to approach, posting sentinels in all directions where the herd feeds or repose, and flying with astonishing velocity on the first alarm or intimation of danger. When brought to bay, however, the males defend themselves with courage, and in confinement are sedate and amenable, and should always be approached with a considerable degree of caution. Like most other ruminants, they are extremely fond of salt, and during the summer months unite in large herds to visit the beds of this mineral. This custom is observed throughout the world, and is the guiding principle of an experienced leader, and as usual posting sentinels to prevent surprise.

III. The third group of antelopes, comprehending more particularly the animal to which the name is originally and properly assigned, is distinguished from the two former groups by the possession of large suborbital sinuses, and by round annulated horns, assuming more or less of a spiral form, but equally confined to the male sex. These animals have likewise large inquinal pores, and hairy, attenuated lips; the females are provided with two or four teats, and the knees of all the species, except one, are furnished with brushes of long stiff hair. They inhabit different parts of Asia and Africa, in the open steppe lands and steppe forests, live in families consisting of an old male and a variable number of females, with the young of the two or three preceding seasons, and occasionally unite into flocks of many thousand individuals for the purpose of migration. The best-known species of this division, and indeed of the whole genus, is

3. The Satus or Common Antelope, (A. cervicapra, Pallas.) remains, in the form and size of its horns, without a spiral of two or more turns, according to the age of the animal. This beautiful animal is, when full grown, about four feet in length, and two feet and a half high at the shoulder; the head, measured from the nose to the root of the horns, is seven inches, and the ears five inches, a half, and the tail, without the hair, six inches. The legs are long and delicate, the body round, but light, and well formed, the head small, the eye large, lively, and expressive, the ears long and cylindrical, the suborbital sinus particularly developed, and in continual motion, and the horns forming a complete spiral of two or three turns, wrinkled at the base, distinctly annulated in the middle, and smooth for a couple of inches next the points. The females, and young males for the first three years of their age, are of a uniform tawny-brown on all the upper parts of the body, with a light silvery band passing longitudinally from the shoulder to the hips, about six inches below the spine, on either side; the breast, belly, and interior of the forearms and legs are white; as is likewise the under surface of the tail, which is rather broad, and furnished with a small tuft of black hairs at the extremity. After their third year, the males begin to assume the adult colours of their sex, and gradually darken on all the upper parts of the body, till they finally become almost entirely black above and white beneath, the nose, lips, and a large circle round each eye being likewise white, but the light bands of the sides completely obliterated. The hair is uniformly short and close over the whole head, body, and extremities, except on the knees, which are furnished with tufts of long bristles, forming small knee-brushes.

The saisons are so swift that it is useless to slip greyhounds after them, as, unless taken by surprise, which their extreme precation seldom allows, it is impossible to overtake them, and experience has convinced the Indian sportsmen that the dogs are more likely to be injured in the chase than the game. The bounds also which these animals occasionally take, either for their own amusement or over the long grass when pursued, are said to be almost inconceivable. Captain Williamson, in his splendid work on the Wild Sports of the East, assures us that he has seen an old buck antelope lead a herd of females over a net at least eleven feet high, and that they frequently vault to the height of twelve or thirteen feet, and pass over ten or twelve yards at a single bound. They reside on the open plains of India, where they can see to a great distance in every direction, live in large families of from five or ten to fifty or sixty grown females to a single male, and when they feed, or lie down to ruminate, detach a number of the young bucks to a distance of two or three hundred yards on every side, to watch over the common safety. Nothing escapes the notice of these careful sentinels; every bush or tuft of grass that might be suspected to conceal an enemy is strictly and attentively examined, and on the first alarm the whole herd betakes itself to flight, following closely in the footsteps of the old buck, and is seen beyond the reach of pursuit. The venison is dry and unsavoury, and being held in small esteem, consequently holds out no inducement either to the occasional sportsman or to the professional Indian hunter. The species extends over every part of India, from the borders of Persia to the most eastern parts of which Europeans have any distinct knowledge. It is found on rocky, open plains, avoids woody localities and the thick cover of the forest, nor is there any certainty of its existing beyond the limits of India, though many zoologists, from Ray to Hamilton Smith, are of opinion that it likewise inhabits some parts of Africa. The hairs and derrivies polish the horns and form them
into a kind of offensive arms by uniting them at the base; these they wear at their girdles instead of swords and daggers, which their vows and religious character prevent them from using.

4. The Saiga (d. colca, H. Smith) is the only species of real antelope which inhabits any part of Europe; the chamois, though also considered as belonging to this genus, is really an intermediate species, partaking equally of the characteristic peculiarities of the two. The body is covered with a much more abundant and shorter slenderer hair, and the whole proportion of the animal want the usual grace and elegance which commonly characterise the antelope tribes. The nose is large, swollen, and cartilaginous, like that of the elk; it is marked above by deep transverse furrows or wrinkles, and from its great size and numberless complexions of colour go backwards while feeding. The nostrils are large and open, the ears of a moderate size, the tail from three to four inches in length, and the lachrymal sinuses much smaller than in the Indian antelope. Their hair is uniformly long and flowing over the whole body, of a greyish-yellow colour in summer, and greyish-white in winter on the upper parts, and white beneath at all seasons: the knees are furnished with a tuft of hair at the back of the knees and at the inner side of the head; they are semi-transparent and of a light yellow colour, which causes them to be much sought after by the Russians and Chinese for the purpose of making combs, lacquer, &c. Their horns, which are intermediate between that of the spirally-horned and lyrate groups, being distinctly twisted upon their axis, though without exhibiting the complete spiral threads which characterise the Saiga.

The Saiga is mentioned by Strabo (book vii. p. 312). Cassub.) under the name of colca (cocale): the Polish name of the animal, sauka, appears to bear some resemblance to the name in Strabo. The Tartars call it akkuk and the Tartars of the Black Sea, akkuk. In the Middle Ages it was translated wild goat in our English version of the Scriptures, that we cannot help suspecting that the sacred writers alluded to this animal. In autumn the saiga unites into large herds, composed of thousands of individuals, and migrate southward in search of a milder climate and more abundant pasturage; they return northward in small families about the commencement or middle of spring, and generally keep about the vicinity of lakes and rivers, as they drink a great deal, and, as we are credibly assured, by sucking the water through their large open nostrils. This last fact is also stated by Strabo. They like to feed upon acrid, saline, and salt lakes. They are found in the Baltic countries, Russia, Sweden, and are rare in England. The Saiga feeds on grasses, and is a very valuable game.

6. The DEER (A. gutturosus, Pallas), the hoang yang, whang yang, or yellow goat of the Chinese, is about the same size as the Saiga, but which has much larger horns. The Saiga has the ears erect, and more than two-thirds of their length with irregular rings, often splitting into two, and forming prominent knobs on the front of the horn, but the DEER has the horns very slender, and always less than a foot distant from the sides, which are slightly compressed. In the beautiful drawing of this animal given in Daniel's African Scenery, the horns are represented with an unnatural angular bend, and the DEER described by Pallas and observed by Smith to describe them as forming an obtuse angular bend, though he has himself given an accurate drawing of the
the nose to the ear is five inches, that of the horns three, the ears are two inches and three-quarters long, and the tail an inch and a half. The horns of the male are situated in the plane of the forehead; they are very sharp-pointed, almost insensibly bent forwards and upwards, provided on the inner anterior margin with a prominent sharp ridge, which runs from the base to within a quarter of an inch of the points, and annulated for about two-thirds of their length from the roots. The females are without horns, but have, in common with the males, a tuft of long stiff hair standing upright from the crown of the head, and forming a small crest, particularly remarkable in the females, from their not being furnished with horns; the hair on all other parts of the body is short, close, and smooth, except on the hind face of the hips and thighs, where it is rather longer, and radiates outwards and round the tail, its pure white colour contrasting agreeably with the colour of the crown and thighs; the face, forehead, and legs, as well as the tuft of long hair between the horns, are of a bright and deep red, as are likewise the back of the ears, the neck, shoulders, flanks, rump, and outside of the thighs, are of a clear grey colour, like that of the American grey squirrel, each hair being annulated with alternate rings of black and white; the back, from the shoulders to the rump, is a deep reddish brown, and the breast, belly, interior of the fore-arms and thighs, and hinder surface of the hips, of the most pure unmixed white, forming altogether a variety, clearness and brilliancy of colouring rarely met with among quadrupeds; the tail is very short, being in fact little more than a mere stump; the ears are round and nearly the length of the horns; the hoofs small, well-formed, and, like the horns, of a deep black colour; the forehead is perfectly flat, and the head is compressed slightly below the eyes, and tapers to a small and attenuated snout; the legs are large in proportion to the weight of the body, and so small that they scarcely equal the little finger in thickness.

The palliab inhabits Cafraria and the country of the Bachiapis or Boboomanas, never descending farther south than the Kooees valley in the one direction, and the Kamnami mountains in the other. They reside on the open plains in families of six or eight individuals, run with amazing swiftness, and occasionally leap like the springbuck, which, according to Mr. Burchell, they much resemble in their general habits and manners. They are extremely numerous on the elevated plains in the neighbourhood of Latahoo, and constitute a favourite object of the chase with the natives, as their flesh, though deficient in fat, is well-tasted and wholesome. Pallia or palia is the Babakin name of the animal, but the mixed Hottentots, who travel into that country from the Cape, distinguish it by the Dutch term roodebok or redback, on account of the prevailing colour of its body.

IV. The fourth subdivision or group of antelopes contains a single species, which differs from the last group principally by its small size, short straight horns, knees without brushes, and in the females being provided with four teats. The upper lip is hairy and attenuated; the lachrymal sinuses open externally by small circular apertures, about half an inch from the inner canthus of the eye, and there are no inguinal pores.

7. The MADOQUA, (A. Saltiana, Blainville.) This is perhaps the smallest of all horned animals, being scarcely the size of a good English hare. It measures two feet in length from the nose to the root of the tail, and about fourteen inches in height at the shoulder, the height at the crown being about an inch more. The length of the head from

The madoqua is found in all parts of Abyssinia, where it was originally noticed by Bruce, who discovered it in the country about the sources of the Abyen or eastern branch of the Nile. Mr. Salt afterwards procured specimens in the mountains of Tigré, and sent the horns and legs to the British Museum, where they were observed by De Blainville, and described as the specific name of Antelope Saltiana; in compliment to the distinguished traveller who procured them. More recently complete specimens have been brought to Europe by Rüppel, and Hensprich and Ehrenberg, and the species has been well described and beautifully figured both by these travellers and in the Durchsicht neuer Oder, wenig bekannter Säugthiere of Professor Lichtenstein. Little is known regarding the habits of this species. It is said to live in pairs in mountainous districts; and Pearce informs us that many of the Abyssinian people delight to eat its flesh, from a superstitious belief of its being often found in the society of monkeys and baboons.

V. The fifth group comprises two species at present very imperfectly known, and therefore inserted in the present article, on the authority of Colonel Hamilton Smith, the only

[The Palliab, A. melanops.]
Turalist who has hitherto observed and described them. They are distinguished by moderately-sized lyrated horns, consisting of four, six, or eight points in the male sex; by large suborbital or lachrymal sinuses, by brushes on the knees, two teats in the females, and probably inguinal pores; but the form of their upper lip differs from that of all those which we have described, and, indeed, of being hairy and slender, and a number of somewhat naked and insensible, like that of the stag or roebuck, thereby indicating a decided difference in the habits and mode of life of these animals, more especially as regards the nature of their food. But for this circumference, and the peculiar horn in the female sex, another character which has a powerful influence upon the economy of ruminating mammals, the presence of the lachrymal sinuses, the number of teats, the existence of knees inwards, and the absence of inguinal pores, would approximate the species at present under consideration to the group which includes the common gazelle, the springbuck, and other kinds of species; but the characters attributed to them by Colonel Smith not only involve a difference of food, but likewise a decidedly different habitat—the thick forest and the grassy meadow, instead of the barren stony hills and the parched and burning desert. All the details concerning their habits, as well as their local names, are inexact, and uncertain; it is only known to their zoological characters that we are enabled to deduce a few facts regarding their economy.

8. A. forfex, H. Smith, supposed by its describer to be the male species, is a very large animal of the Gamboan antelope, and which that author identifies with the kob of Buffon, is said to be rather larger than the springbuck, the height at the shoulder being rather better than in the former, and more nearly similar to those of the kudu. The horns are about a foot long, black, and anulated for the first two-thirds of their length, smooth and pointed on the remaining portion; they stand close together at the base, bend slightly forwards at first, and then, with a wide sweep, curve backwards into the forehead, and resembling in front the figure of a pair of forearms. The head is broad across the orbits, and measures about ten inches in length; the eyes large and black, the ears small, and quite inapparent externally, and filled internally with a bunch of long white hair; all the upper parts of the body are fulvous brown, darkest on the face and hips, all the under parts white, the latter colour being separated from the former by an indistinct dark stripe on the flanks; the legs are marked in front with a brown streak terminating in a black spot on the fore pasterns, and on the hind legs extending but a short distance upon the cannon bone; small dark brushes protect the knees; and the tail, about three inches long, is white beneath, light brown above, with a dark line down the middle and a black tuft at the extremity. The only specimen observed was brought from the west coast of Africa, and formerly exhibited at Exeter. This animal was remarkably timid, and of a mild, engaging disposition.

9. A. adusta, H. Smith, which this author identifies with the kob of Buffon, but certainly without sufficient grounds, since the kob has no lachrymal sinuses, whilst in the present animal they are, by Colonel Smith's own description, particularly long and open, is a species described from a pair, male and female, formerly in the Exeter Change collection, and distinguished by the peculiar manner in which the hair is directed upon the body, whirling round in a small centre on the loins, and reversed or couched forwards on the back, upwards on each side of the neck, obliquely upon the flanks, and downwards on the hips. The general colour is a uniform fulvous brown, and white beneath, with a dark line down the front of the fore-legs, and a black ring round the hind canons immediately above the spurious hoofs. The tail is short and entirely covered with long black hair, and the lips, chin, and space round the eyes are marked with white. The horns of the male rise immediately above the orbits, and are about nine inches in length; the first two-thirds are marked with ten rings, forming prominent knobs; in front, the horns are about equal, but behind, the superior third is smooth, black, and rather bluntly pointed; they are a little straitened between the annuli and rather compressed on the sides; their direction is at first nearly in the plane of the forehead, but they afterwards slope backwards towards the posterior edge of the head, and bend almost imperceptibly forwards, so as to assume, when seen in front, the figure of a common pitchfork. The female is without horns, but in every other respect perfectly resembles the male. The pair observed by Colonel Smith were brought from the west coast of Africa, and were excessively shy and timid.

VI. The sixth subdivision of the antelope genus is distinguished by a round naked muzzle, large lachrymal sinuses, and horns confined to the male, but particularly by the number of teats in the females, which are the only instance in which horned animals in a state of nature possess more than two of these organs. The inguinal pores and number of teats in the females have not been observed; the known species exhibit horns in the sexual female sex, another character which has a powerful influence upon the economy of ruminating mammals, the presence of the lachrymal sinuses, the number of teats, the existence of knees inwards, and the absence of inguinal pores, having a decided resemblance with that of the species under consideration. The horns are about two feet nine inches in length from the muzzle to the root of the tail; the tail itself is five inches long, and the height at the shoulder about one foot eight or nine inches. The superior or common horns are about three inches long, smooth, black, pointed, erect, and moderately divergent, bending very slightly forwards, and without the least indication of annuli. The spurious or additional pair of horns are placed in front of these, and are divided into the orbits, and consist of short, erect, blunt stumps, about three-quarters of an inch in length, an inch and a half in circumference at the base, and of the same smooth and black colour as the horns; the upper part of the horns is three inches and a half long, the cars four inches and three-quarters, erect and pointed; the general colour of the upper parts is uniform bright bay, and that of the under parts similar, and of a shade mixed with brown; the ears are about three inches long, and the tips black; the lips are bordered with black. The females differ from the males by the absence of horns, and likewise by being of a lighter colour, which character is conspicuous at a very early age and continues throughout life. This species, which is familiar to the Hindoos, and chowka by the Nepalese, is common in all the wooded parts of India, particularly in Bengal, Bahar and Orissa; it is monogamous, and lives in pairs, in the forests and thick grassy meadows, and is extremely shy and retiring, a state of confinement unless taken young. During the rutting season the male becomes particularly mischievous, and it is then dangerous to approach him, as he butts at everything within his reach; the female produces two young at a birth, but the period of gestation has not been recorded. Baron Cuvier supposes, and apparently with reason, that the antelopes were acquainted with this species, and that the Four-horned Oryx of Atian refers to the modern chinkara.

VII. The seventh group includes a number of species which differ from the last, principally in the number of the horns, being two only, short, round, smooth, and lightly bent in front. As already described, they are wanting in the females. The head is terminated by a distinct, well-formed, naked muzzle, the lachrymal sinuses are large and conspicuous; one species only is without inguinal pores; another differs from the general type in the possession of knee-brushes, which are commonly wanting, and the females are universally provided with four teats, forming a small udder. A single species inhabits India; all the others are African, and reside on the open rocky plains, or in the gorges of mountain gleans, sometimes bounding from cliff to cliff with all the ease and security of the ibex. These animals are generally monogamous, and associate in pairs or small families, but never unite into large herds like the saiga and springbuck, nor do they migrate from place to place like these species.

11. The Nythus, (A. picta, Pallas), one of the largest and most magnificent antelopes known, being upwards of four feet high at the shoulders, inhabits the various parts of India, whence it has often been brought to England, where it lives and breeds, and is not an uncommon animal. The face of this species is long and narrow, the muzzle large and prominent; the horns are long and strong, and black, rather distant at the base, nearly parallel throughout their whole length, pointed and slightly curved forwards. They are perfectly smooth and without annuli, but rather triangular at the base, and gradually rounded and attenuated towards the points. The carins are similar to those of the previous species, the ears seven inches in length, broad and rounded like those of an ox, the neck deep and compressed like that of the horse,
not round and cylindrical as in the stag and most other antelopes, and the tail broad, equally covered with hair on the sides and at the root, but terminated by a long black tuft, and descending to the houghs. The legs are small and well-formed, the anterior rather longer than the posterior, and the sinuous processes of the dorsal vertebrae so much elevated between the shoulders as to give the animal the appearance of having a small hump. When at rest, the feet are gathered close under the body, and the tail turned in between the hind legs. The hair is uniformly short and close upon every part of the head, body, and limbs, excepting along the top of the neck and on the shoulders, where it is long, stiff, and upright, forming a thin erect mane which extends from between the ears half way down the back; and on the middle of the throat, where there is a species of beard composed of stiff bristly hair. The general colour is a uniform slaty blue on the upper parts in the male, and tawny red in the female, on the under parts uniform white in both sexes; the limbs and face are almost brown, and the lips, chin, and under surface of the tail white. There is a large white spot on the throat, and two smaller ones on the cheeks under the lachrymal sinuses; and the external joints are marked in front with one, and in rear with two conspicuous spots of the same colour, which contrast strongly with the dark brown of the surrounding parts, and have suggested the specific name of Antilocapra picta which has been given to this species. The nyl-giash lives in the dense forests of India, whence it occasionally makes excursions very early in the morning or during the night, to feed upon the corn-fields of the natives which happen to be situated in the vicinity of the jungle. It is a vicious animal, of very uncertain temper, and as it is both powerful and resolute, and frequently turns upon its pursuers, it is seldom made an object of chase except by the native princes, who employ elephants for this purpose, or enclose the game in nets. The usual method which the shecarries or professional hunters employ for its capture, is to shoot it from an elevated platform when it comes out at night or early in the morning to feed on the confines of the jungle; this being likewise their mode of destroying tigers, wild boars, and other beasts which they dare not attack openly. Even in confinement, and when domesticated from birth, the violent and changeable temper of the nyl-giash cannot be trusted. Previous to making its attack, it drops upon the fore-knees, advancing in this position till within a proper distance, and then darting suddenly forwards with the velocity of an arrow, and with a force which no ordinary animal can withstand. Yet, notwithstanding its vigour and resolution, it is the most common prey of the tiger, which the shecarries often destroy in the very act of devouring the mangled remains of this animal; for, when these are discovered, the hunters always erect their platforms in a convenient situation in the neighbourhood of the carcass, knowing, by experience, that the tiger is sure to return on the following night to glut himself at leisure with the produce of his previous chase. The nyl-giash has often bred in confinement, both in this country and in India; the period of gestation lasts for eight months, and two young are most commonly produced at a birth. At first the young males are of the same reddish-brown colour as the females, and only assume the greyish-blue shade proper to their sex, on arriving at maturity: their growth is, however, rapid, and they attain their adult size in the second or third year of their age.

12. The Ourebi, (A. scaparia, Schreber,) called blank-bok, or palebuff by the Dutch colonists at the Cape, according to Professor Lichtenstein, is a much smaller species than the nyl-giash, and differs from all the other species of the present section by the large brushes which, in common with many other antelopes, it has upon the upper end of the canons, immediately below the knees, and from which it derives its full name of A. scaparia. It measures three feet eight inches in length from the muzzle to the root of the tail; the length of the latter is three inches and a half, that of the head seven inches and a half from the muzzle to the root of the horn, of the horns themselves five inches and a quarter, and of the ears three inches and three-quarters. The height at the shoulder is one foot ten inches, at the croup nearly two feet, and the size of the animal, as well as its general form and proportions, are nearly those of the roebuck, only that the head is longer and more slender. The horns are awl-shaped, sharp, slender, nearly straight and bending almost imperceptibly to the front; they are surrounded by a narrow ring of wrinkled skin, exceeded by five or six well-defined rings, but are smooth and black throughout the greater part of their length, and end in very sharp points. The general colour of the upper parts is a uniformly pale yellowish-brown, darker in some individuals, and the under parts are white as well as the chin, lips, and a longitudinal streak over the eyes in the form of eyebrows, are white, and this colour likewise spreads over the posterior surface of the hips. The tail is covered with long whitish hairs; the nose, ears, and prominent contrast with the white of the buttocks; the ears are edged with a narrow border of dark brown, and immediately beneath their opening at the root there is a remarkable bald or naked spot of an oval form on each side of the head.

The ourebi inhabits the open plains of South Africa, and without being positively gregarious, is fond of the society of its own species. It is found chiefly in the eastern districts of the Cape colony towards Caffraria, and its flesh, though dry and destitute of fat, is esteemed one of the best vienons of the country. Great numbers of these animals are found on the plains about Zwartkops bay. When feeding, they form loose irregular aggregations, and move about over the plains in company rather accidentally than by intention; when alarmed also, they do not fly together, but each runs off by itself in whatever direction it thinks most secure from danger for the moment. The males are easily distinguished from the females by their large, commonly four inches long, and their pelt identified with this animal, be in reality the same species, it would appear to extend along all the eastern coast of Africa, from the southern confines of the continent to the banks of the Bahr el Ahid, or White Nile, close to which Rüppell procured its specimens.

13. The Sichweho, (A. tragulus, Lichtenstein) is one of the most graceful and elegant of the antelope tribe. Its legs are longer and smaller in proportion to the bulk than in any other species; its body is compact and well made; its head small, pointed, and ending in a well-formed naked muzzle, and its tail reduced to a mere tube, scarcely perceptible, or only a bit of hair with a couple of thorns. The whole长度 from the muzzle to the root of the tail is about three feet four or five inches; that of the head, from the muzzle to the base of the horns, four inches, and from the same point to the root of the ear six inches, the tail being an inch in a half, and the horns four inches. The height at the shoulder is one foot seven inches, and at the croup one foot nine. The colouring of this species is altogether peculiar, and alone sufficient to distinguish it from all other antelopes or other animals. In general, it is the same on the upper parts of the body, but this seems to be glazed, or, as it were, overlaid on the shoulders, back, sides, and hips with a light dun or silvery brown hue, arising from the hairs in these situations being most clearly of a slaty black. The nose and legs are dark brown, the breast, belly, and interior of the fore arms and thighs white; the hair of the forehead is long and of a deep red colour, and a remarkable black line passes from the root of each horn backwards, uniting
between the ears, and forming an obtuse angle equally as considerable, the horns in the horned man and the antelopes in the horse, and affording an excellent criterion by which to distinguish the species. The horns of the male are small and round, furnished at the roots with a few faintly marked wrinkles, but smooth and polished throughout the greater part of their length, and only of moderate size, and certainly that which most distinctly distinguishes it from all the other ruminants with which it is at all likely to be confounded, though it has hitherto escaped the notice of observers, is the mode in which these horns are fixed to the head and the feet, a character which we have already found in the pronog- buck, and which, as far as we are aware, no other ruminating animal of the hollow-horned family possesses.

The steenbok resides in pairs on the stony plains and mountain valleys of South Africa; but, however, frequently very elevated or rocky localities, as its colonial name of steenbok, or stonebuck, would seem to imply. On the contrary, it prefers the dry open flats, covered here and there, it is true, with large rocks and boulder stones, but likewise interspersed with clumps of stunted bushes and underwood, which furnish it with cover. This is the general character of the South African plains in the neighbourhood of Cape Town. The climate is well adapted to its wants, and the hills or ranges of mountains, and it is in such situations that the steenbok is most commonly found. This animal is, moreover, remarkably shy and timid, runs with extraordinary swiftness, and when pursued will frequently bound over a space of twelve or fifteen yards on the spot. When closely pressed, and without any further means or power of escape, it will hide its head in the first hole or corner it happens to meet with, and thus patiently resign itself to its fate. Though it cannot be called a rare animal at the Cape, it is nowhere particularly common, being much hunted on account of the delicacy of its flesh, which furnishes excellent venison, and great numbers of the young being destroyed by eagles and other hawks, and the heads of the steenbok as a different species, by the name of A. ru-fescens; and the A. pallida, or A. pediocragrus, of Africinus, appears to differ in no respect from the adult of the present animal, the really distinctive characters of which have been hitherto very imperfectly reported.

14. The Grysbok (A. melanothis, Lichtenstein) is a species closely allied to the steenbok, but rather lower on the legs and more heavily made. The whole length of the body is measured from the nose to the ground, but the head and body being included between the ears, six inches; the height at the shoulder is one foot and a half; and the croup one foot seven and a quarter; the horns are two inches and a half long; and their colouring is the same as that of the steenbok, contracts suddenly before the eyes, and ends in a pointed muzzle; the horns are situated immediately above the orbits, straight, upright, pointed, and shining, with two or three small annuli at the roots; the ears are long, wide, and open, and the tail, almost tuberculous, is concealed among the long hair which passes backwards over the hips. The hair of the body is universally long, particularly on the hind quarters; on the head and extremities it is, on the contrary, remarkably short. All the hairs and are of a deep crimson red, thinly but regularly intermixed with long coarse hairs of the purest white, giving the whole animal a hoary appearance, expressed by its colonial name of grysbok, or grey-buck, and of which we must not easily mistake; the inferior parts are uniform light sandy brown or red, the head and extremities fawn-colour; the muzzle, the openings of the lachrymal sinuses, and an obscure circle about the eyes, as well as a mark upon the occiput of some specimens are black, as are likewise the backs of the ears, which are nearly naked, with a few very short grey hairs thinly scattered over them.

The habits of the grysbok are in most respects similar to those of the steenbok. It lives in pairs upon the plains, never uniting into troops or flocks, and conceals itself in clumps of underwood, whence it is not easily driven, lying close like a hare in her form, and seldom moving till almost trodden under foot. It is a nervous animal, capable of being frightened from the Cape, and being less swift than the steenbok is more easily captured; its venison is much esteemed, though, like the generality of antelopes, destitute of fat.
They are nearly vertical on the forehead, bending moderately outwards in the middle, and their points turning slightly inwards, and thus assuming something of the figure of a shoemaker's awl. Their distance at the base is one inch and two lines, and in the middle about two inches.

VIII. The eighth group into which we divide the genus antilope is distinguished from all those which precede it by the total absence of lachrymal sinuses, and by the beautiful spiral form of the horns, surrounded throughout the greater part of their length by a prominent wreath. The species comprised in this subdivision have likewise distinct naked muzzles and inguinal pores, but they want knee-brushes, and the females are without horns and provided with four mammae. They inhabit the forests of South and West Africa, and are the only antelopes distinguished by the variety of their colours, being more or less spotted and ribbed with white upon a dark or fallow ground. They live in pairs or small families.

18. The Koodoo \( (A. \text{strepsiceros}, \text{Pallas}) \) is a magnificent animal of South Africa, and one of the largest of the antelope genus, measuring upwards of eight feet in length, and being four feet high at the shoulder. The horns of the male are particularly magnificent; they are nearly four feet long, and beautifully twisted into a wide-sweeping spiral of two turns and a half, surrounded by a prominent wreath which follows all their windings, and is gradually obliterated towards the points, which are rather blunt and directed outwards. They are thick at the base, and marked for some distance up with irregular wrinkles, but not annulated, dark brown at the bottom, black in the middle, and the extreme points white. They spread boldly and widely outwards, and are usually carried coupled on each side of the back, on account of their great weight. The whole make of this animal is heavy; the head large and terminated by a broad muzzle, the ears broad and slouching, the limbs thick and robust, and the whole external appearance more nearly resembling that of an ox than of an antelope. The ground colour of the back and sides is a light fawn-marron, with a narrow white ribbon along the spine, and eight or ten similar bands descending from the back and passing obliquely down the sides and hips; the belly and under parts are pale silvery brown. On the neck and withers is a thin spare mane of a brown colour, and the chin, throat, and breast are furnished with similar long hairs, forming a species of beard. The cheeks are marked with two or three round white spots, and a narrow grey line passes from the anterior angle of the eye down towards the muzzle. The tail is moderately long, and equally covered with short hair.

This magnificent animal inhabits the woody parts of Caffraria, principally along the banks of rivers, to which it readily takes when pursued, and swims well. It lives in small families of four or five individuals, is never found on the open plains, much less on the mountains, as M. Desmarest erroneously supposes, and feeds on the shoots and leaves of young trees. Though a heavy animal, and by no means rapid in the course, it leaps with surprising agility, and has been known to clear a door of ten feet high at a single bound. The males are not deficient in courage, but defend themselves resolutely when driven to bay; when taken young, however, they are readily domesticated, and will follow their masters, and even ride upon their original freedom. The females produce one young at a time.

19. The Boshbok \( (A. \text{sylvestris}, \text{Sparrman}) \) is a much smaller animal than the koodoo, measuring about four feet in length, and being about three inches high at the shoulder. The horns are nearly a foot in length, thick at the base and gradually attenuated, but ending in rather blunt points; they are twisted on their own axis, but do not form the wide-sweeping spiral of the koodoo: from the base, however, two sharp, prominent r прекращение, on the outer and other on the inner surface, wind spirally round them for the first two-thirds of their length, and are gradually obliterated towards the points, which are smooth and polished. The ears are large and rounded at the tops, the limbs robust but clean and well-formed, and the tail of moderate length and similar to that of the common fallow-deer. The male and female are of different colours; the ground colour of the former is a dark sepia brown above, and white beneath, the head and cheeks being light and sandy-red, and the extremities fulvous; that of the latter reddish-fawn above and white beneath. The pure white hairs cross the throat, one at the junction of the head and neck, and the other at the union of the neck with the chest; the lips and chin are also white; round white spots mark the cheeks, and sometimes the nose in front of the eyes, and similar spots are dispersed irregularly over the hips and thighs, to the amount of a dozen or more on each side, sometimes even forming interrupted lines. The hair is of moderate length, but it is smooth and lies close to the body; the backs of the ears are covered with short brown hair; the tail is black above and white underneath, and the posterior joints are marked behind with two oblong spots of the same colour. In very old males the legs become almost uniformly grey, and at all ages there is a white band running down their inner surfaces to the very hoof. All these marks are equally found in the females, but not being so prominently contrasted, on account of the lighter ground colour of this sex, they are not so conspicuous as in the males. There is frequently also a narrow white line along the back, but this is not a constant character in either sex, and is, for the most part, wanting in the females. The young males are of the same colour as the adults, but rather lighter, and the white spots on the hips and thighs more faintly marked.

The boshbok, or bush-goat, as its colonial name implies, resides in the woods, which it never quits but during the bright moonlight nights, or early in the morning, when it comes out to graze on the border of the surrounding gardens and corn-fields. Its voice resembles the barking of a dog, and its desiccous tone sometimes leads the benighted traveller into the most remote and lonely depths of the forest in the vain search after some human being. Its cry is not heard when he is all at one with nature and with himself. It is a slow runner, and easily caught when surprised in an open situation, but it keeps close to the woods, through which it penetrates with great ease, running with the horns crouched backwards along the sides of the neck, to prevent them from impeding its course by striking against the branches, and having the neck and throat frequently deputed by rubbing against the underwood, as it forces its passage through the thick masses. In parts of the Caffraian It is not uncommon to find the males and females being always found either alone, or accompanied by one or two kids, but never by adult individuals. It is common enough in Caffraria, and of such a kind as to be in no wise picturesque or elegant; its flesh makes good venison, that of the breast being particularly esteemed.

20. The Guin \( (A. \text{scripta}, \text{Pallas}) \) has the same general characters as the boshbok, and the horns of the male are likewise spirally twisted, but it is smaller, lighter, and much more elegantly formed, and is said to live in society upon the plains, a circumstance which, if it can be relied on, forms a remarkable exception to the habits of the other species of antelopes included in the present group. It inhabits the desert and a-half from the muzzle to the root of the tail; its height at the shoulder is two feet six inches, and at the croup two feet eight; the horns are eight inches long, the ears five, and the tail six. The horns are straight, a little compressed and twisted upon each other with rather obtuse passing...
round them strongly marked at bottom, but obliterated within an inch or two of the points. The general colour is a reddish fawn marked with white lines and spots. The back is brown with a dark stripe near the head and face, white spots in front and beneath each eye, and another on the else, at some distance beneath the opening of the ear; the sides of the upper lip and the whole lower part are white. The neck is un
mixed fawn, deep brown and lighter beneath, in every white mark on the breast; the body likewise is deep fawn-colour, with a dorsal line of white and black hair interrupted, and rather longer than those on the rest of the body. From this dorsal fawn line there are one or two narrow fawn stripes running parallel to the dorsal line. All these markings are constant in the species and equally common to both sexes; they are at regular distances from one another, and, as Buffon observed, present the appearance of a set of small harness. A few small, round, white spots are frequently also scattered over the hips and thighs, as in the boobook, and the interior of the fore-arms, thighs and legs, are likewise of this colour, but the breast, belly, and under parts of the body in general are uniform fulvous brown.

The guib inhabits the west coast of Africa, from Sierra Leone to the banks of Senegal, from the latter of which localities it was first brought to Europe by the celebrated Arabian traveller. It is a large species and to form extensive herds, which reside equally in the forests and on the open plains, particularly in the vicinity of Podor and Gorse, where these animals are very numerous. Guib is their name in the Jallof language. The colours are sometimes subject to a slight variation, as regards the number of longitudinal and transverse bands on the sides. Colonel Smith has considered this difference specific, and has bestowed the name of A. phalerata upon the variety with the plain brown back and the flat feet retaining the original name of A. scripta for the variety which is marked with two of these lines. This distinction, to say the least of it, is extremely doubtful, and the difference upon which it is founded is in all probability merely accidental.

IX. The ninth group of antelopes includes a number of species characterised by their distinct naked muzzles, horns in the male sex only, distinguished by a single curve towards the point, more or less strongly marked according to the species, by their large inguinal pores, by the presence of four teats in the females, and by the absence of lachrymal sinuses and knee-brushes. This family is, like the last, exclusively African, the species residing in pairs or small families, the males in herds, and females in bands, on the south and west coasts of the Continent, generally about the sources of mountain-streams, and among the sedges and reeds on the banks of dry rivers. The qualities of the hair are woolly or silky, and the hair of the tail is of a soft and fine texture, close and warm, and in the young animals beautifully frizzled and parted into separate locks. Their legs are robust and powerful, and, though not deficient in point of beauty, they want the light form and graceful action which characterise the generality of the antelope genus.

21. The Koba, (A. kob, Erxleben,) called Grande Vache brune, or little brown cow, by the French of Senegal, is, in size equal to the European brown bear, but in general construction, and from the extremity of the muzzle to the root of the tail. The head, measured from between the ears, is fifteen inches long, and the ears themselves nine inches. The horns are twenty inches long, annulated throughout the first three quarters of their length, compressed on the sides, and in full grown animals having a tendency to assume a lyrate form with the point rather blunt and directed forwards. The horns of this animal were cut down, and brought to England by Mr. Atherton, who described and figured them by Buffon and Daubenton in the twelfth volume of the Historie Natuerale; from that period till very recently nothing further was known of the species, but within the last eighteen months two living specimens, a male and female, have been brought to England, and are now exhibited, the latter at the gardens of the Zoological Society in the Regent's Park, and the forse in the Surrey Zoological Gardens. The hair, without being thick, is found in every part of the body, standing out from the hide in different directions, and forming round the neck a kind of rough bristly mane; the ears are long, pointed, and habitually directed forwards, and the tail, broad, and uniformly covered with hair, reaches to the hough, and is without a terminal tuft. The general colour of the body is a dark vinous on the upper parts and silvery grey beneath, the former being tinged with brown, and grey the latter, and with a tuft of black, the tip, chin, and under side of the tail white, and a longitudinal stripe of the same colour passes over the eyes in the form of eyebrows, and descends for some inches along each side of the face. The feet are marked with faint grey rings immediately above the hoofs, and the ears are internally striated with three longitudinal white lines.

The attitude of the koba when at rest very much resembles that of the nyly-gnou, the feet being gathered close under the body, and the tail pressed in between the hind-legs. In a state of nature its habits are altogether unknown; in confinement it is gentle and timid.

22. The Kon, (A. kob, Erxleben,) called Petite Vache, or little brown cow, by the French settlers on the western coast of Africa, is described as being about the size of the fallow-deer, and similar in colour to the koba, but the animal is only known by the skull and horns brought by Adamson from Senegal. These are pretty large, black, with a single concave curvature directed backwards, approaching one another at the points, and marked on the first two-thirds of their length with seven or eight prominent rings. The head is long and narrow, and without pits for the lachrymal sinus, showing therefore that this organ does not exist; its entire length is nine inches; the length of the horns is thirteen inches on the curves, and their circumference at the base five inches and a half, their distance from one another is eight lines only at the base, five inches in the middle, and two inches and a half at the points.

23. The Rhipikou, (A. eloi, Schreiber,) or redback, so called from its habit of frequenting the reedy banks and beds of dry water-courses, is four feet and a half in length and two feet nine or ten inches high at the shoulder. The head is ten inches long from the muzzle to the base of the horns, the horns ten inches and a half in a straight line, and thirteen inches along the curves, and the tail eleven inches. The horns are round, annulated at the base, with prominent sharp rings and beautifully striated between, smooth and shrunk at the points, and curved forwards with a hold and regular sweep, so as to form almost the segment of a circle. The ears are long and pointed, filled internally with a profusion of whitish hair, and beneath them, on each side of the head, there is a remarkable bald spot of an oval form and shining black colour, which is very characteristic of the species, and readily distinguishes it from all the other antelopes with which it is likely to be confounded. The hair over every part of the neck and body is long and rough, of a uniform dull ash grey colour, sometimes tinged with red on the upper parts, and silvery grey on the throat, breast, belly, and interior of the fore-arms and thighs. The
dualy to the muzzle, which is small, round, and of a black colour; the horns are perfectly smooth and without any appearance of wrinkles; the visage is long and gracefully prolonged from the forehead to the nose, the length next the points, but exhibit a few obscure wrinkles at the base; they are remarkably slender, long, straight, parallel, and so sharp at the points, that the Hottentots and Bushmen use them in place of needles and bodkins; the ears also are long, very broad at the base, and attenuated towards the points; the tail long and bushy. The hair, or rather fur, is of a woolly quality, and of a uniform ash colour on the neck, shoulders, sides, croup, and thighs, and whiter or light grey on the breast, belly, and inner face of the arms and thighs. In young individuals it is beautifully frizzled or curled into distinct locks, and its colour is much clearer than in the adults, which have it straight, loose, and often tinged with a tawny-brown hue, which is agreeable to the body. The hair of the legs in the young animal is likewise long and curly like that of a young lamb, but in aged specimens the legs are covered with short close hair of the common quality, and frequently with more or less of a dark brown colour. The hair of the head, face, and cheeks, is always short, crisp, and close; it is brown on the nose, light brown on the forehead and cheeks, and white about the margins of the lips and underneath the chin; the tail is slaty grey above, and white below, and at the tip; and there is a conspicuous black spot at the angle of the mouth on each side. The hairs individually are obscurely annulated with alternate rings of a grey and light colour, the latter becoming more conspicuous as the animal advances in age, and communicating to the general colour of the fur the light rufous shade already mentioned.

The rheeboek is a dark and more graceful and useful animal than the common antelope included in the present section. The body is long and small, the neck particularly so, and the legs slender and well-proportioned. Its pace, consequently, is proportionally swift; it runs with great velocity, keeping close to the ground, with its legs in the strided, and with a motion so rapid and uniform, that it seems to glide rather than run. The rheeboeks live in small families of five or six individuals, consisting of an adult male and three or four females with their young; their food consists of pungacious, and compel the young of their own sex to separate themselves from the family as soon as they become adult. Their general residence is on the sides of moderate hills, among stunted trees and underwood, or in the stony gorges and mountain passes, in the vicinity of the little pools of water which remain after the winter torrents have ceased to flow. Wherever such situations are found, the rheeboek is not uncommon. The scanty animal skin which has been received resembles the modern hyena. A. Tuckerman states that the flesh is dry and unisipid, and esteemed less than that of any other of the numerous Cape antelopes. The female produces but one at a birth, which grows rapidly, and, if caught at an early period, is readily domesticated.

24. The Naago, (A. reducans, Pallas,) known only from the description of Adamsen and the figure of Buffon, is a species so nearly resembling the rheeboek that some naturalists have not hesitated to unite them. It is four feet long from the muzzle to the origin of the tail, two feet four inches high at the shoulder, and two feet six at the croup; the head is nine inches long, the horns five inches and a half, and the ears five inches. The horns have one or two annuli at the base, but are smooth and shining throughout the remainder of their length; they are erect, parallel, and almost straight till within a short distance of the points, where they curve forwards, but not so boldly as in the last species, and this character appears to constitute their chief difference, though it is obvious, from the description, that Mr. Adamsen's specimen was a young individual. The colour was uniform fawn or pale red, without any white about the breast or belly, and the hair was long, rough, and unlasting, and did not lie smooth or close to the body, characters which all tend to approximate the animal to the rheeboek, and more particularly to the variety which is said to inhabit the plains. It is found in the neighbourhood of Greece on the west coast of Africa.

25. The Rhbox (A. capreolus, Lichtenstein) is nearly five feet in length, and two feet and a half high at the shoulder; the head is six inches long from the muzzle to the root of the horns, the ears and tail, without the hair, about the same length, and the horns of the old male from nine to twelve inches. The head is long, and tapers gradually to the muzzle, which is small, round, and of a black colour; the horns are perfectly smooth and without any appearance of wrinkles; the visage is long and gracefully prolonged from the forehead to the nose, the length next the points, but exhibit a few obscure wrinkles at the base; they are remarkably slender, long, straight, parallel, and so sharp at the points, that the Hottentots and Bushmen use them in place of needles and bodkins; the ears also are long, very broad at the base, and attenuated towards the points; the tail long and bushy. The hair, or rather fur, is of a woolly quality, and of a uniform ash colour on the neck, shoulders, sides, croup, and thighs, and whiter or light grey on the breast, belly, and inner face of the arms and thighs. In young individuals it is beautifully frizzled or curled into distinct locks, and its colour is much clearer than in the adults, which have it straight, loose, and often tinged with a tawny-brown hue, which is agreeable to the body. The hair of the legs in the young animal is likewise long and curly like that of a young lamb, but in aged specimens the legs are covered with short close hair of the common quality, and frequently with more or less of a dark brown colour. The hair of the head, face, and cheeks, is always short, crisp, and close; it is brown on the nose, light brown on the forehead and cheeks, and white about the margins of the lips and underneath the chin; the tail is slaty grey above, and white below, and at the tip; and there is a conspicuous black spot at the angle of the mouth on each side. The hairs individually are obscurely annulated with alternate rings of a grey and light colour, the latter becoming more conspicuous as the animal advances in age, and communicating to the general colour of the fur the light rufous shade already mentioned.

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marked with a number of small transverse striae, then covered for about an inch with little depressions and inequalities, and smooth from thence to the points. The ears are situated rather close to the horns; they are about the same length at the base as the horns, but longer at the top, and nearly naked; the eye-lids are bordered with thick black lashes, the tail is bushy and pendent, the buttocks nearly naked, the limbs short and slender, the body unprovided with a mane, and the female is smaller, but with the same tests. The hair is, in general, remarkably short, sleek, and shining, of a deep brown colour, rather paler on the neck and flanks, mixed with grey on the thighs, almost yellow on the throat, dun on the back, and sides of the face, and chestnut brown on the head and feet. A tuft of long hair surrounds the base of the horns, and along the middle of the back is a longitudinal line of silvery grey or almost white hair, the same as the body; it is provided with hair considerably longer than that on the rest of the body. The tail is black, covered with moderately long hair, and without a terminal tuft.

The proportions of this species are heavy and ungainly, and bear a considerable resemblance to those of the hog-deer of India. The legs are short and slender, and appear disproportionately to the size of the body, which is large and heavy; the horns, as thick and short, are somewhat attenuated towards the muzzle, the neck short and thick, the croup depressed, and the back very much arched. This species inhabits the west coast of Africa, about Sierra Leone, and the sources of the Fanges and Quia Rivers. It frequents the thick grass and underwood of the upland and moderate mountain declivities, keeping close to the cover during the day-time, and quitting it only at early dawn for the purpose of feeding in the neighboring meadows.

27. The Camリング Outang (A. Sumatraensis, Desmarest), first noticed by Mr. Marden in his History of Sumatra, is found four feet and a half in length, and two feet three inches high at the shoulder. The horns are six inches long, very thick at the base and much attenuated above; but the hair is short and uniformly curved backwards. The muzzle is distinct and well formed, the lachrymal sinuses open by a small circular aperture, and between them and the muzzle, on each side, is a long linear space, nearly two inches in length by a quarter of an inch broad, naked, and covered with a soft black integument, which represents the maxillary gland, and secretes a particular humour. The ears and tail are of moderate length, the hoofs very large, the limbs short and stout, and the whole form of the animal robust and powerful. The body is thickly covered with a coat of long hair, of a dark brown colour, almost black, excepting along the nape of the neck, on the shoulders, and inside the ears, where it is white, and under the lower jaw, which is of a deep straw-colour. The white hairs of the neck and shoulders are much longer than on other parts of the body, and form a kind of flowing mane; the hair on the head and limbs, on the contrary, is much shorter than elsewhere, the knees are without brushes, and the tail, which is rather shorter than the ears, is covered throughout its whole extent with hair of moderate and equal length, and of the same dark-brown colour as that on the body.

The coming outang, or wild goat, so called by the Malays, inhabits the hilly forests of Sumatra, and is described by Mr. Marden as being of a wild character, extremely active and sure-footed, and with much of the habits and character of the common goat and ibex, of which it has the roving fearless eye, and bold undaunted bearing.

28. The Four-tuffed Antelope (A. quadriceros, Hamilton Smith) is known only from Colonel Smith's description and figure of a male specimen formerly exhibited at Exeter Change. The individual, from which Colonel Smith's description was taken, was brought from Senegal.

29. The Antelope of the Kaffir (Anelus, Afzelius) called bush-goat by the English residents at Sierra Leone, is about five feet in length from the muzzle to the root of the tail, three feet high at the shoulder, and three feet two inches at the root; the head, measured from the muzzle to the base of the horns, is upwards of ten inches long, the horns and ears each four inches, and the tail with the hair half a foot. The circumference of the horns at the base is three inches, and their distance at the points five inches; they grow entirely in the direction of the forehead, are pointed, black, shining, nearly straight, with a slight inclination backwards, and diverging gradually towards the points. For about half an inch from the base they are finely

30. The Duiker or Bush Antelope (A. mergans, Blainville) is of a more active gait, and has a very much more pretentious head than the species last described. In other respects, however, its characters are precisely the same; it has a long maxillary gland on each side of the face, running nearly parallel to the plane of the head, no appearance of a lachrymal sinus, nor brushes on the knees, and the females are provided with two teats. The horns are upright, straight, black, smooth, and very sharp at the points, annulated at the base with a few small rings, and compressed slightly on the sides so as to form a sharp edge in front; but this is not always apparent in old specimens, being perhaps rubbed off or obliterated by friction against the branches and underwood among which the animal resides. The horns are long, nearly parallel, and point almost imperceptibly forwards. The ears are four inches and a half long, narrow, pointed, and upright; and on the crown of the head, immediately between the roots of the horns and ears, is a remarkable tuft of long black hair, growing from a small, somewhat loose, and falling round in every direction like the radii of a circle. This is more particularly conspicuous in the females, from the absence of horns in that sex; besides this black tuft, the whole forehead is covered with both sexes with long hair of a deep red colour, directed upwards, and in the males partly concealing the base of the horns. The body is about four feet in length, and two feet high at the shoulder. It is covered uniformly with a deep chestnut-coloured hair, with a light brown colour, with a very faint shade of yellow above, and a greyish brown beneath. The nose and mouth, from the eyes to the muzzle, are dark brown; and the legs, over the whole canons before, and half way up behind, are shining black, equally conspicuous at all ages and in both sexes. The tail is six inches long, rather flat, and covered with moderately long black hair, but not tufted.

The Duiker, or Bush Antelope, so called by the Dutch of South Africa from its habit of plunging under the bushes in its passage through the woods, instead of leaping over them like the generality of other antelopes, is a common and familiar animal in Cape Colony. It is found in all parts of the country, which abound in forest and underwood, from the cover of which it seldom ventures, unless occasionally at night to steal into a neighbouring garden. It is found in pairs, or makes its way readily among the thickets and low bushes.
and when pursued will from time to time stand up on its hind legs to look round it, then dive under the branches to reappear again at some distance, and thus alternately continuing its flight and standing up at intervals to watch the motions of its pursuers. The peculiar nature of the humour secreted by the maxillary glands of this animal has given origin to a common saying among the Dutch colonists, that it carries the gall-bladder under the eyes.

This species is most peculiar in that the female is long, sinewy and imperfectly described by Grimm, and which has been admitted into systematical catalogues under the name of A. Gronia. The A. platorus of Colonist Smith, likewise appears to be identical with, or nearly so, a small variety of the Diukerback, the characters upon which the separation is made being by no means constant, and some of them even of doubtful authenticity.

31. BURCHELL'S ANTLESPO (A. Burchelli, Smith) is a species which, from the description of Coloni Smith, though closely resembling the Diukerback, yet seems to be really different, and to possess appropriate characters which readily distinguish it. The specimen procured by Mr. Burchell during his travels in South Africa was afterwards deposited in the British Museum.

32. The Broad-ranged Antelope (A. platourus, H. Miller) is another species of rather doubtful authenticity, described by Colonist Smith from a specimen in the Museum of the Missionary Society, said to have been brought from South Africa.

XI. The eleventh section or group into which we divide the genus is to exhibit a new character, which we have not found in any of the former divisions, but which is common to all the remaining species of antelopes. It is the presence of horns in the female sex—a character which has a considerable effect upon the habits and economy of these animals, not only as it affects the relations which subsist between the sexes by rendering them in a great measure independent of one another, but likewise in modifying the general manners of the species. Those of the present group are further distinguished by having complete naked mustaches, maxillary glands without cachrymal sinuses, inguinal pores, no knee-brushes, and four tests in the females. Females described by Grimm, and principally by females being provided with horns, and having four instead of two tests, and by their small size; the present section being composed of the smallest of all horned quadrupeds, except, perhaps, the madoquis, already described. Like the species of the last group, they live singly or in pairs among the bushes or underwood, and rarely venture willingly to quit the thick cover of the woods and forests. As far as is at present known, their habitat is exclusively confined to Africa, and the group of antelopes to which so striking a confusion reigns throughout the specific descriptions of naturalists as the present. At least two or three distinct species are known to inhabit the Cape of Good Hope and the west coast of Africa, but names have been confused, and their distinctive characters consequently so confounded, that it is now almost a hopeless task to attempt to separate them again, or to attribute to each what properly belongs to it.

33. The Grissm. (A. Grissm. Desmarest), the Grissmee of MM. P. Cuvier and Desmarest, is certainly a different species from that of Pallas, which is the Kleenbok of the Cape, and likewise from the animal originally described by Dr. Grimm, and which, if we have already observed, appears to be the Diukerback. The animal grimm was brought from the Cape of Good Hope, and was described from a female specimen without horns; the animal at present under consideration, and which has rather arbitrarily assumed its name, is an inhabitant of Sierra Leone and the coast of Guinea, and is probably the real Guevi of Adamson's Travels in Senegal. A male of this species formerly lived in the menagerie at the Jardin des Plantes at Paris, and was the subject of Miss. Edgeworth's description, brought from the coast of Guinea, and showed an extreme timidity in confinement; its habits in a state of nature are unknown.

34. The Kleenbok (A. perpennis, H. Smith) very improperly called Diukerback by M. Desmarest, is about a foot high at the shoulder; the horns an inch and a half long in the male, three-quarters of an inch in the female, and the tail about two inches and a half. The horns are small, evaginated, and inclined back, round, and towards the base, another at the points, and very sharp, with seven or eight minute annuli at the base; the ears about the same length as the horns, perfectly round at the tips, and nearly naked within; the head is long and pointed; the maxillary glands not parallel to the plane of the face, but nearly in the same line with the greater axis of the orbits, or rather in lines parallel to them; the forehead and nose are brown, bordered on each side by a narrow line of a sandy-red colour passing from the root of the horns down to the muzzle; the upper parts of the body are of a uniform dark slaty-brown colour; all the inferior parts, including the region under the chin, the breast, belly, interior of the fore-arms and thighs, and under-surface of the tail, ashy-grey, in shining to white in some specimens, particularly in young individuals; the legs are reddish-brown, and the hoofs small, narrow, and pointed.

This species, called by the Dutch colonists of the Cape Kleenbok, Kleene blauw-boh, Blauwboke, all signifying little goat or little blue goat, inhabits South Africa, and lives singly or in pairs among the bushes. It is extremely active, and of a mild and timid disposition, but from the nature of the thick bushes in which it resides is not often seen in those districts where it abounds most plentifully. It is said to exhibit considerable sagacity in eluding pursuit, and when domesticated soon becomes familiar and learns to distinguish those about it and to answer to its name. This species is also the A. corrulae of Colonist Smith and the A. pseudus of M. Desmarest, who confounds it with the guevi of Senegal.

35. MAXWELL'S ANTLESPO (A. Maxwellii, H. Smith) is a species described only by Colonist Smith. The female specimen, from which Colonist Smith's description was taken, lived two years in England, and produced a kid in confinement.

36. The Guevi (A. pygmaea, H. Smith), said to be the smallest, and certainly the least known, of the whole antelope genus, was first mentioned by Adamson, an inhabitant of Senegal, and the name has since been arbitrarily applied by different zoologists to two or three distinct, though ill-determined species. It is the royal antelope of Pennant; and though the female is described, on the authority of Bosman, as being destitute of horns, it is probable, from the other characters attributed to the species, that this fact is not correct, but arises from want of careful examination, and that the animal really belongs to the present section. The horns of the male are described as short, straight, black, polished, and not quite two inches long; the ears broad and round; the legs not thicker than a goose-quill; the height scarcely nine inches, and the colour a uniform reddish-brown. Notwithstanding its very diminutive size, it is said that the guevi will bound with ease over a wall twelve feet high. It is readily domesticated, but too tender to endure the cold of Europe. Adamson mentions a still smaller species or variety of guevi, which is said to inhabit the province of Kaier, on the northern banks of the Gambia, and to be not much larger than a good Norway rat. It is upon this animal that Buffon appears to have founded his Ceratotheria de Guinea, and Linneus his Mactus pygmaeus.

XII. We have now arrived at a group of antelopes which have been celebrated, from the most remote antiquity, for the beauty of their external forms, the grace and elegance of
their movements, and the mildness and gentleness of their manners. Of this group, the common gazelle or Barbary antelope may be considered as the typical representative; but this animal is itself so closely related to two or three neighboring species, that it has been found very difficult to distinguish them by characters at once sufficiently marked and constant. The group, however, is collectively characterized by prominent and peculiar traits which are in a great measure appropriate, and which definitely separate it from all other sections of the antelope genus. The principal of these consist in having the horns common to both sexes, more or less compressed on the sides, annulated nearly to the points, and lyrate, or with a double curvature, from backwards at the base, and afterwards pointing gently and moderately forwards, in the males; short, round, smooth, straight, and upright till within an inch of the points, which turn abruptly inwards towards one another, in the females; in the form of the upper lip, which is hairy and attaining like that of the goat; in the possession of distinct suborbital sinuses without any appearance of the maxillary glands which characterize the last two groups; in the presence of very large inguinal pores, and, in most species, brushes on the knees; and in the females being provided with four mammae or teats. The species belonging to this division are, for the most part, gregarious, living in large flocks on the open plains, karroos, and steppes of Africa and Asia, feeding upon the aromatic herbs and sahila plants of the desert, and uniting for mutual defence against the attacks of wild beasts.

37. THE GAZELLE (A. dorcas, Pallas.) is three feet six inches in length, one foot nine inches and a half high at the shoulder, and one foot ten and a half at the croup; the head is six inches long, the horns nine and a half, the ears four and three-quarters, and the tail, with its terminating tuft, eight inches. The horns of the old male are surrounded by thirteen or fourteen prominent rings, complete and close together at the base, more distant, oblique and interrupted behind toward the points, the last inch or inch and a half alone being smooth and free from annuli; they rise almost immediately above the orbits, are black, almost cylindrical, at first bent gently backwards, and finally forwards; in the females they are much smaller, seldom exceeding the ears in length, surrounded at the base with a few obscure wrinkles, smooth and polished throughout the rest of their extent, straight to near the tips, and pointing inwards. This is the character of the corneus of Buffon, which is now considered by the best zoologists to be nothing more than the female either of this or the following species, and not itself a distinct species, as was formerly supposed. The ears of the gazelle are long, narrow, and pointed, the eyes large, mild, and black, and the tail round, furnished on its upper surface only with an upright ridge of stiff black hair, and terminated by a little tuft of the same colour; the size of the body is about equal to that of the roebuck, but the legs are considerably longer, and the whole form lighter and more elegant; the face and cheeks are reddish fawn-colour, and the nose has a broad mark of a dark brown colour, approaching to black; on each side of the face, passing over the eyes from the horns down to the nose, there is a broad white stripe, and beneath this, from the anterior canthus of the eye, a narrower dark stripe, parallel to it and separating it from the fawn-colour of the cheeks; the hind part of the head, the back of the ears, neck, shoulders, back, sides, and croup, are fulvous, of different shades according to the age of the individual; and the hair of the under parts is red-brown and this colour is separated from the fulvous of the sides by a broad brown longitudinal band on the flanks; the knees are furnished with brushes of dark hair, and the ears are filled externally with long white hair arranged in three longitudinal striae.

The gazelle is found in Egypt, Barbary, and some say also in Asia Minor; but it is very questionable whether the animal of the Lervant does not really belong to a different species, to the Antilope Arabica, or perhaps to the Antilope subgutturosa. It lives in large troops upon the borders of the Tell, or cultivated country, and the Sahara, or desert; when pursued, flies to some distance, then stops to gaze a moment at the hunters, and then renewed its flight. The flock, when attacked collectively, disperse in all directions, but soon reunite, and, when brought to bay, defend themselves with courage and obstinacy, uniting in a close circle, to prevent the arrows of the enemy, and not infrequently feeding their horns at all points to their enemies; yet, notwithstanding their courage, they are the common prey of the lion and panther, and are hunted with great perseverance by the Arabs, in the regions of the desert. When taken young, they are easily domesticated, and soon become familiar. This animal is frequently caught upon the monuments of Egypt and Nubia.

38. The KAVKL (A. khezella, Pallas.) is still very imperfectly distinguished from the gazelle, but appears to be in reality a different species, characterized principally by the compression of its horns, their being provided in the adult male with a greater number of annuli, and bending forwards with a more bold and sudden curvature at the point, in the habitat also of these two animals is different, the kevel being found only on the opposite side of the great African desert to that inhabited by the dorcas; and this is itself a strong argument in favour of the Antilope Arabica, or perhaps to the Antilope subgutturosa. This species is found in Senegal, where, according to the report of Adamson, kevel is its name among the natives. It resides in extensive flocks on the open stone plains, and is said to be in all respects similar to the gazelle in its manners and habits.

39. The ANU (A. subgutturosa, Guldentestad) is likewise a species which appears to be re-examined, and carefully compared with the gazelle and kevel, nor is there in any reasonable doubt as to its actual existence, but because its characters have not been sufficiently distinguished from those of the conterminous species, which has given rise to no small confusion and dilapidation of opinion on the subject. The ah inhabits all the central parts of Asia, Persia, Dauria, the country around lake Baikal, and from the eastern limits of Great Bucharla to the shores of the Hellespont. It associates with its own species in extensive flocks, frequents the open uncovered plains and naked hills of moderate elevation, and feeds principally upon the alburnium Ponticum. The flesh is much esteemed, and of an agreeable taste.

40. The KALSKYPEE (A. Bennettti, Sykes.), described by Colonel Sykes in the first part of the Proceedings of the Zoological Society, is an elegant species closely allied to the dorcas in all its most prominent characters, but higher on the limbs, and considerably different in its habits. This species seems to be the antilope cors of Colonel Smith. The kalskypee, or black tail, so called by the Mahtrattas, on account of the deep black colour of that organ, and distinguished by the name of the goat, is also a species of which the horns, so peculiarly noticeable, is found on the rocky hills of the Deccan, and, according to the report of Colonel Sykes, differs from most other antelopes of the present section in not being so regardious, nor being very rare; but three or four found together in the same company, and not unfrequently a solitary individual.

41. The ARIKL ANTELOPS (A. Arabics, Hemprich and Ehrenberg), so called by Agassiz, is an antelope of its light, elegant, and graceful form. The size and proportion of this animal are similar to those of the gazelle and other
species already described in the present section; the colour, however, is considerably deeper and darker than that of the common dorcas.

This species inhabits Arabia, and was found on the stony hills along the eastern shore of the Red Sea, by the travellers Heinrich and Ehrenberg, whose recent journey in northern Africa and western Asia has been productive of such a vast collection of new and interesting zoological riches.

A. Sommeringii, (Cretzschmar,) one of the most beautiful antelopes of this section, was discovered by Rüppell, (during his journey through the northern provinces of Abyssinia,) and is described by Cretzschmar in the zoological part of that traveller’s works. It is considerably larger than the species hitherto described in the present group. The horns are irregularly lyrated, bending boldly outwards towards the points, and then suddenly turning inwards towards one another, with a very sharp and well-defined curve; annulated with fifteen or sixteen prominent and complete rings which reach from the base to the inward curvature within about two inches and a quarter of the points. The colour of all the upper parts of the body, the neck, shoulders, back, croup, sides and outer faces of the fore-arms and thighs, is a beautiful clear isabel or yellowish dun, the hair being extremely short, and appearing almost as if it had been clipped or shorn. It does not lie close and smooth upon the hide, nor does it all follow the same direction, as in the generality of animals, but is disposed in innumerable small waves, pointing in different directions, as if it had been regularly shaded and parted on each side, and appearing glossy or glazed along their ridges with a shining dun shade, more or less intense according to the light in which it is observed. All the under parts of the body are of the most pure and brilliant white, and a large disk of the same colour surrounds the tail and passes over the rump and croup. The white of the belly also is separated from the yellowish dun of the sides, immediately, without being shaded off. The tail is small and slender, nearly naked at the root, and furnished at the extremity with a tuft of mixed brown and grey hairs. The outsides of the legs are very pale fawn-colour, the insides white, and the knee-brushes white and fawn mixed. The ears are very long and broad, with a narrow black border surrounding their outer edge. The face is dark brown in some specimens, and pure black in others, uniform towards the end of the nose, but curiously mixed with wavy red on the forehead; on each side of this a broad white band passes from the root of the horns over the eyes to the nose, and there is a indication of a small black one from the anterior angle of the eye to the corner of the mouth, separating this white band from the cheeks and sides of the lower jaw, which are uniform fawn-colour. The horns of the female have nearly the same curvature as those of the male, and are fully as long, but they are much more slender, and have not such prominent annuli. This is the only external difference observable between the sexes.

42. This SPRINGBUCK, (A. eurhac. Forster,) called likewise Prombok, or Showy goat, by the Dutch of South Africa, and Tembi by the Hottentots, is perhaps the most graceful in its proportions, and beautifully varied in its colours, of all the antelope tribe. Imagination cannot conceive a quadruped more light and airy in its movements, and in its proportions, or whose movements are executed with more natural ease and grace, than the springbuck, or, as the English colonists now universally denominate it, springbok—capable of moving at the instant, as well as in the distance, of any small herds are capable of the dorcas. The horns of the springbuck are rather irregularly lyrated, like those of the species last described; they are round, black, annulated very regularly till within a short distance of the points, spreading first backwards and widely outwards, and finally turning inwards, and with an almost imperceptible twist on their own axis backwards. The hair is long on the upper parts of the body, particularly on the back and croup, but smooth, sleek, and shining; it is of a beautiful light cinnamon-colour on the shoulders, neck, back, sides, and thighs, and of a pure snowy white on the breast, belly, and inner face of the limbs, these two colours being separated on the flanks by a broad longitudinal band of a deep vinous red colour, larger and more distinct than in any other species of antelope. The whole head, face, cheeks, and chin are white, with a broad brown band on each side from the eyes to the corners of the mouth, and a mark of the same colour on the centre of the face, commencing in a narrow point on the muzzle, and enlarging as it proceeds upwards, till it joins the reddish fawn-colour of the body on the crown of the head. The eyes are large, lively, and of a brown colour; the ears long, small, and cylindrical at the root, then widening in the middle, and ending in an attenuated point. The neck is long, slender, and slightly compressed on the sides, the hoofs are small, black, and triangular, the legs remarkably long and slender, and the tail small, except a ridge of stiff black hair which fringes it along the upper surface, and forms a small tuft at the extremity. But the most remarkable and distinctive character of this species consists in two longitudinal foldings or duplications of the skin on the croup, which commence above the loins, or about the middle of the back, and run in a straight line from thence to the tail. The interior of these folds is lined with long hair of nine or ten inches in length, and of the most brilliant and glossy black, agreeing with the blackness of the upper parts, and giving to the creature complete command of the animal’s volition, and are opened and shut at pleasure. When closed, which they always are when the animal is at rest, their lips form a narrow line along the back of the body, and when they are opened, the long cinnamon-red hair of the back and hips, is scarcely distinguishable, or only as a narrow white streak; but when the animal leaps or runs, these folds are expanded, and form a bright red line, or mark on the most white parts, which extends over the whole croup and hips, and produces a most remarkable and pleasing effect.

The springbuck is so called from its remarkable habit of jumping almost perpendicularly upwards, apparently without any other motive than for its own amusement. It re- sides, in almost innumerable flocks, on the dry arid plains and karroos of the interior of South Africa, seldom approaching the inhabited districts of the colony, unless in seasons of particular drought, when the soil is baked and the waterholes are dried and burnt up by the excessive heat, and these animals are compelled to migrate in search of a more abundant supply. On these occasions they are said to unite into flocks which often consist of from ten to fifty thousand individuals, spreading over the face of the whole country like a swarm of locusts, devouring every vegetable substance that they meet with, and scarcely deviating from their direct path to avoid the meanest ditches and creeks which endanger their journey is concluded, and the troop begins to retrace its steps northwards, those which formed the van during the advance are necessarily in the rear returning, soon lose their plump condition, and are in their turn subjected to want.
and starvation. During these migrations they are closely followed by lions, panthers, hyenas, and wild dogs, which destroy great numbers of them. There is perhaps no object in nature finer than a flock of these beautiful antelopes enlivening the dreary barrens of South Africa with their graceful motions, now leaping perpendicularly upwards to the height of six or seven feet, displaying at the same time the snowy white marks on their groups, and anon soaring clear of the earth in the shape of a whirlwind. It is only when disturbed, or otherwise excited, that they show those extraordinary springs from which they have derived their name; nor do they ever display the white mark on the rump except on these occasions. They are said to be particularly skittish by the change of the weather, and are observed to leap more than usual before the setting in of the south wind, which, at the Cape of Good Hope, generally betokens stormy weather, and is always violent and tempestuous. When taken young, the springbuck is easily tamed, and soon displays all the petulance and familiarity of the common goat, butting at every stranger that approaches it, and wounding off stones or other objects thrown at it with its horns.

44. The Blesbok, (A. pygargus, Pallas,) also a South African species, is considerably the largest animal belonging to the present group: it is, in point of size, superior to the stag of Europe, measuring, when full grown, five feet and a half in height, in his usual condition, and rather better than that in height at the shoulder. The horns are sixteen inches long, large, regularly lyrated, and of the same form in both sexes, those of the males being only thicker and heavier than those of the females. They are attached to the skull at the root, and rise eleven or twelve prominent rings which reach to within a couple of inches of the points, rather close at the base, regularly but moderately divergent, and five inches separate at the tips. The ears are seven inches in length, erect, pointed, and cylindrical, reddish-fawn colour on the back and white within, with the usual longitudinal striae. The colours of the head and body are most singularly disposed; the whole animal appears as if it had been artifically painted with different shades in separate masses. The head and neck are of a brilliant brownish-yellow, so deep as to resemble the colour of arterial blood; this is particularly visible upon the cheeks and about the root of the horns, from the central point between which descends a narrow stripe of the purest white as far as the orbits, immediately above which it expands and covers the whole face and nose down to the muzzle, forming a broad mark, or, as it is called in horses, a blaze, and giving origin to the name of blesbok or blazebuck, by which this species is known among the Cape colonists. The back is of a brownish-yellow, thickly overlaid, or, as it were, glazed or japanned with dull purplish-white, and there is a white band on the head, and a white bar running between the fore-arms backwards, and extending obliquely over the outer face of the thighs. The breast, belly, and interior of the fore-arms and thighs are white, and this colour also shows itself on the posterior face of the thighs and upper parts in a crescent over the rear of the croup, forming a white disk around the tail, and giving origin to the specific name of pygargus, which has been rather arbitrarily bestowed upon this animal, the real pygargus of the antelopes being certainly a different species, and an inhabitant of northern Africa. The tail is long and straight, nearly naked at the root, and terminated by a tuft of very long black hair; the trunk alone is seven inches in length, and the terminal tuft four inches and a half, making the tail altogether about a foot long. The knees are without brushes, but M. Desmarest, and indeed the generality of naturalists who have described it, are males in supposing this species has no such appendages.

This splendid animal, which is likewise called bontebok or painted goat, by the Dutch, was formerly very common in the colony of the Cape, and is still found in the district of Zwieland, east of Cape Town, but has been exterminated in all the adjacent districts in consequence of being of such immense multitudes which old travellers mention to have spread over the plains like a troop of springboks. The young are at first of a brownish-red colour on the body, partially glazed, as in the adults; but towards the time that they begin to take on the opposite of being white as in the grown animal, is of a very deep brownish-black colour, slightly mixed with scattered grey hairs. This singular mark of nomage, which could not have been well anticipated, has given rise to the very extraordinary error of Mr. Wood, who, in the 18th No. of the Zoological Journal, has described the young blesbok as a distinct species, under the name of A. paronoma. The mistake is pointed out in Smuts's Dissertation Zoologica.

XIII. The thirteenth section of the genus Antilope contains a small but interesting group of these animals, which Mr. Bennett has formed and characterised in the first volume of the Transactions of the Zoological Society. It comprehends the species which Pliny has mentioned under the name of damo, and is distinguished from the last section only by the character of the horns, which are larger, thicker, and have much bolder curves, turning first almost horizontally towards the rear, and then suddenly forwards so as to form a hook towards the front almost as complete as that of the elan, and towards the rear. The legs are remarkably long, the neck long and slender, and there is a white spot on the throat of all the species. In other respects the characters are precisely the same as those of the species belonging to the twelfth section.

43. The Mhurn (A. mhuur, Bennett,) is four feet two inches long from the nose to the origin of the tail, two feet six inches high at the shoulder, and two feet eight inches at the croup; the length of the head from the nose to the root of the horn is seven inches; that of the horn nine inches and a half on the curve, and seven and a half in a straight line; and that of the tail seven inches without the terminal tuft. The hair of the body is sleek and of moderate length; on the head and face it is short and close, except about the root of the horns, where it is slightly tufted; the hair of the limbs is also short, except the tufts below the knees, which are long and consist of a mixture of dark brown and grey hairs. The horns are thick at the base, and annulated with eleven or twelve prominent and complete rings, which occupy about two-thirds of their entire length; they are round, smooth, and attenuated towards the tips, which point directly forwards, and are but moderately sharp. The ears are narrow, erect, and pointed; the eyes large, dark, and lively; and the tail long, naked at the base, and furnished at the extremity with a tuft of long black hair. The colour of all the upper parts of the body, of the neck, back, shoulders, sides, fore-arms and thighs, as well as of the whole throat except a square spot on the larynx, is a deep brownish-red, and a narrow stripe of the same colour is continued down the outer face of the legs, both anterior and posterior, from the shoulders and thighs respectively to the hoofs and pasterns; the belly, buttocks, posterior face of the thighs and inner face of the extremities are pure white, as well as the spot on the larynx above the throat, and the tuft of black hair after spreading round the entire region of the tail, is continued forwards on the hip in a pointed stripe on each side, about half way between the croup and the knee joint, and reaching nearly over the whole hip. It contrasts strongly with the surrounding colour, and has a very singular effect. There is no dark band on the flanks, the light colours of the under parts being abruptly separated from the darker shade above without any patching or intermediate colour. The head and cheeks are light fawn-colour, intermixed, in front of the horns, with dark brown and grey hairs, and marked
The Chamois, (A. rupicapra, Pallas,) the only animal of western Europe that partakes in any degree of the characteristics of the Rhinoceros. The horns of the latter, so often described, have been sufficiently described above; they are seldom more than six or seven inches long, and are nearly parallel throughout their whole extent. The entire length of the horn is about three feet in length, that of the head to the root of the horns six inches, that of the ears four inches, of the tail three inches and a quarter, and the height at the shoulders rather better than two feet. The whole body is covered with long hair, hanging down over the sides, of a greyish-brown deep brown, shining with a gloss in the summer, being in spring slightly mixed with grey; the head is of a very pale yellow or straw colour, with a dark brown band on each side passing from the root of the ears to the corner of the mouth, and ending in a feathery fringe on the base of the horns; the tail is short and black, and the edges of the hips and interior of the thighs and ears alone white. The face is straight as in the goat, the ears small, erect, and pointed, and the chin without a beard. In old specimens, particularly during the severe colds of winter, the cheeks, chin, and throat turn white, and the breast and belly are all at times of a light silvery brown or yellow. Underneath the external covering there is a short thick coat of fine wool, which lies close to the skin, and protects the animal from the rigours of the cold mountain regions which it inhabits. The colours of both sexes are the same, but the females are rather smaller than the males, and have less abundant hair. They go five months with young, and kid in March or April, producing one or very rarely two at a birth, which they suckle till the October following. The young are at first of a uniform deep yellowish brown, then turn white on the under part of the belly and chest, and the same dark bands through the eyes as in the adults, only not extending so far back on the head.

The chamois, like the fox, inhabits the loftiest chains of the primitive mountain ridges, and always keeps in the vicinity, restlessness and agility of the common goat. It is extremely impatient of heat, and during summer is only to be found on the tops of the highest mountains, or in deep glens where the snow lingers throughout the summer, or to the south of the mountains which descend to the lower ridges, and it is then only that the hunters can pursue it with any hope of success. Its senses of sight and smell are remarkably acute; it scents a man at the distance of half a league, and displays the greatest restlessness and alarm till it obtains a sight of the object of its terror, leaping upon the highest rocks at hand in order to command a more extensive prospect, and uttering a suppressed whistling noise somewhat resembling the outcry of the greater agitations, but much louder does he appear in sight than it flies with the utmost speed, scaling rocks which few other animals could attempt, and, if not intercepted by stratagem, soon leaving its pursuers far behind. The usual food of the chamois is grass, but it is said that it is therefore for a party of hunters to unite, and surround some mountain glen which they are previously known to frequent for the purpose of lying on the fresh snow during the day, that the two bands point the hunters advance simultaneously, and the animals, of course scented those which some down the wind, retire in an opposite direction and are intercepted by another party. The food of the chamois consists of mountain herbs, flowers, and the tender shoots of trees and shrubs; it seldom drinks. Nothing can be more admirable than the agility with which it ascends and descends rocks apparently perpendicular. It does not descend at a single bound, very sharp at the points, and appearing in fact to form the natural butt which connects these two genera. The knees are without brushes, and the females provided with two tests. There is but a single species,
hovine genus, which it likewise begins to approach in its zoological characters. The horns are common to both sexes, long, erect, and anastomosed, straight, or with a single curve, and have a few nodules or a smooth spiral of two or three turns; the head is terminated by a half-formed muzzle, considerably more developed than in the sheep or goat, but not so completely as in the ox or stag; there is no sexual difference in the horns, nor are there any horns in the females (some species); neither are there any knee-braces or inguinal pores, and the females are provided with four teats. The species belonging to this division are all natives of Africa, and perhaps one may extend across the southern shores of Asia as far as the borders of Persia, but the fact is extremely doubtful.

49. The ADDAX (A. addax, Lichtenstein) is mentioned by Pliny under the name of strophiocecor, which, says he, the Arabs commonly call it; but it may be doubted for the accurate word is the used in the passage referred to, and it may be derived from either of these forms in the nominative.) From the time of Pliny the only information which we had about this animal till a very recent period was derived from a figure and description of the skull and horns sent by our celebrated countryman Calvis to his friend Gesner, and inserted in the great work of that early naturalist: the recent travellers, Rüppel and Hemprich, and Ehrenberg, have very recently discovered this species, and what is singular enough, under the antient African name ascribed to it by Pliny, the Arabic still denominating it ahusch, akas, or addax, with the addition of the syllable abu (father), which they bestow upon many other animals, as Abu-Hamâs (father John) for the ibex, &c.

The length of the full grown addax is six feet from the muzzle to the root of the tail, and its height at the shoulder three feet; the horns, measured along the curves, are three feet long, the ears six inches, and the tail, with its terminating tuft, one foot. The animal is therefore about the size of a large ass, of which it has likewise much of the make and proportions, the heavy head, thick neck and legs, and short tail. The horns are round, rather slender in proportion to their length, twisted outwardly and describing two turns of a wide spiral, annulated to within five or six inches of the points, which are smooth and sharp; the form of the horns of the female does not differ from that of the male, but in the young they are almost straight. The ears are pretty long and proportionately broader than in most of the smaller antelopes, and the tail reaches almost to the hough and is terminated by a switch of long, coarse, grey hair. The whole head and neck, both above and below, are of a deep reddish-brown colour, except a transverse mark of pure white across the lower part of the forehead, between the orbits, which expands on the cheeks and half surrounds the eyes; a patch of black hair surrounds the root of the horns, and there is a scanny beard of the same colour on the larynx; all the rest of the animal, including the entire body from the neck backwards, as well as the legs and tail, are greyish white, the eyes being, however, of the deepest black, to enable the animal to pass more easily over the fine and loose sands of the deserts in which it resides.

These animals live in pairs on the sandy deserts of central Africa, and appear to extend over the greater part of the continent. Hemprich and Ehrenberg found them in Dongola; and a pair of horns were brought from Bornou by Denham and Clapperton, and deposited in the British Museum. [See the article Addax.]

50. The ARVI-HAAR (A. chevix, Pallas), or, perhaps, the most celebrated of all the antelope genus, being the species which is generally supposed to have given rise to the fabulous unicorn of the ancients. It is, indeed, properly speaking, the oryx of antient writers, but modern authors have followed the example of Pallas in bestowing that name upon a species of southern Africa with which it is impossible that the antients could have been acquainted, whilst the present species has received the name of desoryx, from an epithet bestowed upon it by ElIAN on account of its white colour. The dimensions of this animal are very little less than those of the addax. The horns are at first directed in the plane of the forehead, and have a single curve. The horn is thirteeen inches high and quite round, forming, as it were, the segments of a very large circle; they are small in proportion to their great length, annulated about half way up, gradually attenuated, and very sharp towards the base. The horn is conical, and the tail is terminated by a very copiously furnished tuft of long hair of a mixed black and grey colour, which reaches below the houghs. The hair on the head, body, and extremities, is universally short, and lies smoothly along the hide, except upon the rump. The head is rather longer and reversed, or turned towards the head in a direction contrary to that on the other parts of the body, and forming a short reversed mane from the middle of the back to the occiput. The head is white, with a brown mark descending perpendicularly from each orbit, and expanding over the cheek, and a similar stripe passing down the centre of the face from the horns to the muzzle; the whole neck also, on the throat as well as on the upper part, is of a uniform rusty brown colour, but, with these exceptions, all the rest of the body, as well as the legs and tail, are mottled white.

This species is frequently represented on the monuments of Egypt and Nubia, and particularly in the inner chambers of the great pyramid at Memphis, where a whole group of these animals is represented, some being driven or pushed forwards, and others led by the horns or by a cord about the neck, apparently by way of tribute from some subject or conquered nation. With one exception, these representations are invariably in profile, so that only one horn is seen. The present species is gregarious, and lives in large herds in Senaar and Kordofan, feeding principally upon different species of acacia.

51. The ALADHEL, (A. gazella, Pallas,) described and figured, first by Prosper Alpinus, and more recently by M. F. Cuvier, is so nearly related to the last species, that we should have no hesitation in considering it as absolutely the same, did not this eminent zoologist expressly inform us that his aladhel was furnished with lachrymal sinuses, which certainly no other species of the present group possesses. The specimen described by M. Cuvier was sent from Senegal, and lived for some time in the menagerie of the Jardin des Plantes. As this is at present the most obscure species of the group, we have copied the engraving of M. Cuvier, to give the reader the opportunity of comparing it with the beautiful engravings of the former species published in the works of Lichtenstein, Rüppel and Hemprich, and Ehrenberg. Though the specimen described by M. Cuvier was obtained from Senegal, we are assured that the animal is unknown, or at least very rare, in that country, and only brought occasionally from a distant part of the interior.

52. The GRASSHORN (A. oryx, Pallas) is in all respects a very distinct and marked species. It is a heavy, stout animal, about five feet in length, and three feet two inches high at the shoulder; the length of the horns is from two feet to two and a half, that of the ears seven inches, and that of the tail, thirteen and one-fourth inches. The head is straight, very little divergent, and situated in the plane of the forehead; they are obscurely annulated for half their length, black, and bulk in the male, but very sharp-pointed in the female. The ears are large and pointed, and the tail pretty uniformly covered with long black hair, forming
a large switch. The general colour of the body is dark rusty-iron grey on the upper parts, and white on the under, the two being separated on the flanks by a broad longitudinal band of dark brown or black; and the hair of the back and neck reversed, as in the two species last described. The head is white, marked with two transverse bands of deep black, rising from the root of the horns and passing down the face, then encircling the eye, and uniting under the lower jaw with those of the opposite side. From this point, a black band passes down the throat upon the chest, where it divides into four, one pair of which pass along the flanks and divide the colours of the upper and under parts of the body, the other pair encircles the fore-arms; the thighs are likewise black, whilst all the rest of the limbs is white, except a black mark on the canons. On the upper surface, the black line passes down the neck and back, and expands into a broad disk on the rump. These colours are all boldly separated from one another, and the harshness of their contrast produces a very singular effect upon the appearance of this animal.

The oryx inhabits the karroos of South Africa: it is never found in the woods, but keeps on the open plains, and lives in pairs or small families of four or five individuals. It is extremely dangerous to approach when wounded, if not completely disabled, making vigorous use of its long powerful horns, and it is said being not infrequently the first to commence the assault. We are even assured that the lion himself is afraid to attack this powerful and courageous animal, and that sometimes, when pressed by famine he has ventured to do so, he has been beaten off with disgrace, or even paid for his temerity with his life.

XVI. The sixteenth group differs from that which we have just described by having the muzzle more completely formed, but in all other respects the characters are precisely the same, at least as far as they are known. There are neither lachrymal sinuses, inguinal pores, nor knee-braces; the characters of the females, however, have not been observed, but it is most probable that they are provided with horns like the males, and have four testes. The horns themselves are round, annulated, and uniformly bent backwards, or in one species forwards; and there is, as in most of the species of the former division, a reversed mane on the shoulders and neck. These animals are confined to Africa, and, as far as we are at present aware, to the southern portion of it, yet seldom, if ever, passing the Orange River, and absolutely unknown in the neighbourhood of the Cape.

Prominent and complete rings, the last six inches being smooth, and the points very fine and sharp. The hide of this animal is perfectly black, and it is this colour reflected through the silky-grey hair that communicates the dark blue shade which the horns take on rising to the sky, or Bluebuck, by which it has long been known among the Dutch at the Cape of Good Hope.

The blauwbok lives in pairs or small families of five or six individuals on the open plains of South Africa, north of the Gareip or Orange River. It is said to be now more abundant, and during the rutting season in particular is said to attack indiscriminately every animal that comes in its way.

54. The TAHAITIAN, (A. borbae, H. Smith,) beautifully figured in a paper on the East Indies by Mr. E. A. Smith, of the species, which appears to differ from the blauwbok only by its long flowing mane, copious beard, and superior size. This animal inhabits the country in the vicinity of Latakoos, and is called the Tahitian by the Boshunas. It is said to be so wild and ferocious that the natives are afraid to attack it openly with the kasaagi or spear, as they do other game, but do take it generally in pitfalls covered over with sticks and earth. It is commonly found in pairs upon the open plains, but when disturbed makes for the wooded heights, which are thickly covered with the common mimosa, upon which both this animal and the giraffe delight to feed. The name tahaitze signifies a fierce or wicked beast, and expresses the character which with reason might be given this powerful animal inspire the Boshunas, who seldom venture to approach it openly.

55. The Equine Antelope (A. equino, Geoffroy) is a large species, whose dimensions measure seven feet and a half in length, and four feet in height at the shoulder. The horns are much larger and heavier in proportion to their length than those of the blauwbok; they are, however, much of the same general form. This species, of which the native name has not been recorded, inhabits the same localities as the last two, living like them in pairs or small families on the elevated plains and low wooded hills of South Africa. It is abundant about the courses of the Gareip, and was found by Mr. Burchell in the vicinity of Latakooos.

56. (A. Ellipsopterus, Ogilby.) A description of this new species lately appeared in the Proceedings of the Zoological Society. The whole length of the animal from the muzzle to the root of the tail was seven feet three inches and a half; its height at the shoulder nearly four feet, and to the top of the horn upwards of seven feet; the horns measured thirty inches upon the curves, the ears were upwards of eight inches long, and the tail, with its terminal bush, seven foot nine. The horns are very thick and heavy; they spread widely outwards, are nearly straight for the first half of their length, and then turn forwards with a gradual and uniform curvature. The horn is surrounded with twenty-four prominent annuli, forming large knobs in front and deeply striated between, but nearly obliterated behind: the last six inches are smooth, and the points blunt. Next to the character of the horns, this species is most readily to be distinguished by a ribbon of pure white, which passes over the group and down each hip, uniting between the thighs and forming a perfect ellipse, having the root of the tail in one of its foci, and contrasting most singularly with the dark rusty-iron grey of the rest of the body. It is to this mark, which is so peculiarly characteristic of the species, that the name of Ellipsopterus refers; the native name of the animal is unknown.

The specimen from which this description was taken was brought to England by Mr. Steedman, and exhibited with a fine collection of South African zoology at the Colosseum in the Regent's Park. It had been procured from a tribe of the Damaras, a nation who inhabit the country beyond the Great Namakaland, and about twenty-five days' journey north of the Orange River. They described it as fierce and dangerous to approach.

XVIII. The seventeenth section or subdivision of antelopes has all the characters of the group last described, except the horns, which are either of a spiral form, or else surrounded by a prominent spiral wreath throughout the greater part of their length. They are common to both sexes, very large and heavy in the males, but longer and more slender in the females. The horns of the males are without either lachrymal sinuses, inguinal pores or bristles on the knees; they have naked muzzles, large hanging dewlaps, and the females are provided with four testa forming a small hinder. The group contains two species, both natives of South Africa.

[The Blauwbok, A. leucophaeus.]
is to turn their game in such a direction as to drive it close to their own residence before killing it; and, in fact, the Cape farmers, from long practice and intimate knowledge of the animal's habits, very frequently succeed in accomplishing this masterpiece of South African field-sports. They are so gentle that a man on horseback may penetrate into the very middle of a herd, without alarming them, and pick out the fattest and best-conditioned, and as the old bulls are commonly chosen on account of their greater size and weight, it not unfrequently happens that the herd is left altogether without a male.

58. (A. canna, H. Smith.) This is a species of which Colonel Smith has given a description, and which he supposes to be the bustard胰 of the Cape colonists. Col. Smith is the only naturalist who has seen the skin of this animal: its horns and skull are found in several museums. This species is said to be common in the Geces north of the Gareip, and to be occasionally seen on the Karros of the southern bank. It lives in large herds.

XVIII. The eighteenth section contains a single species, distinguished by its short upright horns slightly bent backwards, common to both sexes, with a few transverse annuli at the base, and marked by deep longitudinal strie almost to their extremities. The species is without either lachrymal sinuses, inguinal pores, or knee-brushes, but it has a complete naked tail, the female has a small inconspicuous one. As the former division seemed to unite the antelopes with the oxen, so this seems to be intermediate between them and the goats, being about the same size as these latter animals, and inhabiting similar localities. The only known species is

59. The GORAL, (A. gorra, Hardwicke.) first described by General Hardwicke in the Linnean Transactions.

The goral inhabits the high and mountainous regions in large herds upon the elevated plains which crown the lower ridges of the great chain of the Himalayan mountains. It is wild and fleet, and when pursued flies to the rocky hills, where it easily escapes the hunter, and never is taken except by stratagem. Its flesh is considered excellent venison. It is entirely confined to the cold upper regions of Nepal, and is incapable of bearing the sultry heat of the plains of Hindostan.

XIX. The nineteenth section contains a single species, like the goral, a native of Nepal and upper India, but differing from all those which we have lately been discussing by the development of large suborbital sinuses, which shows a return to the characters of the common goral. The horns are common to both sexes; short, parallel, slightly curved backwards as in the goral, and traversed throughout the greater part of their length with longitudinal strie, crossed by transverse annuli. The whole surface of the horns with alternate rows of small pits and little pearly excrescences; the points only being smooth and sharp. Besides these characters, the present section is distinguished from the anctelopes by the coloration of the body in uniform reddish-fawn on the upper parts, and white on the under; the head and neck ash-grey, but in some individuals the latter colour extends over all the upper parts of the body.

The canna is a large heavy animal, which, when full grown, weighs from seven to nine hundred weight, and contrary to the usual rule observed among antelopes, is commonly extremely fat. Its flesh is, consequently, more prized than that of any other wild animal of South Africa, and the large muscles of the thighs, in particular, are held in the highest estimation when dried and cured, under which form they are denominated thigh-tongues. The character of this animal is very mild, and, as it were, predisposed to domestication; it is gregarious, and lives in large herds upon the open plains and low hills, the old males generally residing apart. Elands were formerly very common in the immediate neighbourhood of Cape Town, but were so much hunted, that they have long since ceased to frequent the inhabited districts, and are now rarely met with except in the most distant and retired parts of the colony. Being generally very fat and porty, they do not run well, and are soon fatigued; it is even said that when hard run, a red oiled perspiration has been known to ooze out from the pores of their skin, and that they occasionally drop down from pithora. Like most other animals when hunted, they always run against the wind. As the carcass is weighty and consequently difficult to transport, the great object of the hunters, in the chase of the canna,
which she brings forth in September or April, and which, if taken young, is easily domesticated.

63. The **Sasaby** (A. lunata, Burchell) is a species at present very imperfectly known. It is found in the Boshwana country, where, however, it would appear that the species is rare, as Mr. Burchell, the only traveller except Daniell that mentions it, met with but a single specimen. In many respects the descriptions of Burchell, and of Colonel Hamilton Smith, who also has given one, are both imperfect, but the drawing of Daniell, in his *Sketches of African Scenery and Animals*, supplies most of their omissions, and clearly shows at least that the animal belongs to the present division, if it does not supply the more minute details. The most of the specimens shot by Mr. Burchell was tender and well tasted, and the name of Kauma, which his attendants bestowed upon the animal, shows that they consider it as a kindred species with the Hartebeest of the colonists, the *Aepopes caama* of the last article. The Boshwana call it Ssasaby.

XXI. We are now arrived at the last and perhaps the most extraordinary of the small groups into which we have found it convenient to subdivide the extensive genus of antelopes. The distinguishing characters of this group are found in the horns, which are common to both sexes, and which, after first expanding over the whole upper part of the skull and forehead, like a broad helmet of bone, curve downwards between the eyes, and then suddenly turn upwards, becoming round and attenuated as they advance, and ending in moderately sharp points. They have no annuli, but are rough and scabrous at the roots, and smooth toward the horns. The head is bearing that style, and terminated by a broad muzzle, which expands on each side into a thick muscular flap, which fits into each nostril, and covers it like a lid or valve. The lachrymal sinus, as in the last section, consists of an external gland, which is placed below the anterior angle of the orbit, and concealed in a tuft of long feathering hair which entirely surrounds it. There are neither inguinal pores nor brushes on the knees; the females are provided with two mammae. There are three distinct species belonging to this group, one of which is generally supposed to be the *Koaloxena* (cara-ba) of the ancients. (Pinn. Hist. Nat. vii. 21.) The singularity of their forms renders them very remarkable; the head and horns are those of an ox or buffalo, the tail, neck, and mane resemble those of the horse, and the body and limbs have the light taper form and round contour that distinguish those of the stag. The whole three species inhabit the open plains of South Africa to an unknown distance from the interior. They live together and form extensive herds.

64. The **Gnu** (A. gnu, Gmelin) is about the size of a well-grown ass. The neck, body, and tail precisely resemble those of a small horse, and the pace also, which is a species of light gallop, is so perfectly similar, that a herd of gnus, when seen at a distance flying over the plains of South Africa, might be readily mistaken for a troop of the wild
senses or quagga which inhabit the same localities, if their dark and uniform colour did not distinguish them.

The gnus live in extensive herds on the kaross of South Africa; they are naturally wild and difficult of approach, and when wounded will turn upon the hunter and pursue him in turn, dropping on their knees before making an attack and then darting forwards with amazing force and velocity. When first alarmed they commence by flinging up their heads and tails, and butting at the molehills or other objects, but immediately after taking flight and traversing the desert with a speed which soon carries them beyond the reach of pursuit. The do this when alarmed.

The kookoos (A. taurina, Burchell) is of a larger size than the gun, to which, however, it is very similar in its external form and proportions.

The habits and manners of the kookoo closely resemble those of the gun, but it possesses neither the speed, spirit, nor activity of that animal. It is sometimes found solitary, but more frequently in herds of ten or twelve, the open plains and kaross in the country of the Tshambkees and Boshuwanna; it never associates with the gun, which frequents the same localities, at least about Lateko, but which appears to replace along the eastern coast of South Africa the three-winged bee-eater.

The species has been observed in the situations here mentioned by Professor Liechtenstein, Mesrea. Truter and Somerville, Burchell and Thompson. Kookoo is its Boshuwanna name.

66. The Brined Kid Gnu (A. garona, Hamilton Smith,) a very distinct species from the last described, is however known only from a specimen in the Museum of the London Missionary Society, and was brought from South Africa, and most probably from the country of the Namquas or Damara who inhabit the western coasts about the mouth of the Gariep, or Orange River.

Colonel Smith supposes, with great probability, that this species is the House (H. N., not however, of the Namquas as he states, but of the Dutch Boors of South Africa, who are in the habit of making occasional excursions into the Namaqua country, and in whose language the word signifies smaller, and most probably refers to the bold and resolute character of the animal. It appears to be the variety of gun mentioned by Le Vaillant in his Second Voyage.

In the preceding enumeration of the species belonging to the extensive genus Antelope, as it is at present constituted, we have carefully avoided the multiplication of fictitious species, of which so many are but varieties of one species, and of which we believe that not one is perfectly established.

Our list of species will, therefore, be found to differ in many instances from those contained in general catalogues, but it is hoped that it will, at the same time, be found to contain all that is really certain in the present state of the science. Those who desire to pursue the subject further, must consult the professed treatises on ornithology, and the various detached notices scattered through the works of the different Asiatic and African travellers.

ANTENNÆ. Horn-like members placed on the head, and peculiar to insects and crustaceous animals; their functions are not well understood, and have given rise to several very different opinions among naturalists. The term is derived from the Latin antero, before, and nigram, a nail; hence antennæ to naturalists in its many subdivisions into groups, and one species has twice as many as another. A comprehensive view appeared, therefore, desirable to be here attempted. According to our authorities, the antennæ are generally considered as only the feelers or sensory organs of the insects; but this would have required that the various and manifold which the writer has here aimed at. We insert this note to prevent an impression that the same philosophers will be carried into other entomological articles.

N 2
the degree of vibration at pleasure, as may indeed be observed when insects listen with attention; I mean, that the joints of the antennae perform the same functions as the chain of small bones in the chamber of the human ear, inasmuch as they form a similar chain, and transmit the vibrations of the air to the auditory pulp.

For it is to be observed that a ~ similar opinion from his own observations, in opposition to those of Linnaeus and Bergmann with whom he was contemporary. His paper on the subject is long and desultory, but the following passage is worth quoting: 'No evidence more obvious could you see in the habits of the antennae, than in the manner in which the antennae were made to appear to the eye, as if they were asleep, on which account I directed a pocket telescope to the spot, which was above five feet distant, and therefore convenient for viewing the insect. The point of view being thus determined, I made a loud sound, and I was delighted with the opportunity of seeing the weevil not only roused, but the antennae which had been hanging down became elongated, and, being full of jowls, struck to the vibrations of sound, the antennae extended themselves and remained on the alert till alarmed again by a fresh sound. All my observations agreed in this one circumstance of the antennae being erect as soon as they were put on the alert; this was the case with all and others of loud noises, but they disregarded such as were very small. These they may be said to have drunk in; and if alarmed by new sounds they rejoiced when they could effect their escape as soon as possible. This is the life and soul of the insect in flight. So I have observed very frequently when the antennae were folded up in the Levitation, Enteleia, Curculionidae, Ptilophora, and Spes; may, even the house-flies, as soon as they were moved and excited by irregular sounds or noise, would erect their antennae and betake themselves to flight without any other excitement. We have deemed it best to give the very words of these able men, with a view of being as useful, or at least as obscure. Some additional experiments and arguments illustrative of the same view are given in the volume on Insect Miscellaneous, chap. iv. in the Library of Entertaining Knowledge.

There is another subject connected with the antennae which requires notice: the young Huber has contributed to ants the use of certain signes made with these organs, which he terms antennal language, understood not only among the males, but also among the females, on which depend for the excretion popularly termed honey-dew. The motions of the antennae, however, to which he refers in proof of his views, do not, so far as we can judge, amount to more than that they are made in the way of language, any more than to theorize in the same way upon the sight of minute birds which are opened to receive food, or their wings which are opened and vibrated rapidly while they receive it, that there is nothing peculiar in this alleged antennal language, so far as the aphides are concerned, any one who chooses may proc by taking a pin or a camel-hair pencil and gently touching the aphid, when it will eject the honey-dew as readily as in consequence of being touched with the antennae of an ant. This we deem to be quite fatal to M. Huber's conclusions.

ANTEPAGMENTA. This is an antient term for the jamb of a door, or, as they are familiarly termed, the door-post.

ANTEQUERA. ANTARIKA, a town of Andalusia, in the province of Malaga. The old town is built on a hill, but the new one stands in a plain surrounded by mountains. It is professed Bonafide of Abu and is one of the richest in the province, owing to its being irrigated by the two rivers Guadalholame and Guadalajor, and Iavilia, and produces all sorts of grain, fruit, wine, and oil. The neighbouring mountains abound in iron, lead, and red sandstone, and the limestone contains pyrite, a species of lead ore.

About eight miles north-west of the town is a lake of salt-water, four miles in length and a mile in breadth, which, in the summer months, from the water-birds being numerous, becomes a solid mass of ice. Seven miles south of Antequera is a lake, elevated 421 feet above the sea, and consisting principally of marble and limestone. The sandstone which united the rocks being now decomposed, the assemblage of rocks remaining presents the most singular appearance. At a certain distance they assume the forms of houses, tombs, and temples, and the arrangement of their strata is such that they form streets, lanes, and squares, and indeed, such is the illusion produced to the eye, that one might almost be tempted to believe the town of Antequera to be a temple converted into stone. Travellers ought to be aware how they venture into this intricate labyrinth without a proper guide, as they run the risk of never finding their way out of it again. The spaces left between the rocks form a small town, called Antequera, which is fed numerous herds of bullocks, sheep, and goats.

The Roman municipium Singulis was situated about four miles north of Antequera, and another Roman town, called Trescaena, with the remains of a circular wall, and now is a village called Fuente de la Piedra, (the stone fountain,) on account of a fountain springing there, the water of which is said to possess the property of curing the gravel. Several Roman inscriptions bearing the names of both these towns, as well as of Antikara, have been preserved in the stones of the Arco de los Gigantes, or arch of the giants, built in 1385, at the entrance of the old city.

Antequera was conquered from the Moors in September, 1419, by the Infante Don Francisco, who was afterwards named king of Aragon. King Juan II. gave it back afterwards to the kings of Granada; but the inhabitants refusing to submit, headed by their gallant alcaide, Rodrigo de Narvaez, beseiged the town. Several thousand Moors, who besieged them twice, to abandon the place. This is the origin of the motto 'Antequera por su amor,' 'Antequera for its love,' which is on the arms of this city.

The moat, 150 yards wide, is filled with woollen stuffs, silk, leather, paper, and soap. The population amounts to 22,733 souls. There are at Antequera, a collegiate church with twelve canons, four parish churches, eleven convents of nuns, eight of monks, an ecclesiastical seminary, an hospital, and an almshouse.

Antequera is in 37° 9' N. lat., 4° 32' W. long. See Milano; Font, cart. iv., n. 50 to the end, tom. xviii. ANTHELMINTICA, from two Greek words, signifying many-worm, used to expel worms and intestinal passages, and to prevent their formation. Though the origin of worms in the intestines has been a subject of enquiry and controversy for many ages, we are far from having arrived at a satisfactory conclusion respecting it. While some have regarded them as the result of what is termed spontaneous or equinocial generation occurring in the intestines, (see Aristot. Hist. Anim. v. 19.) others have maintained that they have come from without, either along with our food, or in some other way, in so small a form as to be unobserved. Great difficulties attend either view of the question. If it is held that they come from without, the sources of their formation are new, and that they have not been pointed out. Spontaneous generation is also rendered very improbable, both by the consideration that such an occurrence would be at variance with the present universal mode of production of all other animals, which invariably issue from parents similar to themselves, and by the fact that, however the worms may be at first produced, when once developed in the intestines, they are propagated like other animals of the same grade in the same organization, viz. by parents of distinct sexes; and the ova or eggs which the female produce are both to be seen in the oviducts, (see fig. 1., a.) before they escape, and also to be found among the contents of the intestines of patients previously to the escape of the infect worms. The settlement of this question would be interesting, and might prove useful in directing us in our prophylactic treatment. But as we cannot pretend to this in the present work, we shall confine the further discussion of the subject, and rather inquire into the circumstances and conditions favourable to their development and the means of counteracting them.

The causes of worms, and of the tendency to their formation, may be reduced into 1., general bad habits, referring to the residence, and, 2. special, referring to the individual infected by them, his constitution, habits, diet, &c.

Of the first division, the most general is climate. In certain countries the prevalence of worms has increased of late years their frequency in Holland, where there is no want of personal cleanliness, or attention to the food; but the constant moisture of the atmosphere, both producing general weak-
ness, and acting hurtfully on the skin,—the state of which, owing to the sympathy existing between it and the digestive organs, influences greatly the health of the body,—latterly presented the first requisite for the development of worms. In some cases, a patient may produce copious, profuse, and offensive discharge, and, in such cases, the patient may contract a disease which is totally different from the original one.

Dwelling in an impure air, where there is not sufficient ventilation, prepares the body for becoming the seat of worms, and hence their greater frequency among the crowded inhabitants of towns than among the peasantry.

The effect of these general causes is to produce a weak state of the system, the existence of which, however occasional, seems to be the first requisite for the development of worms. When in addition to these there are other causes which operate only on individuals, we perceive the reason why one person becomes subject to worms, from which another person continues exempt. This naturally leads to the second set of causes, connected with the individual, affected by these parasites. These we shall find to be a constitution, either hereditarily weak, or debilitated by sedentary occupations and improper diet. Accordingly, those most subject to them in youth, and especially in old age, are those who are acrophilous habitu.

In these last there exists very common weakness of the digestive organs, along with an immoderate craving for food, which injudicious parents and nurses may gratify with impunity. This leads to a general good appetite,—by which more aliment is introduced into the stomach than it can conveniently digest, and consequently the stomach and bowels become clogged, both by the undigested masses remaining in them, and also by the unheated ingesta passing into them, and invariably poured into them. The articles given to satisfy this craving, which generally shows itself between meals, are almost always those which experience has shown to be the most poisonous to them. This, viz., articles of too farinaceous a kind, as biscuits, cakes of different sorts, or bread and butter, or cheese: for milk, and the preparations of it, which we have just mentioned, seem to dispose to the formation of worms more decidedly than anything else.

The presence of worms in the intestines cannot always be determined by any one, or even by the concurrence of many symptoms, for enormous tenias (teneiosis) have sometimes been passed, of the existence of which not the least suspicion was entertained by the individual; nor was any disfigurement of the health observable. But we are justified in suspecting them to be present when the appearance and expression of the patient are in keeping with the idea of a natural state; when it is of a pale, somewhat leaden, hue, subject to sudden flushings, often limited to one side of the face, where the eyes have lost their brightness, the pupil is empty and dilated, the tongue is flat and smooth, the nose, in the member known to be a natural state of affairs. In addition to these symptoms, the nose is often swollen, and affected by an intolerable itching, or frequently bleeding; there are pains in the head, with ring in the ears; the coat is rough, and the breath disagreeable. The appetite is very variable, sometimes there is none, at other times it is ravenous; there is often a feeling of sickness and a disposition to vomit; occasionally there are violent colics, the bowels irregular; seldom otiosis, more frequently it is of small quantity tinged with blood; the belly swollen and hard, while there is generally a wasting of the rest of the body; the urine is rarely clear, often of a milky appearance. The sleep is disturbed, and the child grinds the teeth; during the day, it is indolent, and very variable in temper.

It is necessary to be thus minute in stating the symptoms of worms, as, sometimes on very slight grounds, individuals are led by the disease to suppose themselves the object of treatment for worms, when none existed; while, too often, they are allowed to commit their ravages unmolested, and to plunge the unhappy victim into a state of great misery and suffering. We are not willing to attach full credit to all the horrible consequences attributed to worms, but that they often produce many serious diseases, and aggravate others, is certain.

The number of different kinds of worms infesting the stomach or intestines of man is not very great, but they propagate their species often with astonishing rapidity. We shall, enumerate the most common sorts, following the nomenclature of Brunner, (Lebende Würmer in lebenden Menschen. Wien, 1819; also translated into French, by Dr. Gründler, in Traité des Vers Intestinaux.)

The Trichocephalus dispar, (or long-thread worm,) found in the upper part of the large intestines (or cécum); Oxyurus vermicularis, (Ascaris vermicularis, the mato, or thread worm,) which inhabits the rectum, or lowest intestines; Ascaris is kept in the large intestines, (the thread-worm,) mostly found in the small intestines; Bothriochusculus latum, (Tenia latas, the broad tape-worm,) found in the small intestines, (principally of the inhabitants of Russia, Poland, and Switzerland, and seldom met with in Britain,) (the tape-worm,) in the small intestines, generally alone, but occasionally three or four together: the Distoma hepaticum, (or fluke,) is sometimes found in the liver and gall-bladder of man, but more common in sheep, goats, &c.

The worms which are occasionally found in other parts of the body are not under the influence of the medicines termed anthelmintics, and we therefore leave them unnoticed here.

To assist us in distinguishing the particular kind of worm present in the intestinal canal, and to regulate thereby our treatment, it is proper to mention that the maw, or thread worm, and large round worm, are most common.

From what has been said above, the principles of treatment may readily be deduced: these are, to strengthen the individual, and weaken the worms, which facilitates their expulsion; and, lastly, to give the patient the required diet for the purpose. This last is a point of great practical importance for although it may only be of little use to expel worms already existing in the intestines, unless we remove the tendency or disposition to their production, but, very frequently, many of the modifications and changes which are considered as valuable anthelmintics, because, by their operation, they bring away worms, often do more harm to the individual who takes them than to the worms. It is clear that all these sharp and violent drugs are not the most suitable; the worms must do much more injury to the inner coat of the stomach and intestines, and cannot possibly be introduced or inaduminate between the mouths of the animals and the surface to which they are attached. The wood-cut (fig. 4) shows by what a number of books the tape-worms attack the gut. When we see these, need we wonder at the difficulty of expelling this formidable and most determined parasite?

The means employed to effect the ends proposed are very numerous, but reducible to three heads, viz., those which by increasing the peristaltic motion of the intestines, displace the worms, and often occasion their expulsion, as claus terminals do; those which by increasing the strength of the stomach and intestines, and system generally, as tonics, or analeptics; and lastly, those which are conceived to act in an especial manner on the worms, as anthelmintics, or killers. The use of the former is, in the strict sense of the word. Our means must be varied, for not only are the different kinds of worms limited to different parts of the intestinal canal, and the species of worms infesting it different at different periods of life, but particular substances are found to be more efficacious against one species than against others.

As a part of the general treatment of worms, purgatives are indispensable, and those should be selected which bring forth the greatest amount of slime; but the frequent and repeated petition of such is inexpedient. Colonel with jalap, or scarmony may be given, with the interval of two days between each dose, two or three times, followed by tartrate of antimony in very small doses, for a week; this may be succeeded by aloes, with antimonial powder, which last being laid aside, preparations of iron alone, or with gentian and canella, may be united with the aforesaid. This plan may be pursued, whatever be the kind of worm supposed to be present, being merely intended to improve the general health of the patient. When the strength is somewhat increased, cold, which is very pernicious to the worms, may be added to our means of removing them in various ways. Large quantities of cold water, rendered still colder by being frozen in it, immediately before drinking; a quantity of common table-salt, or murinate of soda, may be taken. Sea-water may also be drunk with great benefit.

Among our plants we must not omit to mention sulphate of potasse and rhubarb, to which, if there be ner-
vorous symptoms present, such as a tendency to epilepsy or hyste-
ria, valerian may be advantageously added. Dif-
cult mineral waters are of great service, particularly in
the treatment of the mas-worm. Those both remove the
slime in which the worms nestle, and diminish the tendency
in its formation. With this view we may have recourse to the
Boothal Spa at Noswood, to Cheltenham, and above all,
to the sulphur springs of Harrowgate, followed by clas-

tybeats there, or at Tunbridge.

The means of strengthening the digestive organs, consist
of tonic and astringent medicines, both vegetable and min-
eral. Vegetable bitters are doubly advantageous, since they
both strengthen the stomach, and prove direct poisons to the
wombs: of these, the best are chamomile tea, and
infusion of quassia, or gentian, to which mucric acid, or
scoriure of muriatic of iron may be added; for children
the tartaric of iron, being almost tasteless, is advisable.
The utility of vegetable bitters is proved by the fact, that
wherever the menyanthes trifoliate, (dog-bean), or the tor-
mentil, grows, however damp the pastures may be, the
rot never infects the sheep. A similar immunity from
the rot is generally enjoyed by sheep fed on the salt marshes,
or where salt is regularly mixed with their food. (See Re-
ports of Lord Somerville.) The omission of a proper quan-
tity of salt with our food favours the engendering of worms.
The great tendency to the formation of worms in Holland
has been mentioned, and men the ancient laws of that
country ordained men to be kept on bread alone, unmit-
ted with salt, as the severest punishment that could be inflicted
upon them in their moist climate, the effect was horri-
ble, and the wretched criminals are said to have been de-
coured by worms. The medicines enumerated constitute
the most effective means of preventing the return of worms; those
which follow are deemed the best for expelling particular
kinds of worms. The tape-worm (Tenias solium) is almost
invariably expelled dead, by a large dose of oil of turpentine;
and even the long round worm is influenced by it in some-
what smaller doses. Scarcely any other article need be em-
ployed, unless the disagreeable smell and taste be objected
to, when the brayera anthelmintica should be given as at once
safe and efficacious: we might naturally expect this result,
since it belongs to the same natural family as tribe the
tortencil, viz. the Rosaceae. The root of the pomegranate
is much esteemed in India. No reliance should be placed on
the root of the male fern, as it is only useful against the
Botri-ocephalus latus, or broad tape-worm, which, though
common in Switzerland, is rare in Britain.

The long round worm is almost invariably expelled by the
Spigelia Marylandica, or Indian pink, which belongs to the
same natural tribe as the legume, bean, or water trefoil,
viz. the Gentiana. The Oxyuris, or mas-worms, are the most troublesome to the patient, and the most difficult
to remove, as medicines taken by the mouth are too much altered before reaching the rectum to produce any great effect.

After the expulsion of the above named worms, we
sure, we should use local means only. The intolerable
itching which they occasion about the rectum, is best re-
lied by a lamination of sweet-oil. A lamination of very cold
water, even in the case of a mas-worm, may be useful, if after it, a portion of
aloes be introduced, and left to dissolve in the bowel. Ini-
jections of tobacco, and the use of all such dangerous arti-
cles as bear's-foot, (Helloborus fistulius) are to be avoided.
The same may be said of tin-fillings, cow-pox, and all
things that may be considered only as mere mention of
recent medical measures. The term is now applied to those com-
isions in use in all our choirs, set to verses from the psalms,
or to any portion of the Scriptures or liturgy, and the
antheme may be for one, two, or any number of voices, but
rarely exceeds five parts.

There are three kinds of anthem, versate; full, with
voice; and full. The first, which is solo, or duet, has
only one voice to a part, and, requiring nicety of execution,
is generally assigned to the best singers in the choir.
The second, consisting chiefly of chorus, is sung by the whole
choir, but the verse parts by single voices. The third is
chorus wholly, and performed by all the voices.

The term antheme was formerly applied to the com-
sition of anthemes. Tallis led the way in full anthemes,
and was immediately followed by Bird and Farrant. Their
harmony is quaint, but indescibably solemn, and in true
keeping with the majestic dignity of the psalms. Corcoran
has adopted them, and has written a number of anthemes,
which have been admired by Orlando Gibbons soon succeeded those masters, and in the
same kind of antheme—but highly elaborated, and enriched
with whatever florid counterpart could supply—brought
forth works that have always been, and must ever continue
to be, admired, not only for their ingenuity, but for their
effect. Blow was one of the first to introduce the verse anthem, but
his compositions, dry and stiff, are become nearly obsolete.

Purcell, his pupil, produced numerous anthemes, some few of them exhibiting striking beauties, and much grandeur of
conception, but the majority, being written in the manner of
his master, are more learned than pleasing. Michael Wise
and Jeremiah Clark made our cathedrals acquainted with
natural and sweet melody; and Dryden, Grenville, Greene,
Boyce, and Nares, in anthemes of all the three species,
united air and harmony, genius and learning, in a manner
unequalled; though it is to be regretted that their works
are so little known, except where choir service is performed,
and so seldom heard, if ever, in our parochial churches and
other places of worship.

A N T H E M I S is the genus of plants to which the useful
herb called chamomile belongs. It is of the compound flowered
order, and is distinguished by having the leaves that sur-
round its flower-heads membranous at the border, like those
of a chrysanthemum, from which genus it, in fact, differs
chiefly in the receptacle of the flowers being furnished with
little chaffy projections.

Anthemis nobilis, or chamomile, is frequent in a wild state
on many of the commons near London, where it adds a
peculiar richness of colour and fragrance to the turf. It is
a very showy plant, with finely-cut leaves; its flowers
are white in the ray, but deep yellow in the disk; all the
parts are intensely bitter, but especially the little yellow
flowers of the disk: for this reason the wild blossoms are far
more effective, in an ornamental of those of the cultivated sorts, in which
there is scarcely any disk; the flowers of the ray having
almost entirely usurped their place. Besides the bitter
principle for which chamomile is so celebrated, it has been
found by some to contain camphor, turpentine, and tannin, and also
a volatile oil of a beautiful blue colour.

There is another wild plant, called Anthemis cotula, or
mayweed, which must not be confounded with chamomile, to
which it bears great resemplance: it must be distinguished
by its being an erect branching plant, with an exceedingly
disagreeable and powerful odour.

Anthemis tinctoria is used in France by the dyers for the
seke of a brilliant yellow tint, which is obtained from it.
ANTHEUR. The part these named in plants is the upper half of the stamen, or fertilizing organ, of a flower; it is the case which contains the pollen in which the principle of fertilization is enclosed. An anther generally consists of two hollow lobes, lying side by side, and united by a flaky body, which is sometimes of great size, but more usually extremely small, and called the connective. Their position is, for the most part, such that, when they open, the line by which they burst is next the stigma, so that the pollen they send out is not, as on some plants, scattered on the margin of the lobes, except, and we sometimes find the anther so placed, that it is impossible to explain the manner in which its pollen can reach the stigma, without supposing the pollen to be conveyed by the style. The deviations from the usual structure of the anther are caused, in most cases, either by the augmentation or suppression of some of its parts. For example, the lobes sometimes grow together into one, and then the anther is only one-celled, instead of two-celled; or one of the lobes of the anther never grows, and then also it is one-celled. In other cases, each lobe is divided into two partitions by a plate that springs out of its back in the inside, and then the anther becomes four-celled. Anthers generally open by a line that passes along the face of the lobes from end to end; but it not unfrequently occurs, that a portion only of this line opens, and then they are said to burst by pores, as in the crocus, &c.

The most singular deviations from regular structure are those in which the connectivum becomes exceedingly enlarged. In the hand-flower of Mexico, it is coloured deep red, and so long and flaky as to be far larger than the lobes, and it is immediately after the mass of the anther; the ringlet of flowers it spreads horizontally, till the lobes are quite separated from each other at the base, and thrown from a perpendicular into a horizontal position; and in the common larkspur, the flowers look exactly like a second filament placed across the first one.

The disappearance, or act of bursting, of the anther, should take place at the exact time when the stigma is ready to receive it, and this requirement is supplied by the following beautiful contrivance of nature. At the time when the flower is closed, all the parts contain much more watery matter than after its bursting; this superfluity of water is got rid of by the pistilum absorbing it like a sponge from the surrounding parts; by degrees the anther among the rest becomes dry, and as soon as that happens an immense number of tiny springs which line the anther, having no appreciable individual force, but a considerable power when combined, burst outward sideways, and lastly burst the two sides of each lobe, which give way at the line of disjunction above referred to, and the pollen falls out, or is ejected, according to the degree of rapidity with which the anther bursts. In the crocus the flowers are waxy, and the animated world a more striking proof of the perfect design with which every part of every living object is fitted for the fulfillment of the end of its creation.

If an anther is looked at in its most natural state, it seems so different from any other organ in plants, that one would not suspect it to be what it really is, a part of a petal. But if we look at a double rose, or a double peony, or almost any other double flower in which the stamens are changed into petals, we shall find abundant proofs that an anther is only the upper end of a petal in a contracted state; each lobe will be seen to answer to one side of the petal, and the connectivum to the central part of the petal, and the filaments to the stamens. If the stamens are monstrous, flower be objected to, take a white water-tily, and you will see so insensible a transition from petals to stamens, that no one can say where the limit is between these two parts or that one part has not been made into another. Botanists have numerous anatomical facts by which the real nature of anthers is further proved, but this would not be the place for an explanation of them; we can only point out to our readers the characters by which one can most regularly distinguish totally distinct organs, may be often shown to be nothing but other organs in masquerade. [See Filament, Pollen, Stamens, Species of Plants.]
Amathas, two brothers, or disciples, who were with him at his death.

Among the miracles believed to have been wrought by his intercession, was the cure of the distemper called the sacred fire, since that time called St. Anthony's fire, and in modern days erysipelas. In 1695, a religious order was founded in France, called the Order of St. Anthony, the members of which were to take care of persons afflicted with this disorder.

The temptations of St. Anthony were favourite subjects for the early engravers; probably from the trope which they afforded for invention and imagination. Vasari says that Michael Angelo, when a boy, was so struck with Schongauer's print of St. Anthony tormented by devils, (the earliest of these productions,) that he copied it in colour. A MS. of the 13th century contains some of these pictures. Schranck, in his 'Curiosa Antiquitatum,' describes the two sieves used by St. Anthony:

ANTHONY, ST., FALLS OF, are in the Mississippi River, in 45° N. lat., immediately above the junction of St. Peter's River. [See MISSISSIPPI.]

ANTHONY'S ST. FIRE. [See Erysipelae.]

ANTHOSAXANTHUM, a genus of grasses, one species of which (A. odoratum) is well known to farmers under the name of the sweet sernal grass. It is a small annual plant, bearing its flowers in short heads, which are not very compact, and broader at the bottom than the top. The flowers of which it is composed are a pale, yellowish green; each consists of two sharp-pointed, smooth glumes, within which are two other dark-brown, hairy pales, each having an awn at its back; the stamens are only two in number. This grass is of little importance for its nutritive qualities, but it is much esteemed for the sweet smell of its leaves, which causes much of the well-known fragrance of new-mown hay.

ANTHRACITE, a black, light, mineral substance resembling coal; so named from Adur, a village near a charcoal pit. It is also called blind coal, because it burns without flame; and glance coal, from the German word glanz (lustre), because it has often a shining surface like graphite, or blacklead, as it is improperly called, the substance used in pencil. The conical ends of the pencils are made, and its allied, in separate pieces of varying sizes.

In some systems of mineralogy it is divided into massive, slaty, and columnar anthracite; but these are mere accidental varieties of structure, and are all of the same chemical composition as the other kinds of coal, the matrix, or from the foreign matter with which it is mechanically mixed. Its specific gravity is about 1400,
water being 1000; it is slowly combustible, but without flame, and according to the analysis by Schaub of a specimen from the Meiner, it contains 96 per cent of pure coal. It is of the peculiar course in which naphtha might be considered as one extremity of the mineral carbonaceous substances, and anthracite as the other; and from the highly-inflammable fluid naphtha, we have various variations of its composition from its natural properties, as carbon coal, coke coal, slaty coal, &c., all diminishing in inflammability, until at last we come to the blind coal, or anthracite. If asphaltum, or indurated mineral pitch, be subjected to distillation, at a certain stage of the process, when it has lost nearly the whole of its volatile matter, it resembles caking Newcastle coal; continuing the distillation, it passes into a substance which is identical with anthracite, both in appearance and composition. It very often happens that the only part of the coal traversed by dikes of basalt; and it is a frequent occurrence in such cases, that the coal, where it comes into contact with the basalt, is converted into anthracite, often to a considerable depth, and it sometimes acquires a columnar structure. From these circumstances, geologists have drawn two inferences: first, that the basalt, when it came in contact with the coal, must have been in a melted state like lava, the heat of the liquid being the means of setting off from that anthracite, when found in other strata than the coal-measures, may very probably be coal altered by heat. Small quantities of anthracite are found in the primary strata of most countries, as, for instance, in the old slate of Cornwall and Devon. The anthracite has been formed, led to borings and other works in search of coal. It has been frequently met with in the rocks of the transition series, but it was never known to exist in rocks of that period in considerable quantity, until Mr. Weaver, three years ago, in a paper on the geology of the South of Ireland, described beds of anthracite occurring in clay slate and grumewacke, so thick as to be regularly worked for the purpose of burning lime, in the county of Down. He says that the most considerable collieries have yielded 25,000 tons annually, and adds, that all the coal of the province of Munster, with the exception of that of the county of Clare, is of the same sort. It is remarkable too, that this anthracite coal, and a slate highly charged with pyrites, which accompanies it, are full of impressions of plants of the fern tribe, such as equisetia and calamites, analogous to those found in the true coal-formations; this is an importan answer to the opinion that nothing that substance, even in the oldest of the stratified rocks, is of vegetable origin. It is found in many of our coal-measures, but generally in the strata which come in contact with basalt. It is also met with where basalt comes into contact with carbonaceous deposits of modern date, as at the Meiner, a mountain near Eichstatt.

ANTHROPOGRAPHY, a term designed to express the object of one branch of physical geography. The object of anthropography, which literally signifies man-description, is, to describe the actual geographical distribution of the human race; to classify it according to the varieties of physical character and language; to distinguish between nations or tribes which have the same general physical character and speak the same language, and nations or tribes which seem to belong to one stock, and have from circumstances adopted the language of another stock; to describe briefly the religious and domestic usages which constitute the basis of national character.

The term ethnography (nation-description) is sometimes used by German writers in the sense which we have given to anthropography; though, as far as we have observed, when so used, the word ethnography is rather more limited in its signification than that which we have assigned to anthropography. Sometimes human writers use also the word Volkerkunde (people-knowledge) as an equivalent to ethnography. But ethnography has of late years been rather used to express an historical investigation into the origin and migration of various peoples, as taking it in this sense, ethnography is purely of an historical character, and may be considered as distinct from anthropography. A series of anthropographies, of different epochs, would form the basis of ethnography.

ANTHROPOLOGY, derived, like most of our other terms in science, from the Greek, implies the science or theory of man. It has been little cultivated among us as a separate study, notwithstanding its obvious importance, and has never, we believe, been made the subject of an academic course. It is, however, at present fashionable in Germany, where various professors have read lectures on it, and subsequently published their treatises. Of these, by far the most distinguished is that of Kant, the last and talitng of the period of speculative anthropology, the most popular of his works. It was published by him about the year 1798, from his text book, having been for thirty years accustomed to give a winter course of lectures on this subject, and another during the summer on physical geography, to a small audience, as a relief from his more severe duties as professor of pure philosophy. His observations supply the best notion of that which ought to constitute such a science, and the uses to be drawn from it, when properly executed.

A theory of the science of man, systematically executed, may either be directed to explain the phenomena and principles of our corporeal nature—and in that case it would be properly called physiological; or it might be calculated to furnish instruction for the cultivation and improvement of our intellectual and moral powers, and the knowledge of man, both as an individual and a species, in which case it would be designated as anthropological anthropology. The former, as it is evident, turns on the investigation of what nature makes of man—the latter on what man, as a free agent, either makes, or can and ought to make of himself. If the cause of memory in man is assumed to be a natural extinction, its being born into the world, and natural, it cannot be remitted to a mere creature of Nature's mechanical, and can turn his observations to no account: whereas, if he applies his experience of what has been found useful or prejudicial to memory, in order to acquire greater strength of memory, the exercise, the knowledge thus obtained, being formed into a system, would constitute that branch of anthropological which we have called pragmatical, and which it would be useful for him to cultivate.

Such an anthropology, considered as knowledge of the world, is subsequent in its cultivation to the period of academical studies; it considers man as a citizen of the world, and has nothing properly to do with the natural varieties of the human race: neither does it involve the secluded circle of what is called the great world, the individuals of which are too near to each other, and too remote from the rest of their species, to be observed with advantage. Among the best means for cultivating it, after it is formed, that is, after the foundation of that general information which takes precedence of all local and partial knowledge, is travel, and the reading of travels—to which may be added as aids, if not direct sources of anthropology, poetry, history, biography, the drama, and even novels and romances. The chief obstacles to its acquirement, and attaining the rank of a science, are, in others, the unwillingness to be observed—its danger, and the fear that while we are under any emotion, we cease to observe, and when we observe, the emotion ceases: lastly, the force of habit, which perplicises our judgment, both as to what by nature we ourselves are, and what our neighbour is. A systematic, and yet popular anthropology, such as is described in the following outline of Kant's work, illustrated with examples accessible to all readers, is calculated to be of great utility, by affording, in the copiousness of the tabular heads under which our active qualities are arranged, so many occasions and inducements to select any one for special study and classification in its proper department. In this manner, the separate labours of individuals, and even casual conversations, would, in the unity of the plan, acquire a spontaneous distribution and progressive concentration towards a whole—thus forwarding and accelerating the growth of so useful a science.

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ANTHROPOPHAGI. [See CANIVARLA.]

ANTHROPOMORPHISM, a literal Greek word, literally signifying ‘the representation of human form;’ but it is properly used to signify the ‘representation of divinity under a human form;’ and the nations or sects who have followed this practice have been sometimes called Anthropomorphites. The Egyptians represented deities under human forms, as well as those of animals, and sometimes under a combination of the two. The ancient Persians, as Herodotus tells us, (i. 131.), adored the Supreme Being under no visible form of their own creation, but they worshipped on the tops of mountains, and sacrificed to the sun and moon, to earth, fire, water, and the winds. The Hebrews were forbidden (Exodus xx. 4, 5.) to make any image or the representation of any animated being whatever.

The Greeks were essentially anthropomorphists, and could never separate the idea of superior powers from the representation of them under a human form: hence, in their mythology and in their arts, each deity had his distinguishing attributes and a characteristic human shape. Perhaps no nation has made any progress in the arts of sculpture and painting without applying their skill to the representation of deity. Thus painters in modern times have represented the Supreme Power, and our Bibles have sometimes been illustrated with engravings of this character. In one of the latest and finest editions of the Bible (Mant and D’Oyley’s), which is illustrated by engravings, the editors have omitted all representation of God, though there are earlier English editions of the Bible in which the Supreme Being is represented a man. It might be well worth considering if some improvement could not be made even on Mant and D’Oyley as to the choice of illustrations.

Anthropomorphists are also the name of a sect of early Christians. [See HERETICS AND SCHISMATICS.]

ANTHUS, (Bechstein,) the Pipit, a genus of birds separated by Dr. Bechstein from the Linnman genus bataca, a separation followed by Temminck, Cuvier, Lesson, and Selby, and justly, for though the pipits have a long hind claw, and are usually coloured, like the larks, their bill is more slender, in consequence of which they never, like them, feed on grain. In the form of the head, in the movement of the tail, and their mode of life, they resemble the wagtails (Motacilla) on the one hand, and on the other the blue-brent (Sphyza. Scopsco). Adhering, then, to the distinction of Bechstein, we characterize pipits by the bill being straight, slender, somewhatawl-shaped towards the point, having the base of the upper mandible keeled, the tip slightly bent downwards, and notched. The nostrils, situated at the sides of the base of the bill, are oval, and partly concealed by a membrane: Feets, with the shank (tarsus) generally exceeding the middle toe in length; toes, three before and one behind, and with the outer toe adhering to the middle one as far as the first joint; the hind claw rather long. The wings have the first quill very short; the third and fourth the longest in each wing.

We shall give particular details of each species under Pipit.

ANTARIUS is the botanical name of the half-fabulous upas-tree, of which so many idle stories were propagated some years since by travellers. It was said to be a large tree, growing in the island of Java, in the midst of a desert caused by its own pestiferous qualities; its exhalations were reported to be so wholesome, that not only did they cause death to all animals which approached the tree, but even destroyed vegetation for a considerable distance round it; and, finally, the juice which flowed from its stem, when wounded, was said to be the most deadly of poisons. To approach the upas-tree, even for the momentary purpose of wounding its stem and carrying away the juice, was stated to be so dangerous, that none but criminals under sentence of death could be found to undertake the task. As is usual in such cases, this fable is founded upon certain natural phenomena which occur in Java. There is such a tree as the upas, and its juice, if mixed with the blood in the body of any animal, is speedily fatal; and there is also a tract of land in the same island on which neither animal nor plant can exist. But the two circumstances have no relation to each other: the poisoned tract is a small valley completely surrounded by a steep embankment, like the crater of a volcano, and is continually emitting from its surface carbonic acid gas, which is alike fatal to animals and plants; on the other hand, the poisonous upas-tree is not an inhabitant of the valley, for nothing can live there, but it flourishes in the woods, in the midst of other trees which are unharmed by its vicinity. (For particulars concerning this fable, see

Antilaria macrophylla (a damaged figure).

1. A head of male flowers in the involucrum; 2. The same divided propellant;


In the eye of a botanist, the upas is a species of the genus Antiaris, which belongs to the natural order Araceae, a group of plants of all which abound in a milky juice, and many of which are poisonous. (Botanists. (Botanists.) The genus Antiaris has its stamens and pistillae in separate flowers. The former are collected in little heads in the centre of a minute three-lobed calyx. The number of florets is indeterminate, but it is 2, 2, or 2, 2. They are very much like those of the following plant, A. australis, which has been found on the coast of New South Wales.

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ANTICRIST, an island lying in the mouth of the river St. Lawrence, between 45° 54' W., and 45° 45' N. lat., and between 61° 44' W., and 64° 30' W. long. This island does not possess a single harbour. Its shore on the north side is smooth, and the water close to the cliff is deep; on the south the land is low, and the water shoal. Some rocky reefs extend to a considerable distance from the shore, and are the cause of numerous shipwrecks. The island is uninhabited, with the exception of two families who have been established here by the governor of Newfoundland, one at the east, the other at the west end, for the purpose of giving help to persons cast away upon the coast. The latter was inhabited by the Beothuks, a tribe of wandering Indians, who have been explored by Europeans. Such Indians as have visited it in search of game describe it as being mostly swampy.

The Indian name of this island is Natiseoti, of which its present name is evidently a corruption. It is included in the island of the natives of the Isthmus of Labrador. (Anaspach's History of Newfoundland; McGregor's British America.)

ANTIDICOMARIANITES. (See Hymenoptera.)

ANTIDOTES, from two Greek words, signifying, given against; the means of counteracting the effects of poisons. The term antidote had formerly a much wider signification, and was applied to the remedies for diseases occurring from natural causes, as well as for the remedies for the dangers of the functions arising from the direct introduction into the system of a known and material poison. Doubtless every disease may be looked upon as springing from some natural cause and free and unhindered by state of the atmosphere; or eruptive and contagious diseases from the vitiated fluids or breath of one individual communicated to another, as small-pox, and hooping-cough. This opinion is expressed by the employment of the term virus, or poison, to signify any cause of fever, or inflammation of the body, when we speak of the small-pox virus, or the vaccine virus. But as, in the present day, the word antidote is used only to signify the means of counteracting the effects of poisons, strictly so called, we shall confine our observations to what is properly comprehended under the term, when employed in this sense. While thus limiting its signification, it is equally necessary that we should limit the application of the word poison. It is, however, extremely difficult to define what a poison is. Födéré considers poisons to be "those substances known to be capable of rapidly altering or destroying any or all of the functions necessary to life. This must be understood to apply to the introduction of substances accidentally, intentionally, or by the force of the person suffering, or criminally on the part of others) into the body when in the usual state of health; for there are certain diseases of the system, which seem to render it incapable of being injured by any dose of poison that another time would speedily destroy life; and other states, such as when the body is under the influence of one poison, where another proves the most effectual remedy or antidote. Such poisons are the reptiles in the West Indies, during the state of stupor or insensibility occasioned by which, a large quantity of arsenic may be given, not only without safety, but with such advantage that every other poison may be considered as owing solely to it. To acquire a correct idea of the different ways in which 0 2
Poisons operate in destroying life, we must be made aware that what we commonly regard as an individual of the organ, is made up of many organs, in some respects independent of each other, yet exert a reciprocal influence, the harmonious play of the whole being necessary to the continuous exercise or display of the principle of life, and that a condition of the one important organ necessitates the successive suspension of the rest. The most essential of these are consequently denominated the vital functions, viz., the circulation, respiration, and innervation. The circulation of blood through the system, but especially through the nervous matter of the brain and spinal chord, is essential to the existence of the vital properties, and due performance of the functions, of the different organs—which circulation is effected by means of the heart, which renders the blood arterial, respiration is necessary, and this is effected by the lungs, assisted by a great number of muscles, the cooperation of the external chorde, directed or influenced by the brain.

Now certain poisons act solely on one of these organs or functions, or upon two or three, but always in an ascertaind order or uniform succession. Oxalic acid, or the acid of sugar, as it is popularly called, for example, in a small dose, acts first on the brain and spinal chord, but in a larger dose, also affects the heart: in the former case, the respiration will be perceptibly interfered with, while the heart will go on acting for some time; in the latter case, both the heart and lungs, and probably the whole circulation throughout the body, are entirely suspended thereby. There is no instance, therefore, where theoxalic acid is more probable in the first instance than in the second: for we can carry on artificial respiration till the brain and spinal chord have resumed the exercise of their functions, while the heart, and the secondary in the second instance, the heart also having acted to set, recovery is impossible.

An arrangement of poisons according to their mode of action, i.e., according to the order in which the vital functions are successively affected and destroyed by them, would be of great utility in regulating our treatments teaching us when to be content with the employment of antidotes alone, and when to employ supplementary means,—as artificial respiration, blood letting, &c. At present we can only make them to such an extent, and so imperfect.

Another point of consequence is the settlement of the question,—Do poisons act solely on the sentient extremities of the nerves of the part to which they are applied, and influence remote organs, only by sympathy, or are they absorbed into the circulating fluids, and by them carried to the organs, whose impaired or suspended functions show them to be markedly affected by them? Without entering into this dispute, it may be stated that some poisons act in the one way and other way, but not in the same or at the same time. These, the first set are the most formidable and the most speedy in their action, allowing little time for the employment of antidotes.

Some poisons, on this account, but with different degrees of violence and speed, whatever part of the body they are applied to; others, again, only when received into the stomach or intestines; while, some, such as the poison of the viper, are quite powerless when swallowed. Of all parts of the body, the brain and nervous substance are the least susceptible of the action of poisons, when applied directly to them, though acted upon by so many poisons when applied elsewhere.

With respect to the local operation of poisons, i.e. their direct action on the part to which they are applied, some decompose chemically, or alter the structure of (corrode) the part they touch, and hence they are called corrosive poisons; such are the mineral acids, of which sulphuric, or oil of vitriol may serve as an example. Besides this local effect, many of the corrosive poisons act speedily upon remote organs, the impaired function of which may become a source of greater danger than the destruction of the part first attacked.

Other poisons, without immediately altering the structure of the part, irritate it so that inflammation ensues, by which it is altered, and the general system affected, as it would be by inflammation of the same part. The cause—when even the poisonous substance does not produce any immediate or powerful effect upon a remote organ—which is not often the case, as most of them influence some organ, directly, and the termed irritant poisons; such as arsenic; but they are frequently also termed corrosives, though inaccurately.

Lastly, there are poisons which neither corrode nor irritate the part, but cause peculiar irritation upon the sensitive extremities of the nerves, which is conveyed along these to some remote organ or organs, the function of which they impair or suspend. Many of these should be termed specific, in the strictest sense of the word: [see p. 82.]; others are termed local irritants, and those which produce a state of local irritation, are termed narcotic-acids. But often one and the same article, according to the dose and mode of administration, acts in all the three ways; tobacco for example.

The selection of appropriate means to counteract the effects of poisons must be determined by a knowledge of the manner in which each particular poison acts; but as we cannot enumerate or specify these here, we shall give only a general outline of the treatment. There may be said to be three, viz., 1, to remove the poisonous substance: 2, to prevent or limit its local effects: 3, to obviate its effects on remote organs, supporting their action by appropriate measures. The first of these is to be accomplished mostly by mechanical means. If the poison has been applied to any external part, as by the bite of a viper, or rattle-snake, a cupping-glass, or what will answer as well, a wine-glass, tumbler, or cup of any kind, from which a part of the air has been expelled, by holding within it a lighted candle for a second of time, should be immediately applied. If the poison has been taken into the stomach, and is not of a kind to arrest immediately the action of the stomach, we should immediately remove it by the stomach-pump, or by exciting vomiting.

The stomach-pump cannot well be used without introducing into the stomach a considerable quantity of water, by which means it is rendered inapplicable to such poisons as those that of oxalic acid. The stomach-pump is also to be preferred in the case of narcotic poisons, as the insensibility which they occasion prevents the stomach from being affected by emetics. But should a stomach-pump not be at hand, nor any one be present to assist you in the use of it, we must attempt to produce vomiting by every means in our power. For this purpose, a table-spoonful of flour of mustard, which is mostly to be found in every house, may be put into the mouth and made to run down the throat. A scurf of subphosphate of zinc (white vitriol) dissolved in a pint of distilled water; or ten grains of sulphate of copper dissolved in half a pint of any distilled water, as cinnamon, may be drunk by the patient, and the disposition to vomit encouraged by tickling the throat with a feather, and pressing on the pit of the stomach. Neither ipecacuanha nor tartar emetic should be given, as their action is always preceded by much nausea, during which the absorption of the poison is often facilitated, instead of being prevented.

Where the poison is of a corrosive or irritant nature, instead of losing time in seeking the means of causing vomiting, it is in general advisable to adopt the second rule, and attempt to limit its local effects. To accomplish this, we must ascertain what the poisonous substance was from which the patient is suffering, and must also know how it acts, as upon this depends the success of our treatment. The objects we must have in view are either to dilute, and so weaken it; to supply from an external source the particular principle, which the poison would abstract from the costs of the stomach; or by adding something to it, so change its nature as to render it innocuous. At present, we are not in a position to make the use of it, as we can succeed in forming an insoluble compound. The first may be done by giving plenty of warm water; and when we know the particular poison, if the warm water can be made the vehicle of an antidote the second or third object will also be ensured. Suppose sulphuric acid (oil of vitriol) has been swallowed, add to the water, chalk, magnesia, or soap: the chalk will make, with the acid, sulphate of lime, which being inodorous, will do no harm, while the magnesia and soap will form the white of egg. (Epsom salts) with the soap sulphate of potash, both of which are purgative, and will, by their action on the bowels, assist in lessening the inflammation caused by the poison before it has acted. If the corrosive sublimate (arsenic) is swallowed, by giving Epsom salts we form an insoluble sulphate of lead, which will be discharged by the bowels, operated upon by the magnesia, which has been freed from its sublimate by the Epsom salts. These, and the mercury abstracts from the costs of the stomach the albumen which they contain, by which it is converted into proto...
chlore, or calomel; now, if by giving white of egg, which is pure albumen, we supply it with the principle which it would otherwise obtain from the coats of the stomach, we shall preserve these entire.

Such means, these two antidotes, properly speaking; for the means by which the secondary or remote effects are to be combated, deserve rather to be termed counter-poisons. The counter-poisons are of no small value in cases of poisons by the corrosive and irritant, while they are of the utmost importance in the treatment of the sedative and narcotic poisons. To administer these appropriately, we must know which of the vital organs the poison most speedily affects. When it affects the heart, the symptoms greatly resemble syncope (or fainting), and as such poisons are the most dangerous, agents which act as rapidly as the poisons are alone to be trusted: such agents are to be found among the diffuse stimuli, ammonium, or its carbonate, t. e. smelling salts, applied to the nostrils, or dissolved in water and taken into the stomach, warm brandy and water, &c. Where it chiefly affects the spinal marrow, there occur spasm and difficulty of breathing; and when the brain, there is partial or complete insensibility (coma), often with, at first, full pulse, flushed face, and laboured breathing, resembling apoplexy. In such a state of affairs, artificial respiration, and afterwards bleeding, with the subsequent administration of coffee or vinegar, greatly contribute to save the patient.

We have not spoken here of gaseous poisons, which would lead to unnecessary details. They act either by excluding the common atmospheric air, in which case removal, or by respirations performed under pressure, like the irritant, or oppression of the brain, like the narcotic poisons, and are to be combated on similar principles. It will be more useful to append a list of the poisons which act on the brain, and of those which act on the heart. Of poisons which act upon the brain, the most common are alcohol, i.e. spirituous liquors, opium, henbane, hemlock, camphor, and the essential oil of almonds, and of tobacco. Of those acting on the heart, the chief are, infusion of tobacco, and large doses of prussic acid, foxglove, strychnia (principle of nux vomica), oxalic acid, arsenic, preparations or salts of antimony and of baryta, and several animal poisons.

From what has been said on this subject, the great necessity of an acquaintance with it must be sufficiently clear, not only to insure our doing right, but to prevent us from doing wrong. By administering an ill-timed antidote (as we conceive it to be), we often hasten the fatal event: as where vinegar is given when opium has been swallowed, before it has been ejected from the stomach; and by throwing tobacco smoke into the bowels of a person apparently drowned, we extinguish the feebie spark; and thus many may have suffered to reanimate him but for such injudicious interference.

It is to be hoped that more just principles of treatment will be recognised among physicians, and among medical men, by which many lives may be preserved to their families and to the community. [See Poisons.]

Silver Coin. British Museum.

ANTIGONUS, one of the officers of Alexander the Great, a Macedonian by birth, who took a leading part in the scramble for kingdoms which ensued among that prince's generals after his death, n. c. 323. From that time till his own death, n. c. 301, the history of Antigonus is in great measure the political history of western Asia. It comprises a long and intricate series of wars, in which extensive provinces rapidly changed their masters; but it is chiefly interesting as connecting the rise of the two great dynasties of the Ptolemies and the Seleucids with the establishment of the Macedonian empire in the east.

For the immediate consequences of Alexander's death, we refer to Antipater and Perdiccas. In the general distribution of provinces, or satrapies, to the chief Macedonian officers, Antigonus received the greater Phrygia, Lycia, and Pamphylia. But as soon as Antipater saw the project of rendering himself the real master of all the Macedonian conquests, he sought the ruin of Antigonus, as the most likely person to thwart his views. Antigonus saw his danger, and fled with his young son, Demetrius, to Antipater. It does not appear that he took an active part in the short contest which ensued between the European and the Asiatic chieftains: but Antipater, on making a fresh distribution of the Asiatic provinces to himself, Antipater, instead of giving it to his rival, Antigonus, or to his own sons, Antigonus and Ptolemy, he offered it to Antipater, and Antipater accepted it. Antipater, on his return to Europe, continued the war against Eumenes, one of Alexander's best officers, who satrap of Paphlagonia and Cappadocia, who had espoused the party of Perdiccas, and still refused to acknowledge Antipater as protector. Antigonus gained a victory over him by bribing one of his chief officers to desert in the hour of battle. Eumenes, unable to keep the field, shut himself up in the strong fortress of Nora; and his antagonist, after drawing lines of circumvallation round him, and leaving a sufficient force to maintain the blockade, marched into the siege. He was joined by Antigonus, and Antigonus, and Antigonus and Attalus, the brother-in-law of Perdiccas, the only persons except Eumenes now openly hostile to Antipater. There is some difficulty in settling the chronology of this important period, since the several battles which our enemy had to fight for the restoration of his dominion, and for the preservation of his family, must have occupied many years. But the expedition of Antigonus against Aetocasus was placed by him in the latter half of 319; and his arrival in Macedonia may be determined to the beginning of 321, in the same year in which Herodotus died. It is probable that we suppose that the winter of 321-20 was spent in arranging affairs upon Antipater's accession to the regency, and that Antigonus commenced his operations against Eumenes in 320, two years later. For the next years will be spent in the attempts, for the redress of affairs, against Aetocasus and Attalus, and for the siege of Nora, which ended after the death of Antipater, and therefore in the course of 318. This seems more time than these transactions required.

Antigonus, on hearing the death of Antipater, began to attempt the establishment of an independent kingdom in Asia. For this undertaking he was qualified, not only by his talents and skill in war, in which he was inferior to none of the generals trained under Philip and Alexander, but also by the possession of four provinces and a powerful army of 60,000 foot, 10,000 horse, and 30 elephants, and by the commission of the late regent Antipater, constituting him general of all the Asiatic forces. The state of affairs, might be considered almost as good a warrant as any derived from the son of Alexander by Roxane, who, under the tutelage of his grandmother Olympias, had now nominally successively in his hands, the regency of Macedonia, and the general command of the forces in the east. Considering it of high consequence to gain over Eumenes he sent the most flattering invitations to that general, while still cooped up in Nora; and Eumenes so far asseased to his terms as to take an oath of fidelity to him, conjoined with Olympias and the children of Alexander. Meanwhile he expelled the satraps of Lydia and Hellespontine Phrygia, or Myria, from their provinces, and took possession of Ephesus, and of four ships laden with 600 talents of silver, on their way to Macedonia.

The state of things in Europe favoured his views. Casander, son of Antipater, dissatisfied with the inferior station assigned to him by his father, sought, by the assistance of Antigonus, to supplant Polyperchon, and obtain the protectorate. This Antigonus readily promised, hoping that, while the attention of the government at home was distracted by these contests, he should easily establish his own power in Europe. For he found a formidable enemy in Eumenes, who was no sooner at large than he combined with the body of his Cappadocian friends and followers collected round him; and receiving from Olympias and Polyperchon a large sum of money, with the command of 3000 of the Argypaspida, or Silver-shields, a select body of Macedonian veterans, with the commission of imperial general in all Asia, he declared himself openly in support of the royal authority. He soon collected a strong army; but, unable to make head against Antigonus, he quitted Syria and Cilicia, and wandered into Babylonia, where he wintered in 317-6.
The following summer was spent by the contending generals in a series of marches in Persia and Media: Antigonus being supported by Python, satrap of Babylonia; Seleucus by the satrapap of the upper provinces, as they were called, lying to the north, and towards India, who were united by a common fear of Python. After a doubtful campaign, closed by an indecisive battle at Gaugamela, the army of Antigonus, who was on the whole against Antigonus, the armies separated; Antigonus taking up his winter quarters at Ampheres, or Gudama, in Media. Eumenes in Gabini. A district of nine days' journey separat from Seleucus. In mid-November, Antigonus endeavored to surprise the enemy; but his wary adversary was not off his guard. A pitched battle ensued, which in the critical moment was lost by the cowardice or treachery of a great number of Eumenes' officers. The latter dismayed by the faithful general was delivered up bound to Antigonus by the Argyrospadai. This completed the ruin of the royal party in Asia, which Eumenes alone upheld. (b.c. 315, early.)

Antigonus returned to Media, and went into winter-quarters near Ecbatana. He made a savage use of his victory, putting to death several officers whom he knew to be ill affected towards himself. Eumenes he retained some time in prison, earnestly endeavoring to induce him to desert to him; but finding this attempt to be of no avail, he sent against him Slaves, in the hopes of depopulating the Adiabene, and in the belief that this would be the first step towards securing the throne. A pitched battle ensued, which in the critical moment was won by the trickery and treachery of a great number of Eumenes' officers. In the winter of 314-313, Antigonus returned to Media, and went into winter-quarters near Ecbatana. He made a savage use of his victory, putting to death several officers whom he knew to be ill affected towards himself. Eumenes he retained some time in prison, earnestly endeavoring to induce him to desert to him; but finding this attempt to be of no avail, he sent against him Slaves, in the hopes of depopulating the Adiabene, and in the belief that this would be the first step towards securing the throne. A pitched battle ensued, which in the critical moment was won by the trickery and treachery of a great number of Eumenes' officers. In the winter of 314-313, Antigonus returned to Media, and went into winter-quarters near Ecbatana. He made a savage use of his victory, putting to death several officers whom he knew to be ill affected towards himself. Eumenes he retained some time in prison, earnestly endeavoring to induce him to desert to him; but finding this attempt to be of no avail, he sent against him Slaves, in the hopes of depopulating the Adiabene, and in the belief that this would be the first step towards securing the throne. A pitched battle ensued, which in the critical moment was won by the trickery and treachery of a great number of Eumenes' officers.
He completed their deliveries by besieging and demolishing the fortified port and church of Mopsuestia, which the Macedonians had used as a citadel to hold Athens in sub-

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ject. He thus restored the democracy, fifteen years after it had been put down by Antipater, at the end of the Lamian war. Extravagant honours were paid to him and to Antio-
gonus, and Greece, although not then united under one king, was brought back to Darius to the near of Harmodius and Aristogiton; golden crowns were voted to them; they were worshipped as deities; and two new wards were added to the ten existing ones, and called Antikorinthos, in commemoration of the Persian war, which was held by Cassander; but he was hastily recalled to

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Asia, to make head against Ptolemy. He gained all Cyprus to his father's cause, first defeating Ptolemy's lieu-

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tains, his brother Philip, in a sea fight with his great fleet to relieve the island, by sea, 306. On hearing of this great success, which was expected to bring forth more important consequences than the event proved, Antio-
gonus assumed the diadem, the ensign of regal dignity in Persia, with the title of king, and his example was fol-

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lowed by Ptolemy, Lysimachus, Seleucus, and Cassander. In this year, Antigonus founded the city of Antigonia, in Syria, on the river Orontes. [See Antiochia.] In the following year, 320, Antigonus invaded Egypt with a powerful army, both by land and sea, the fleet being commanded by Demetrius. But the mouths of the Nile were so strongly fortified, that no entrance could be forced by the land army. The navy, however, by a rapid co-opera-

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tion of the fleet; and Antigonus was obliged to return to Syria, with some loss, and no glory. In 304 he turned against Rhodes, which, after flourishing in a neutral state for a hundred years, now embraced his father's cause, or to defend itself by arms. The Rhodians resisted bravely, and though pressed by Demetrius with his utmost skill and vigour, held out for a year; at the end of which Antigonus was forced to make peace on the best terms he could with the besieged, and repair to Greece, where

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Cassander, during his absence, had regained much power. Demetrius found no difficulty in replacing things on their former footing. Cassander was driven beyond Thermo-

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pylion into Asia Minor, to Corinth, and other important places, and Demetrius as-

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sembled a general council at the Isthmus, at which he was chosen capite-general of Greece. Cassander, alarmed at the turn which things were taking, endeavoured to con-

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clude peace with Antigonus; but failing in this, he en-

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gaged Lysimachus, Ptolemy and Seleucus, who felt that if Antigonus should gain possession of Macedon, their own territory would be destroyed. And so began the diversion by invading Asia Minor. This was done by Lysimachus, 302. Antigonus hastened to meet him, but could not force him to battle; and on the approach of winter, and the arrival of the Greeks from Europe, they were driven into winter quarters. In the spring, Antigonus recalled Demetrius from Greece. About August 301, the armies met at Ipsus, in Phrygia; they were well matched both in number and in the qualities of their generals, of which Lysimachus, Seleucus, and Antigonus, had all acquired experience and fame under Alexander, while Demetrius, though young, had gained high reputation in his varied services by sea and land. Antigonus had about 70,000 foot, 10,000 horse, and 76 elephants. The allied kings mustered 64,000 foot, 10,500 horse, with 400 ele-

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phants, and 120 armed chariots. Antigonus, grown old in arms and success, and commonly most cheerful before the hour of battle, was mortally wounded by a shot while he was giving his approbations of misfortune. The battle was lost, owing in part to the impetuosity of Demetrius, who charged and routed Antiochus, the son of Seleucus; and pursuing him too eagerly, gave opportunity to Seleucus to interpose his elephants and cavalry between his own victorious division and the main body of his father's army. Antigonus fought bravely to the last, replying to those who counselled him to fly, ' Demetrius will come and help me.' He was slain, his body being so well kept that it was exposed several days in his cordial affection and full confidence towards his heir Demetrius. The empire, which he had spent so much labour and blood to consolidate, was divided among the victors [see Seleucus], and his son, after experiencing
The island does not contain a single river, and the few inaccessible springs it has are so brackish, that the inhabitants are forced to collect rain-water, and preserve it in cisterns for domestic use. It was probably owing to this deficiency that Antigua was not inhabited by the Caribs. Numerous Indians, while other tribes, and that the settlement of it by Europeans proceeded for a long time very slowly. The island is now divided into six parishes, each of which has a town or village, and eleven districts. It contains six churches, the same as in the Antilles, and nine other places of worship belonging to Methodists and other dissenters. The Moravian United Brethren have an establishment on the island for communicating religious instruction.

The town of Saint John, on the north-west side of the island, is built at the bottom of the bay of the same name, which is defended by a fort, and forms an excellent harbour. The town is on the side of a hill, and its streets are in some parts very steep. This town is considered to be one of the most healthy in the Leeward Islands; it is exposed to the sea-breeze, and from its situation is freed from all impurities by every shower that falls. Willoughby Bay, on the south-east side, has its entrance much contracted by a reef, but is secure within, and affords good anchorage in four to five fathoms water.

On the north side of the island is the small town of Peter's. South of it is the Harbour of the same name, which, however, has not depth of water sufficient for large vessels. A little island, called Prickly Pear, lies off the west point of the entrance to Parham Harbour. Falmouth Harbour is the westernward of English Harbour; the former is the most commodious and sheltered of all the islands. Falmouth Harbour is built by a battery on an inlet within, and affords good anchorage in from three to six fathoms of water. Five Islands Harbour, on the western side of the same harbour, which is so called from five remarkable islets, which lie nearly in a line from east to west about half a mile off the point on its south side.

The executive government of Antigua is vested in a governor, with the assistance of a council appointed by the Governor of Saint Christopher. Nevis, Montserrat, and the Virgin Islands, and its legislature consists of a council nominated by the crown, and a house of assembly composed of twenty-four members, who are chosen by the freeholders of the island. The revenue of the colony amounts to about 16,000L per annum, and the value of its exports, which are principally made to Great Britain, amounts to about 300,000L, employing between forty and fifty sail of shipping. Antigua has also a considerable trade with the neighbouring islands of the British and foreign colonies, in the prosecution of which trade upward of 300 small vessels annually enter and leave the different ports of the island.

The population of Antigua comprises 35,714 souls, of whom 5875 are whites and free coloured people, and 29,839 are slaves. It contains nineteen schools, in which about 1200 children are educated. In seven of these schools, which are in the towns, about 500 pupils are instructed, according to the National System. There are besides several Sunday schools, which are numerously attended; and nine estate schools in different parts of the country, where the children of slaves are taught to read. In the course of the last year (1832) two laws were passed in the colony of great importance to the black and coloured population; one of these is 'an act for relieving coloured and black persons from all political restraints and disabilities, and for securing personal and unqualified all political rights and privileges;' the other is 'an act for declaring the evidence of slaves admissible in criminal courts of the island.'

Antigua is forty-four miles east of Nevis, twenty-five miles south of Barbuda, and about forty miles north of Guadeloupe. (Purdy's Colonial Navigators; Alcedo's Dictionary; Government Statistical Tables.)

ANTIGUE.

ANTILLES, a term applied to portions of the West India islands, but with regard to its exact limitation geographers differ widely. Hoffman confines it solely to the Caribbean group, and says; 'they are called the Antilles of America (quasi ante insulae Americae), from lying in front of the larger islands of the Mexican Gulf.' Rockport and Du Fertre explain the term nearly in the same manner; but D'Anville, qualifying it by the addition of the words 'Greater and Lesser,' applies the former to Cuba, Hispaniola, (or Hayti,) Jamaica, and Porto Rico, and the latter to Aruba, Curacoa, Buen Ayre, Margarita, and others along the coast of South America, thus entirely excluding the Caribbean group. Some derive the term from the words Antigua (Old) the name by which Columbus knew the Antilles, and the name of the ship he gave to them that name in consequence. By a recurrence to the early Spanish historians, it appears at least that the word Antilla was applied to Cuba and Hispaniola previous to the discovery either of the Caribbean islands or the settlement of Antillas. It is likely, however, to have been derived from the Spanish name of Antillana, who wrote his work in Latin only eight months after Columbus's return from his first expedition, says; 'he gives it out that he has discovered the island Ophir, but after carefully considering the world, as laid down by cosmographers, those must be the islands called Antilles; this island (of which he is speaking) he called Hispания.' It is here proposed, however, to adopt the classification of Greater and Lesser, the former comprehending Cuba, Hayti, Jamaica, and Porto Rico; and the latter, all the Caribbean group, with those lying along the coast of South America. This definition of the term is now adopted by the best Spanish authorities. With the exception of Hayti, which has established its independence, the islands are subject to the following European powers:—

GREATER ANTILLES.—England, Jamaica.

Spain. Cuba, Porto Rico, and Hayti.

Lesser Antilles.—England, Antigua, Barbadoes, Barbuda, Anguilla, Dominica, Grenada, Grenadines, Virgin Islands (part), Montserrat, Nevis, St. Christopher, Saint Lucia, St. Vincent, Tobago, Trinidad.

Spart, Margarita, Tesigun, Tortuga, Blanquilla, Orchilla, Rocca, Aves.

France, Guadaloupe, Martinique, Marie Galante, All Saints, Deserda, Saint Martin (north part).

Netherlands, Bonaire, Aruba, Saba, Statia, Sint Eustatius.

[Saint Thomas, ] part of the Virgin Islands.

Denmark, Saint John, group.

Shaped Croix.

Sweden, Saint Bartholomew.

Their geographical position is 16° and 23° 30' N. lat. and between 55° 30' and 85° W. long. These are again subdivided into windward and leeward, in terms which are now conventional and local reference, and differing with different nations according to the position of their respective possessions. In English maps the Caribbean chain has generally been divided into two classes, the Windward and leeward, but this distinction seems useless and improper, as, with reference to the trade-wind, the whole group constitutes the Windward islands, and under this appellation they are now commonly all included, while those which lie west of the active effects of Hurricane are called Leeward islands. In short, the Antillas is but another name for the West Indies generally, exclusive of the Bahamas; the term West Indies having been bestowed on them near the time of their discovery from the supposition of their belonging to the continent of Asia.

There is great difficulty in treating of the Antilles as a group, as they differ so widely in many respects; the Greater appear to be of primitive formation, with lofty granite mountains, but most of the Antilles except the Bermudas are of volcanic origin. Craters are still visible in some, though no volcanoes have been in active operation since their discovery. They are all subject to violent shocks of earthquakes, and there is scarcely one in which some occasional symptoms from this cause do not exist. The memorable earthquake which destroyed Lisbon, on the 1st Nov. 1755, was felt in these islands, the shock occurring four minutes later than at Lisbon.

Between August and the latter end of October, the islands, except Trinidad and Tobago, which lie farthest to the south, are subject to the most violent hurricanes; the fury of the wind on these occasions is inconceivable by those who have not witnessed it. Happily these hurricanes are not of very frequent occurrence, and they are never experienced except during the short period of the year already mentioned. Were their visits more frequent, these fertile islands would soon be converted into deserts, since no one
would be willing to employ capital and labour for their cultivation when every moment might deprive him of the fruits of this industry.

The natural aspect of this archipelago is mountainous: the summits of the elevated lands are sometimes pointed and naked, and sometimes rounded and wooded. The volcanic islands have isolated conical and pyramidal mountains, whilst Trinidad has a range of surface hills intersected with deep ravines and bristled with rocks; the soil is mostly argillaceous and watered by numerous streams. In islands of such an extent as the Greater Antilles, harbours do not exist on the coast but are only deeply indented with safe and landlocked ports. But among the Caribbean, the best and generally the only anchorages may be looked for in bays on the west or east side; the greatest elevations are near the sea, but they are both almost exposed to the whole force of the Atlantic current, setting through the various passages at the average rate of about a mile an hour; this current is more rapid towards the main, but decreases in velocity among the more northern islands. All the Antilles are more or less surrounded by, or interspersed with, coral formations of reefs or islands called keys or keys, which render the navigation intricate and dangerous. There are some islands composed of volcanic lava, and formed of a volcanic base; these present undulating plains, and do not attain half the height of the volcanic mountains: they are but slightly watered by small brooks, the soil is dry, with few trees, and salt bushes are common. Antilles, moisture and heat combined produce a surprising luxuriance of vegetation: the soil is in general productive far beyond that of most parts of Europe, but in many islands it has been greatly impoverished by the short-sighted policy of the proprietors. These islands are infested with myriads of insects, mosquitoes, sand-flies, &c., which are the cause of constant annoyance to the inhabitants.

The Caribbean islands have the appearance of a continuous chain; but with a length of from 500 to 1500 fathoms, which is the greatest length commonly used, except for scientific purposes, no bottom is found between the larger islands of the group, nor on either side east or west of them.

The year, as in most tropical climates, may be simply divided into two seasons, the dry and the wet, yet sufficient variation exists to mark the four seasons of more temperate regions. The spring may be said to commence with April, when a bright and beautiful verdure, with a rapid and luxuriant vegetation, make their appearance; and during the month of May, gentle showers (as compared with the autumnal rains) fall generally every day about noon and break up with thunder-storms. From May till October, the tropical sun falls almost vertically; and this is occasioned by the trade-wind sets in the heat is scarcely supportable. This refreshing wind, whose advance is visible over the sea for some time before it reaches the shore, begins between 10 and 11 in the morning, and blows strongly in force till about 3 in the afternoon, and then dies away entirely about sunset. The heat appears to height of the thermometer at this season is about 80°. The nights are exceedingly beautiful and tempered by a land-wind, which (especially in the mountainous islands) blows gently off the shore from about 10 till daylight. With October commence the autumnal rains, when the water literally pours down in torrents, from 60 to 82 cubic inches being about the medium for seasonal rains, but at Barbados in 1754 no less than 87·1 cubic inches was accredited to have fallen. This continues till the middle of December, between which time and April, which is in fact the winter, some rain does not prevail with a reduced temperature. The climate, more especially of the Greater Antilles, is justly considered unhealthy; the yellow fever rages as an epidemic with great violence, and carries off annually numbers of Europeans, nor do the native negroes themselves elect to escape its fatal influence.

Most of the islands produce sugar, coffee, and cotton; many tobacco and cocoa; and some indigo, lignum vitae, pimento, &c., which, with rum and molasses, constitute their commerce with the mother countries; in return they take articles of luxury and plantation stores. The land is cultivated entirely by the labour of slaves, who form more than four-fifths of the whole population. The intercourse between themselves is of a different kind. Living in little communities with the other islands, the intercourse of the other islands owing to the great difficulty of returning; in deed only very fast vessels can work their way back against the wind and current. The intercourse between themselves is partly carried on in small vessels called droggers.

The islands under the British dominion have their own colonial government, consisting of an advisory legislative assembly, who enact all local laws for the internal regulation of their respective islands, subject, however, to the veto of a governor appointed by the crown. St. Lucia and St. Vincent are administered by resident governors, acting under the orders of the Colonial Secretary in England. Those belonging to foreign powers are governed by the laws of the states to which they belong.

The tides are irregular and uncertain, varying much in the different islands; for instance, at Jamaica the rise is scarcely perceptible, amounting at the maximum to eight inches, while at Trinidad it reaches six feet. The sea sets to the eastward, but on the open shore its effects are counteracted by the current which sets through the whole group to the westward.

Having thus given a slight sketch of the general character and appearance of this archipelago, we refer to other parts of this work for a more particular description of the islands which compose the group. (Edwards's History of the West Indies: Purdy's Columbian Navigator.)

ANTILLOUS, [See MILS.] ANTILOGARITHM, a number which, when raised to the power of a logarithm, is the number to the log. Thus, in Briggs's system, 100 is the antilogarithm of 2, because 2 is the logarithm of 100. We have introduced this term, because the French Encyclopedie, followed by Dr. Hume, have defined the word to signify what in the Gallican system called the term which occurs in the antilogarithm, viz., the remainder produced by subtracting the logarithm from the next higher term in the series, 1, 10, 100, &c. This is not the most commonly received meaning of the word in this country.

It is becoming usual to express the number to a logarithm by writing the logarithm in brackets. There is, however, another notation much more consistent with received symbols. In the same manner as sin, the symbol of the angle whose sine is x, log to the base 10 should mean the number whose logarithm is x. Thus, we might write either

\[
\log_{10} 2 = 0.3010
\]

or

\[
\log_{10} 2 = 0.3012
\]

ANTI-MIL. [See MILS.] ANTIMONY, a metal sometimes called regulus of antimony to distinguish it from crude antimony, the name by which the sulphuret of antimony was probably known early in the fifteenth century; it occurs, though rarely, native, and is generally procured from the sulphuret, which is the only abundant ore of the metal. When the ore is thoroughly reduced to a fine powder, with about an equal weight of peroxide of antimony (antimonic acid): the oxygen supplied by this, during fusion, oxidizes and separates the metals mixed with the antimony, which then remains in a pure state.

The properties of antimony are as follows:—its colour is silver white, lustre considerable, and the fracture fine laminated when pure; but the antimony of commerce is broad laminated. When slowly cooled after fusion, it crystallizes in the octahedron of various varieties; it is brittle and easily powdered. Brison states the specific gravity to be 6·792. Dr. Thomson, 6·436, and Hatchett found the antimony of commerce to be 6·712. When it is exposed to the air, this metal tarnishes, but does not oxidize; if kept under water it suffers no change; at a red heat it melts, and, according to Berzelius, when subjected to a white heat, it volatilizes and distils. Thernard, however, asserts that it is not vaporized even at an intense white heat.

Oxygen and Antimony vary in their properties; oxygen may be combined in several modes and in different proportions, forming the proteoxide or sesquioxide, the deoxide or antimonious acid, and the peroxide or antimony acid. If the metal be heated in the open air, it unites with oxygen, and the oxide or sesquioxide is formed in a white vapour, and condensing in brilliant white crystals, was formerly called argenteo flores of antimony. When the heat is raised to whiteness, and the metal suddenly stirred, the oxide is removed, and the metal, which is then in a state of a very fine powder, may be passed over ignited antimony in a tube, it is decomposed with explosion, oxide of antimony being formed. According

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Antimonic acid is tasteless and insoluble in water; it does not decompose the alkaline carbonates in the moist way, but when heated with them it combines with the alkali and expels the antimony acid.

When antimonic acid is subjected to a strong red heat, it loses oxygen and is reduced to antimonic oxide, like which, it has but little medicinal power. Neither antimonic acid nor the antimonies are much employed.

Neither nitrogen, hydrogen, nor carbon combine with antimony.

**Chlorine and Antimony** unite to form two compounds, viz., the proto or sesqui-chloride and the perchloride.

The substance which is known under the name of butter of antimony; it may be prepared by mixing one part of antimony with two parts of bichloride of mercury (corrosive sublimate) and subjecting the mixture to heat in a retort. By the action of the heat the antimony takes chlorine from the mercury, and the chloride of antimony being volatile distils and has the following properties:—it is a soft and nearly colourless solid; at a moderate heat it liquefies, and it absorbs moisture from the air; when mixed with water it suffers decomposition, and the results are mimetic acid, the greater part of which remains in solution, and a white powder, which is a compound of protoxide of antimony and a small portion of muriatic acid; it is the antimony chloride, which is melted in a long, glass tube under the name of publis Algarotti.

It is dissolved by strong muriatic acid; and by nitric acid the protoxide of antimony is converted into antimonic acid. It has been prepared by treating with water and with a dilute solution of carbonic acid, the muriatic acid is separated and protoxide of antimony remains. The same chloride may also be procured by throwing powdered antimony into a jar containing chlorine gas; the antimony burns during combination with the chlorine.

It appears to be composed very nearly of

| Three atoms of chlorine | 36 × 3 = 108 | or 1 atom = 54 |
| Two atoms of antimony | 64 × 2 = 128 | 1 | = 64 |

**Atomic weight . . . 235 . . . 118**

**Perchloride of Antimony** is formed by passing dry chlorine gas over heated antimony. The antimony burns vividly, and a volatile liquid distils which is the perchloride of antimony. It is a colourless or slightly yellow fluid, has a strong disagreeable smell, and emits white fumes. It attracts moisture from the air, and when mixed with water it is decomposed, and converted into muriatic acid and antimonic acid. It is composed of

| Five atoms of chlorine | 35 × 5 = 180 | or 24 atoms = 90 |
| Two atoms of antimony | 64 × 2 = 128 | 1 | = 64 |

**Atomic weight . . . 308 . . . 154**

**Bromine and Antimony** form bromide of antimony; these substances combine with the evolution of light and heat, and the compound, being volatile, is easily procured by distillation.

At ordinary temperature it is a liquid, it crystals in needles, attracts moisture from the air, and is decomposed by water. It melts at about 205° Fahrenheit, and boils at 515°. It is composed of 64.3 of bromine and 35.7 of antimony. Iodine also combines with antimony to form an iodide; it consists of 74.7 iodine, and 25.3 antimony. But neither this nor the bromide is applied to any use.

**Phosphorus and Antimony** combine to form several compounds; the first to be noticed is a native compound, frequently called crude antimony, which is the principal ore of the metal. It is found in many parts of the earth: it is of a lead grey colour, possessing considerable splendour, and is metallic in its consistence. In accicular crystals and in rhombic prisms of considerable size and variously modified: when it is heated in close vessels, it melts without decomposition and crystallizes in striated masses. It is decomposed by nitric acid, which, when strong, converts the antimony into antimonic acid, and when diluted into protoxide. Maurician acid, when concentrated and hot, decomposes it, dissolving the antimony and evolving sulphuric acid of great purity. It appears to be composed of

| Three atoms of sulphur | 16 × 3 = 48 |
| Two atoms of antimony | 64 × 2 = 128 | 1 | = 64 |

**atomic weight . . . 176 . . . 88**
It is therefore a sesquisulphuret. It is much employed in preparing metallic antimony, glass of antimony, coccus of antimony, James's powder, and some preparations in the hand-head and head-colic.

The sesquisulphuret of antimony may be formed artificially by fusing together a mixture of sulphur and antimony; it has the colour and lustre of the native sulphuret. When also a current of sulphuretted hydrogen gas is passed into a solution of antimony, an orange precipitate is thrown down, which appears to be a compound of sulphuret of antimony and water; and when water is expelled, it has the usual appearance of sulphuret of antimony. It may be known that the formation of this coloured precipitate is highly characteristic of the presence of antimony.

It appears from the experiments of Rose, that a bisulphide of antimony may be formed by passing a mixture of hydrogen and sulphuret of antimony upon the electroscope, the whole of the latter is consumed by a reaction that produces a bisulphide of antimony; this substance has been occasioned by the action of the sulphuretted hydrogen gas upon antimony acid. These, however, are unimportant compounds.

Sesquisulphuret of antimony is soluble in a hot solution of potash or soda; on cooling, an orange-red substance is deposited, called *Kerms mineral*; this was formerly much used in medicine. When an acid is added to the remaining solution, a precipitate of sulphuret of antimony is formed; this is sometimes called the *golden sulphuret of antimony*, and in the *London Pharmacopoeia*, *sulphuretum antimonii praecipitatum*. These substances appear to consist of sulphuret and protoxide of antimony combined with water.

The only salt of antimony, strictly speaking, of any great importance, is the double tartrate of potash and antimony, usually termed tartar emetic, or tartarized antimony,—the *tartratursuric acid of the London Pharmacopoeia*. Various processes have been proposed for preparing it: the London College directs *glass of antimony* (which is the protoxide of the metal, mixed with some sulphuret and silica, prepared by roasting coppers of antimony) to be boiled in water, with an equal weight of bitartrate of potash (cream of tartar). The excess of acid in this salt dissolves the protoxide, and a double tartrate of potash and antimony is formed, which crystallizes in octahedrons. Of all the preparations of antimony this is the most valuable. According to Dr. Thomson, it consists of one atom of tartrate of potash = 111, one atom of bitartrate of antimony = 218, and two atoms of water = 18; its atomic weight is consequently 330. The Pharmacopoeias also contain a preparation in imitation of James's powder, called *puress antimoniasis*; they are both inert mixtures of either of antimonious or antimony acid and phosphorate of lime.

Antimony is a very brittle; and this is especially the case with gold, a thousandth part of antimony rendering it unfit for the uses to which it is generally applied.

The principal alloys of antimony are that with lead, employed in making tin and tin plate; and that with silver, used for plates on which music is engraved.

**ANTIMONY (MEDICAL USES OF).** Though the introduction of antimony into the number of medicinal agents was very violently opposed, and even decrees by the Parliament of France were passed against its use, it is now justly regarded as a most valuable remedy in many diseases. As antimony cannot produce any effect on the human system, unless when so prepared as to be capable of decomposition, the proposition is absurd that the active ingredient being the most soluble, has properly superseded the others. Its action varies according to the dose, the mode of administration, and the state of the system when it is given. In very small doses, it seems to increase the activity of the function of secretion, particularly of the mucous membranes; hence it occasions a flow of thin fluid from these surfaces, which forms the inner lining of the lungs, and through the action of an insensible acidity, or the flow of perspiration, if that existent be kept warm. In a larger dose it causes vomiting, with all the phenomena of that action; and from being commonly employed for this purpose, it is designated *Emetic Tartar*. Commined with other emetics it may be said to be distinguished by the ease with which it causes vomiting, as well as by the certainty, though, in this latter respect, it is surpassed by sulphate of zinc (white vitriol). It may be given to persons of any age, except to very young children, for whom ipecacuanha wine is preferable. It ought not to be given in cases of poisoning, for reasons stated under the head *Antidotes*, and least of all should it be given in cases of narcotism, since the patient is not even in a state of poison, unless vomiting take place; and as, by narcotic poisons, the sensibility of the stomach is so lowered or depressed as to not occasion the rejection of anything received into it, the improvidence of exhibiting tartar emetic in such cases is manifest. It has been observed that in a state of this substance which is sufficient to occasion vomiting, there is one state in which it is to be preferred to every other mode of causing vomiting. By whatever channel excites the stomach to perform the act of vomiting, unless the person be in a state of insensibility or coma; a solution of two grains of it, in three ounces of warm distilled water, may, if swallowed, be injected into a vein, when the guttule is obstructed by any extraneous body lodged in it. In the same way it may be sometimes tried in tetanus, or lock-jaw, when the teeth are so firmly clenched together, that nothing can be made to pass them.

As tartarized antimony is demulsified by most bitter or astrigent vegetables, which contain tannin, (except oak bark,) and an insoluble, and consequently an inert, tannate of the protoxide of antimony is thereby produced, such vegetable decoctions, decoctions improve the quality of-ipecacuana, and the best antidote in cases of overdose, or poisoning by this article, should it not, by inducing vomiting, prove its own antidote. Under these circumstances, we should administer decoction or tincture of yellow chинаuh bark, or, when these cannot be easily obtained, a strong decoction of the bark.

Employed in appropriate doses, its action as an emetic is seldom violent, while it certainly acts more powerfully than other emetics in promoting the secretion of the stomach, as well as the one of the bile and, pancreatic juice, with those of the lungs, and indeed all the secretions external as well internal. Now, as the suppression of the secretions is one of the most common occurrences in the early state of fever, and the restored and improved character of these, one of the most favourable signs of its abatement, antimony is employed with great advantage in the treatment of fever, and it cannot be used too early. Indeed many a fever is stopped or prevented by the employment of this or some other emetic, as ipecacuanha, upon the first intimation of the disease being felt. It is also suited to the beginning of each paroxysm of intermittent or remittent fevers (see *Ante*). It may also be advantageously given about the period of the expected crisis in continued fever. When the disease is of a highly inflammatory type, it should be combined with, or followed by, saline medicines, but when there is great depression of the vital powers, such as the disease, the only medicine is alkali, and stimulating medicines cautiously substituted.

Antimony is also used in some eruptive or exanthematic fevers, such as measles and scarlet fever, being less suited for those in which the eruption is of a vesicular or purpuric character, and the disease seems to affect the integuments only. (See Craigie's *Pathological Anatomy*.) Antimony is well suited for rheumatic fever and erysipelas, as in these diseases the liver is deranged, and furnishes an unhealthy biliary secretion. It is also useful in what are sometimes termed mucous and bilious fevers, which are attended with very depraved secretions from the intestinal canal, which may be removed and improved by repeated small doses of an antimonial.

It is also in daily use for the cure of catarhral affections, i.e. colds affecting the mucous membrane of the lungs.

**Tartrate of antimony, when intended to act as an emetic, is generally given in the dose of a quarter or half a grain dissolved in distilled water, and repeated every ten to twelve minutes till vomiting occur; but when merely intended to cause nausea, or to act gently on the secretions of the intestinal canal, of the lungs or that of the skin, it is given in doses even smaller than this.**
have fallen to fifty feet, or even less, in a minute. When pursued with caution and managed skilfully, it often enables us to overcome the disease; and to dispense with the removal of so much blood from the system, as might otherwise be necessary. It ought not to be tried, but if it must be tried, the patient must take care that the mucous membrane of the stomach be in a state of irritation or subacute inflammation, a condition which often occurs during pregnancy. This state of the stomach must be removed by general or local remedies before we venture to administer the antidote.

This plan of administering tartar emetic is generally believed to have originated with the Italian physicians Rasori and Tommassini; but whatever merit it possesses is justly due to Dr. Murrat of Bristol, who published it in 1796, many years before its employment in Italy.

Tartarate of antimony is applied externally as an ointment and plaster; and in either way it excites an action of the part leading to the formation of a vesicular eruption, similar to that of vaccinia or cow-pox; and it is consequently used as a means of counter-irritation, often with great advantage. The ointment and plaster may be prepared of different degrees of strength, but care must be taken not to use them too strongly, as the antimony may be absorbed from the ulcerated surface, and produce violent vomiting, which in some cases has been so serious as to cause death.

ANTINOIMANS, from the Greek, signifies against the laws, against natural law. It is applied to any one who holds that faith in Jesus Christ dispenses with, and renders unnecessary, so far as a future state is concerned, the observance of morality and the performance of good works. If there be, however, there is reason to suppose that the accounts of earlier antinoimans contain much exaggeration, and that there never was any body of men, worthy to be called a sect by numbers and duration, which professed the above opinion.

The almost universal abandonment of morals, we find various antinoimans sects in the first three centuries; but the name was first applied to the followers of John Agricola, a townsmen and contemporary of Luther, born at Lieben in 1643, and buried thereafter in the town of Brandenburg. At Augsburg, in 1546, Dupin (and other Catholic writers are, in general, fair judges between one protestant and another) admits to be perfectly orthodox on the article of justification.

This sect has obtained very little notice from continental writers, and it is not improbable that the sects have been distributed among other persuasions. The assembly of divines in 1643 condemned several writings which appeared to them antinoimans; and the parliament in 1648, in what ought to be called a personal persecution among certain provisions, enacted that any one convicted, on the oaths of two witnesses, of maintaining that the moral law of the Ten Commandments is no rule for Christians, or that a believer need not repent or pray for pardon of sin, should publicly retract, or, on his refusal, be imprisoned till he found sureties that he would no more maintain the same.

The little importance of this sect renders it unnecessary to dwell further upon its history. But as the name, however, is bandied about as a term of reproach by many who do not understand its meaning, we cite from an old English account of sects some of the peculiar opinions which were called antinoimans by the orthodox, before the revolution of 1688. The source of the whole is the List of Heresies of Pontanus; certainly not a work to trust in any other respect than as showing what opinions it pleased some to attribute to others.

By Alexander Ross, sixth edition, 1683.

The antinoimans are so called from their opposing and rejecting of the law, which they say is of no use at all under the Gospel, neither in regard to direction, nor correction, and that it must be preserved to be the real end of the law. They say that good works do neither further nor evil works hinder, salvation. That the child of God could no more sin than Christ could, and therefore it is sin in him to ask pardon for sin, murder, adultery, drunkenness, are sins, the wicked, but not in the children of grace, nor doth God look upon them as sinners, and, consequently, that Abraham's lying and dissembling was no sin in him. That no man should be troubled in his conscience for any sin. That no Christian should be exhorted to perform the duties of Christ.

ANTINOUS, a native of Bithynia, and favourite of the Emperor Hadrian, the extravagance of whose attachment was shown by the institution of divine honours to Antinous after his death. Respecting the circumstances of his death there are many stories, but it seems generally agreed that he was drowned in the Nile while Hadrian was in Egypt. The town near which he died was rebuilt by the emperor, and called Antinoe or Antinopolis, instead of Bessa, its former name. It remains exist under the name of Enescu. A new star was said to have been discovered in the heavens, which was called the soul of Antinous. Oracles were delivered by him, which must be taken as forgeries invented by Hadrian himself, or according to his order. That courtiers should have lent their countenance to this absurd and profane homage, in compliment to their master's weakness and blind partiality, may easily be credited; but that the worship of this new divinity should have outlived the prince who established it, when no longer enforced either by interest or fear, can only be accounted for by the stubborn credulity of a people over whom superstition had gained the ascendancy. It still prevailed in the time of Justinian. It is said that the bishops of the Christian church, to whom it furnished an argument against the pagan system of worship, and the means of exposing the absurd principles of their religion. Among these rooms, the greatest is that of the statue of Antinous, nearly as numerous as those of the Venus, and very similar to each other, rank among the most beautiful. That originally in the collection of Cardinal Alexander Albani, the most perfect perhaps of those executed for the Roman nobles, for the purpose of paying their court to the emperor, is a standing figure in marble. The head looks downwards, with a melancholy expression, which they all bear: the hair in all of them is arranged in the same manner, covering the shoulders, and being brought down to the breast. Busts of Antinous are also very fine. (See Xiphilinus; Bayle, Dict. Hist., and the authorities there quoted; also Whelkemann, p. 454, &c. French trans.)

ANTIOCHEA, a town in Syria, on the left bank of the Oronte, 36° 12' N. lat., and 36° 12' E. long., forty-six geographical miles west of Halie (Aleppo), and twenty-five geographical miles south of Scanderoon or Alexandria in the gulf of the same name.

Antioch belongs to the Pashalic of Halieb. It stands in the valley of the Orontes, which here forms a fertile plain, about ten miles long and five or six broad (Brown). On the right side of the river, 300 yards from the mountain, are remains, but not of the ancient castle. The circuit enclosed by them, Mr. Buckingham gives them a circuit of nearly four miles; but this is much less than the amount assigned by ancient authorities. They run along the river on the N.W., ascend the steep hill on the S.W., on the S.E. run along its summit, and on the N.E. run down the hill to the river. The walls are from thirty to fifty feet high, fifteen feet thick, and flanked by numerous square towers; they seem not unlike the ramparts of Roman cities found in the towers, and the mode of their disposition.
that the existing walls of Antioch are chiefly Roman work: possibly there are but few parts of the original walls erected under the Seleucidae. It appears indeed most probable that the walls as now seen, were commenced by Justinian, after the town had been ruined by the Persians. Mr. Buckingham says that one portion of the wall and towers in the S.W. quarter is perfect.

Antioch, though fallen from its ancient importance, is still one of the largest cities of Syria; the population is stated at about 10,000, but it does not appear to be well ascertained. It has no good public buildings. The houses are chiefly built of stone, pant-roofed, and covered with red tiles. The streets are broad, with a raised pavement on each side for foot passengers. The bazars are numerous, and contain a good supply of such articles as are in demand in the country about Antioch. The manufactures of the place are coarse pastoral goods, such as mats, baskets, &c. The language of the Mohammedans at Antioch is generally Turkish; there are a few Christian families there, and some Jews. The air of Antioch is reputed to be more salubrious than that of Haleb. The view of the plain of Antioch from the towers above described is highly interesting. The northern portion within the ancient walls is now filled with one extensive wood of gardens, chiefly olive, mulberry and fig trees; and along the winding banks of the river, tall and arched bridges are thrown. The chief street seems to have run from S.W. to N.E.; following its direction towards the Bob Boulos, or 'gate of St. Paul,' which leads to Aleppo, a part of the ancient pavement is observable, and in learning the topography of the cemeteries, there are numerous caves or excavations in the hill, which appear to have been the ancient Necropolis or cemetery. The remains of an aqueduct exist to the south of the city.

Antiochus was founded by Seleucus Nicator, and received its name from his father Antiochus. Antigonus, which Antigonus had previously built near the site of the future Antioch, sunk in insignificance and disappeared before the city of Seleucia. Antioch became the residence of the Syrian monarchs and one of the greatest cities in the world. It probably grew still larger under Roman dominion, when it was the residence of the governor of Syria, the seat of pleasure, and the centre of an extensive commerce. Strabo (p. 759) describes Antioch in his time as consisting of four distinct quarters, each having a wall of its own, and the whole surrounded by a common wall. These quarters marked the successive additions that the city received from the time of Seleucus the Young to that of Antiochus Epiphanes. The geographer says it was little inferior in extent and wealth to Seleucia on the Tigris and Alexandria in Egypt. Several of the Roman emperors were fond of spending some time here, in a city where the gardens and the palaces and the airs were so much cherished by the prevailing taste of the inhabitants. Under Libanius, a native of the place, it became in the fourth century a celebrated school of rhetoric. But before this period Antioch had also become a considerable place, and that the emperor Constantine, who had been firmly established here by Barnabas and Paul; and here we are told (Acts xi. 26) that the name of Christians was first given to the disciples.

Antioch continued to be a city of great importance, notwithstanding the frequent and terrible visitations of earthquakes, till Chosroes, the Persian, took it and nearly levelled it with the ground. It was rebuilt by Justinian and again became a considerable place and continued so till the time of the Crusades, to which epoch some assign the remains of a wall or fort on the hill to the south of the city. Antioch, after it was taken by the Crusaders under Godfrey of Bouillon and Boemond, (A.D. 1098,) became a Christian principality under the European conquerors of Syria. The sultan Bibars, in 1269, took it from the Christians and destroyed its churches. It afterwards passed under Turkish dominion, but has never recovered its commerce and importance, which were transferred to Aleppo. Buckingham says that the Christians of Antioch have not at present a single church, and that they assemble for prayer in one of the excavations mentioned above. Antioch was taken possession of by Ibrahim, on Aug. 1, 1832, but was subsequently restored to the Porte.

The neighbourhood of Antioch is peculiarly rich in medals and engraved stones: great numbers have been collected here, and some having been found by heavy rains in winter. The most interesting are those of the Seleucids, and next to them, those of the period of Julius Caesar and Augustus; one of the date of Augustus, is given at the head of this article. Phœnicians are also found in great quantities.

The last great earthquake at Haleb, in 1822, extended also to Antioch and did some damage. (See Strabo; Mannert's Syrie; Brown's Travels; Buckingham's Travels among the Arab Tribes; Journal of Education, No. II., p. 245; Itinéraire, &c. Paris, 1816, without the author's name.)

To the north-east of Antioch is a small lake, called Antakieh or Bahr Agouli, which communicates with the Orontes.

ANTIOCHEIA of Pisidia, a town of Asia Minor, where Paul, accompanied by Barnabas, preached the Gospel (Acts xi.) It seems, that at this time Antioch had some Jews among its population. The position of this town is not accurately known; what it has been very lately discovered, as some journals inform us. (See Strabo, p. 577)

ANTIOCHUS, a name best known from its being borne by many Syrian monarchs of the Seleucid dynasty; but otherwise not uncommon in ancient history. We shall devote this article to giving a brief sketch of the history of the Syrian empire under these princes.

I. ANTIOCHUS, surnamed Soter, or Preserver, was the son of Seleucus Nicator, who after the death of Alexander, conquered the kingdom of Lydia, and under raised Syria into an independent kingdom (see Attiagonus). There is a romantic story told, how he fell desperately sick for love of Stratonice, his father's young wife, the daughter of Demetrius Poliorcetes; and how Seleucus, on learning the news of his approach, and of his intended marriage, hastened to him, and caused them to be crowned king and queen of Upper Asia.

Upon the murder of Seleucus, while engaged in his expedition to subdue Macedonians, B.C. 180, Antiochus succeeded to the throne and reigned nineteen years, during which few events of much importance occurred. He protected his father's claim to the kingdom of Macedon, and made his wife his heiress, Antigone, a brother-in-law; but the dispute was accommodated by a marriage between Antigonus and Phila, daughter of Seleucus and Stratonice, in consideration of which the Macedonian prince was allowed to retain the peaceable possession of the coast of Asia, and to keep his throne. Demetrius, the son of Antigonus, also married Stratonice, the daughter of Antiochus. The reign of Antiochus is distinguished by his wars against the Gauls, who had crossed into Asia and obtained a settlement in the province named after them Galatia. Issuing thence they harassed the neighbouring provinces with predatory excursions, until Antiochus defeated them, and obtained the application of Soter. He was subsequently engaged in an unsuccessful war with Eumenes, king of Pergamus. Returning to Antioch he found, or took, occasion to put to death one of his sons charged with having excited disturbances in his absence: the other, named also Antiochus, he proclaimed king of Syria. He died B.C. 261. (Appian, Syria: Justin, book xxxvi.; 3 Anc. Univ. Hist. vol. viii.)

II. ANTIOCHUS, surnamed Theos, or God, son of the former, succeeded to the throne upon his father's death. His reign is chiefly memorable for the revolt of the Parthians, B.C. 249, under Arsaces, who succeeded eventually in expelling the Macedonians, and thus became the founder of the formidable Parthian empire. The remote province of Bactria, and others lying eastward of the Tigris, followed this example: and Antiochus, apprehensive of the final loss of those regions, concluded a treaty of peace with Ptolemy Philadelphus, B.C. 252, by which he agreed to repudiate his wife Laodice, and to marry Berenice, daughter of the king of Egypt, settling the crown upon his children by the latter. These conditions were fulfilled: but on the death of Ptolemy, two years afterwards, Antiochus restored Laodice
to her conjugal rights, and in return was poisoned by her, n. c. 247, with the view of securing the succession to her eldest son, Seleucus Callinicus. He left another son, her, Antiochus, surmounted Hierax, the Hawk; who for several years waged war with his brother Seleucus for the possession of Asia Minor, but being finally overthrown, was forced to fly into Egypt, where he died. (See Schliezer's Roxmania, Regn. of Antiochus II., Ulriksbardiische Uebersee, &c.)

III. ANTIOCHUS, surmounted the Great, was the son of Seleucus Callinicus, and succeeded his brother Seleucus Cœrus, n. c. 223, as king. He was in war with Attalus, king of Pergamus. Antiochus owed his safety and his throne to the honesty of his cousin-german, Achæus; who, though pressed by the army to assume the crown, retained it, and died in the temple, being protected by his own personal friendship. The first care of the young king, or his advisers, was to appoint governors to preside over the several districts of the Syrian empire, which during preceding reigns had lost much of its original greatness. The kingdom of Pergamus had especially profited by the weakness of the Seleucidan dynasty: but under the able management of Achæus, those provinces which had been wrested from the Syrians were recovered, and Attalus was again confined within the borders of his proper kingdom. Antiochus was less fortunate in the choice of Molo and Alexander, two brothers, who were appointed governors of Media and Persia. Trusting to the weakness of a young king, they endeavored to raise their power over the provinces of the king's empire; and it was not until they had defeated two armies sent against them under subordinate officers, that they were reduced by Antiochus in person, in the second campaign.

But, on his return, he found great disorders in his realm, and that his distinguished successes had excited jealousy, and that plots were laid against his life by the king himself, or by his ministers. Sacrifice, the sense of duty to his personal safety, he proclaimed himself king of those provinces in Asia Minor, which he had recovered, and which had been entrusted to his charge. Thus was legitimated his rule, and the Syrian empire was equally mumbled on the south, where Ptolemy Philopator still held Cœlesyria and Palestine, which had been conquered by his predecessor, P. Euergetes. By the advice of his council, the young monarch turned his attention to Egypt, where, Ptolemy and Pharaoh, with the aid of the Rhodians, had taken the temple in Alexandria, and were in the act of retreating into Cœlesyria, and assisted by the defection of Theodotas, the governor of that province, gained possession of the greater part of it, including the capital, Damascus. The campaign was terminated by a truce negociated after a few months, which was a step toward the conclusion of an agreement; Antiochus, by the necessity of returning northwards to oppose Achæus, who, not satisfied with his possessions in Asia Minor, aimed at extending them to the eastward of the Euphrates, where his father, the late king, had suffered, and the necessity of gaining time to prepare for fresh exertions. Negotiations for a treaty of peace were set on foot: but each party claiming Cœlesyria and Palestine, in virtue of the partition of Alexander's conquests made after the battle of Ipsus, (see Seleucus) the truce expired before anything was agreed to. War was resumed, n. c. 219. At first, Antiochus carried all before him: he penetrated into his enemies, forcing the passage of Mount Libanus; gained possession of Galilee, and subdued the inheritance of the tribes beyond Jordan. But these advantages he lost in the following year in a great battle fought against the Syrians, near Damascus. He was defeated with great slaughter, and obliged to retreat to Antioch with the wreck of his army. Cœlesyria and Palestine returned to their allegiance to Ptolemy: the Syrian king, pressed at the same time by Achæus, was compelled to retire into Egypt. In n. c. 213, Antiochus had obtained on condition of resigning his claim to the contested provinces. Being now at leisure, Antiochus turned his whole attention to the destruction of Achæus, whom he overpowered and put to death. But neither Ptolemy nor the king of Egypt were again annexed to the Syrian empire, (n. c. 213.)

Having secured his western at the expense of his southern dominions, Antiochus turned his attention towards the east, where he heard that Arses, the king of Parthia, was left in quiet possession of Hyrcania, on condition of his assisting Antiochus to recover the rest of the revolted provinces. After an unsuccessful attempt to recover Bactria from the Bactrians, where his army was defeated by Phraates, king of Parthia, and where Arses was left in quiet possession of Hyrcania, on condition of his assisting Antiochus to recover the rest of the revolted provinces. After an unsuccessful attempt to recover Bactria from the Bactrians, where his army was defeated by Phraates, king of Parthia, and where Arses was left in quiet possession of Hyrcania, on condition of his assisting Antiochus to recover the rest of the revolted provinces.

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chosen by the Aitolians as their commander-in-chief. Antiochus appears to have managed affairs badly. He might have made the king of Macedon his friend instead of his enemy; and after his capture of Eubea, instead of pushing on his conquests as far as Chalcedon, he certainly embarked on the Syrian war, and his brother, the celebrated Africenus, served under him in the quality of lieutenant. Under their able guidance the war was soon terminated, and Antiochus was hastened by the unskilful conduct of Antiochus. Disheartened by his reverses, and especially by a second defeat at sea, he withdrew his forces from Syria, Thrace, and from the strong cities on the Hellespont, which would at least have retarded the progress of the Romans for some time; and thus he gave them free access into Asia. Yet they had no sooner crossed the Hellespont, then, struck with terror, he sent ambassadors to endeavour to negotiate a peace. The terms he offered, though tolerably humiliating, were not so much as satisfied the ambition of the Romans, who required that he should defray all the expenses to which they had been put during the war, set at liberty all the Greek prisoners of war, and restore the temple of Mount Taurus. These conditions Antiochus, thinking that no harder could be imposed on a conquered enemy, refused to accept, and collecting his whole force, he met the consul Scipio, (a.e. 190) in a pitched battle near Magnesia of Sipylos, in which he was defeated with immense slaughter. This was decisive: he retired hastily to Syria, and again sent to negotiate for peace, which he obtained on terms not materially harder than those before offered, yet such as must have been very galling to the haughty monarch, and hithe\n
to successful conqueror. He was to resign the prince\n
of west of Mount Taurus; to pay 18,000 Euboic talents for the prisoners, to deliver up to the Romans his elephants and ships of war; and, a yet more disgraceful stipulation, to place in their hands Hannibal, and other foreigners who had taken refuge at his court from the hatred of that grasping and revengeful people. Hannibal, with another, preserved his safety by timely flight; the rest were delivered up, together with hostages for the observ\nance of the treaty, of whom Antiochus Epiphanes, the king's younger son, was one.

Antiochus did not long survive this humiliating treaty, which was, in some degree, the cause of his death. In collecting means to pay the heavy burden imposed upon him, he was led to plunder a wealthy temple in the province of Elymais. Indignant at the sacrilege, the people of the place rose in arms, and massacred him and his attendants, (a.e. 187) in the thirty-seventh year of his reign, and fifty-second of his age. He merited the title of Great, only as being the most eminent of a race distinguished by the same name, none of whom were distinguished either for talent or goodness. He did more, however, to restore the greatness of the Syrian kingdom under the first Seleucus, than any other of his dynasty; but he was unfortunate in meeting the first shock of that iron power before which all the great monarchs of the known world were destined to fall. (Polybius, lib. 5. &c.; Appian, Syriaca; Liv. lib. 36, 37; Raleigh, Hist. of World; Anc. Univ. Hist., vol. viii.)

V. ANTIOCHUS Epiphanes, the second son of Antiochus the Great, succeeded his elder brother Seleucus Philopator (a.e. 175 or 176). Antiochus was, at the time of his brother's death, on his way from Rome, and had been detained as a hostage for the observance of the treaty concluded with him after the battle of Magnesia.
ANTIOCHUS OF COMMAGNE. [See Commagene.]

ANTIPAROS, called also by the antients Oloenos, one of the group of the Cyclopes, is situated between Siphnos and Paros, and separated from the latter by a dangerous channel one mile and a half wide. It is seven miles long, north and south, and three miles broad, and contains one small town, the city of Patmos. The town, built on a rock of medium height, is situated on a steep hill, and consists of a triangle, consisting only of a small quantity of poor wine, and a little cotton and barley. The island is a mass of white marble, and is only celebrated for its groto: the entrance to it, which is on the side of a rock, is formed of rough blocks, with a door in the middle. There are two other descents, but not so precipitous as the last. Another passage about nine feet high and seven wide, whose walls and arched roof, composed of glittering and polished marble, are as smooth as the surface of the sea, leads to a third precipice, the sides of which appear like a sheet of amethysts. Then follows a sloping passage of about two hundred yards, on each side of which the petrifications assume the appearance of a rugged curtain partially drawn, and through which the current of water is seen to flow. The fourth and last descent. At the bottom of this is the groto 120 yards long, 113 wide, and 60 feet high; it is an immense arch of white marble, from the roof of which depend stalactites. In the middle is a small Fountain, with a thousand fountains and leaves of the same substance; the floor is rough and uneven, with various coloured crystals and stalagmites rising up; and in the midst is one, twenty feet in diameter, and twenty feet deep. This pyramid of stalagmite that served as an altar when M. de Nointel visited the groto, and celebrated mass on it. When enlightened, the whole presents a most brilliant and magnificent scene, but the smoke from the torches of the numerous visitors has dimmed its elegance. In some places the stalactites have partitioned off portions of the cavern into cells. The difficulty of reaching the groto has latterly been much diminished by the provision of rope-ladders, torches, etc., for which the natives make a small demand on the purse of the traveller. It is not certain that the extremity of the groto has ever been explored. The highest point of the island is in 37° N. lat., and 23° 3' E. long. (See also Tournemot's Voyage au Levant: Encyclopédie Method. Geogr. Physique.)

ANTIPATER, a Macedonian of high birth and high reputation, the chosen and trusted officer of Philip and of Alexander the Great. He was the pupil and friend of Aria- cleides, and was, according to Trogus, present when Alexander was apprehended. With Alexander left Europe for Asia, he entrusted the government of Macedonia and the regulation of Greece to Antipater. During the year B.C. 331, an attempt was made by the Lacedaemonians to depose Antipater from his great power, but he succeeded in raising jealousies between her son and Antipater, insomuch that Alexander determined to remove his viceroy to a less independent situation. Shortly before his death, he appointed him his successor to the throne of Macedonia, and Antipater was declared in the next year to be the successor of Alexander. He died in B.C. 323, and was succeeded by his son Demetrius in the command of a large body of Macedonian veterans who had earned their discharge; and commissioned him to assume the government of Macedonia, while Antipater retained command of the fleet. The account of the Macedonians' despotism which is given by the ancient historians is so inconsistent that it is not possible to judge what was the true state of affairs. The most probable account is that given by Polybius, who says that Demetrius, who was the successor of Antipater, was deposed by his son Cassander, and that Antipater was placed in command of the fleet. The report is current, but it is not corroborated by the best authorities, that Antipater, fearful of a like fate to that which had overtaken Parmenion, and others of his master's followers, administered poison to Alexander, by means of his son Cassander and Iolas, who held the office of cup-bearers.
We do not give credit to this story: but it is certain that Alexander did die at a critical time for the fortunes of Antipater, before Craterus had reached Greece. The late king's brother Archidæus, a bastard son of Philip, was raised to the throne by the Macedonians; and the army in Asia; and Perdiccas was appointed victor over the king, who was a young man of weak intellect, with the same sort of power as the Maiores du Palais exercised in old times in France towards the end of the Merovingian dynasty.

In the distribution of provinces among the chief officers of Alexander, to be held nominally in subordination to the Macedonian crown, though in fact, and speedily in name, combined into several independent kingdoms, Antipater was confirmed in the possession of Macedonia and the adjacent countries. He was soon provided with an army. The Athenians, impatient of the superiority of a nation whom they hardly acknowledged to be of pure Hellenic blood, had already made some preparations for war with Macedonia before the death of Alexander was fully known. A vote was passed, that the state would take charge of the common freedom of Greece, and liberate the cities held in check by Macedonian garrisons; a powerful armament was put in preparation, both by land and sea; and ambassadors were sent to invite all the people of Greece to join in the undertaking. Athens soon at the head of a confederacy included a hasty expedition against Thessaly, and almost all the Greeks north of the Isthmus, except the Boiotians; and of Peloponnesus, the Argians, Elisians, Messenians, and Sikyonians. Leosthenes, the Athenian, raised an army at Thermopylae, the celebrated pass commanding the entrance to the main land from the north. Antipater, drained of troops by Alexander's frequent demand of reinforcements, was unable to collect more than 12,000 foot and 600 horse, with which he was sent to take a place in the camp of Leosthenes, but which the Macedonians were defeated, somewhere between Pyle and the town of Lamia in Thessaly, to which Antipater retreated, meaning to abide a siege until assistance, for which he had sent to the court of Perdiccas. But after a month Leontatus, one of Alexander's generals who had obtained the satrapy of Asia, otherwise called Hellespontine Phrygia, was the first man who came to help Antipater. The Hellespont (Dodorus distinguishes these twice) broke up the siege and marched to meet Leontatus; a battle ensued, in which the Macedonians were beaten and their general killed. Meanwhile Antipater evacuated Lamia, and formed a junction with the Athenian army by Delphi, the meeting place he kept the field, though he dared not venture on another battle. But Craterus arrived from Asia with 12,500 veteran troops, which he placed under the command of Antipater; who, thus reinforced, found himself at the head of 25,000 foot and 1,000 horse. By the return home of a considerable part of their ill-disposed army, could only muster 28,000 men. An indecisive battle ensued, in which the excellence of their Thessalian phalanx, which had been appointed victor over the Macedonians, dropped off by degrees, and left the Athenians and the Macedonians, the most obstinate enemies of Macedonia, to secure their safety as they could. Antipater marched with his whole force against Athens; and the citizens, utterly unable to resist, sent Phocion and Demades to sue for peace. They obtained it upon easier terms than were always allowed in Greek warfare; for he only required two obnoxious persons, the orators Demosthenes and Hyperides, to be delivered up, and granted full security, alliance, yet the seven metics, on condition that a Macedonian garrison should be henceforth quartered in Munychia, to guard against a counter-revolution, and that a complete change should be made in the government. The success of the Macedonians, and the political power vested in a body of about 9000 citizens, who were possessed of property up to a certain amount. He removed a large number of the poorer class (apparently with the own consent) into Thrace, where lands were assigned them. Thus ended the Lamanian war, as it is called in the autumn of 332 B.C. The year after its commencement, Antipater returned to Macedonia.

The Macedonians were the only members of the confederacy who still held out. In the same autumn, Antipater and Craterus marched against them. They abandoned their undefensible towns; deposited their women and children in their rugged mountains; and collecting their able-bodied men, prepared to hold out in their fortresses, and in those cities which were capable of being maintained. In the first encounter the forces of Perdiccas sustained considerable loss; but the superiority of force by degrees overpowered the resistance of the Macedonians, shut up in the mountains, and exposed to the severity of a mountain winter, almost without shelter or food, except that which they won at the sword's point, were most reduced in number, when they were relieved by unexpected news from Asia.

For the proceedings in Asia after Alexander's death, we must refer to Perdiccas: it is enough here to state that the ambition of that general led him to aspire to be Alexander's successor in the throne of half the known world. One of his first steps was to rid himself of Antigonus, whose acuteness and activity he feared; but the latter, aspiring to the throne of Macedon, and apprised of the danger to which he, in common with others, was exposed, to check Perdiccas in time was more important than to punish the Macedonians, and consequently, after concluding a truce with Perdiccas, he met Perdiccas at Cilicia, and defeated and slain; while Antipater marched into Cilicia, to meet Perdiccas, having been slain in Egypt by Paphaligonia, by whom he was defeated and slain; while Antipater marched into Cilicia, to meet Perdiccas, having been slain in Egypt by Paphaligonia, and they Macedonians, after a short interval, elected Antipater to the office of regent, or protector. These transactions seem to have been in 320 B.C. and 318 B.C. and 317 B.C. and 316 B.C., as to the chronology. [See Antigonus.] In this new capacity he made a fresh distribution of the provinces: after which he returned to Macedonia, taking with him the king and queen, and the native of the Macedonians, might be removed from Munychia. Demades had always been on good terms with Antipater, till the Macedonian found, among the papers of Perdiccas, letters written by the orator, exhorting Perdiccas to conduct the war into Europe. The regent had never forgotten this; he excommunicated the orator, and the government of Demades, but merely made a signal to his ministers of punishment (καταστασθήσας τίς ταύς τῷ ἑρωτικόν), who put the ambassadors to death without further ceremony. Dying soon after, left the government to Polyperchon, one of the oldest of Alexander's surviving generals. He appointed his son Cassander to be chieftain,—a term originally meaning captain of a thousand men, but transferred by the Persians to some high officer at court, and adopted in that sense by Alexander, with many other of the Persian customs. Cassander, however, contested the possession of Macedonia with Polyperchon, and finally became master of the whole kingdom. The last advice which Antipater gave to his successors was, 'never to let a woman interfere in affairs of state.' This was expressly directed against Olympias, and her subsequent conduct fully proved the wisdom of it. Antipater died in the latter end of the year 321 B.C., but the state was confounded and a king was chosen, and leaving a character more or less stained by cruelties and excesses than most of the contenders for empire who sprang up after the death of Alexander. (Diódoros, book xvii., &c.)
When Caesar, during the celebrated siege of Alexandria, was himself besieged in his camp by the inhabitants of that city, Antipater came to his help, and found opportunity to be of great service to him. He was, on the contrary, and signed himself, Caesar, in return, obtained for him the citizenship of Rome, and appointed him to the administration of Judæa, which enjoyed tranquillity and prosperity under his care. He was politique, and shone by the brilliancy of his influence with Hyrcanus. The guilt of the crime was heightened by the ingratitude of the murderer, who had been indebted for his life to the man whom he poisoned, and had received other benefits at his hands. Antipater, whom the wrong was done in charge: Phasael, governor of Jerusalem, and the infamous Herod, king of the Jews.

These are the two most remarkable persons bearing the mark of anti-pathy, and it is one of common occurrence in ancient history. Moreri has articles upon eighteen.

ANTIPATER, L. CORLIUS, a Roman historian of the Second Punic War. [See CORLIUS.]

ANTIPATHY, (from the Greek ἀντίφαθα, compounded of ἀντί contrary, and φάθος feeling,) properly signifies an involuntary dislike or aversion entertained by an animate being for some sensible object. Thus a man may have an antipathy to particular smells or tastes—a turkey-cock to the stench of the herd. The animal is not conscious of the necessity or reason of its feeling. There is no doubt that many antipathies are natural, and do not arise from any accidental circumstance: such as the aversion in mankind to the tastes and smells of many drugs, and the love of pulse which makes many human diseases. Antipathies may, however, in many cases, be overcome by habit: as in the case of surgeons, who soon learn to conquer the disgust occasioned by the effluvia arising in the dissection of the human body. Some natural antipathies are given by which the rest of mankind would nauseate, as the Exquisitama, who live on whale blubber and train oil. When the Cossacks were in London and Paris, in 1816, they sometimes drank the whale oil from the lamps in the streets: probably an Exquisitama, and we should laugh at them, if we did not behold the draught which the Cossack considered as a luxury. It is moreover quite conceivable that individuals may have such physical peculiarities as will cause them to feel pain from impressions on the senses which, to the generality of mankind, are indifferent, or even pleasant: thus some persons are painfully affected by the smells of certain flowers or perfumes, which are commonly considered agreeable, and are sold as means of sensual enjoyment. Many antipathies, however, are not natural, but acquired, and arise from our associating certain objects with the idea of something terrible or dangerous. Thus people acquire antipathies to spiders, earwigs, wasps, snakes, rats, and other animals, from forming, in the minds of the observers, the idea of the animal of which they are afraid; and by encouraging such aversions, they may acquire so great sensitiveness and acuteness in distinguishing these animals by the smell, sight, or hearing, that they may be avoided or destroyed when they are mistaken for one of it. Persons may acquire antipathies to certain kinds of food by having been surfeited with them, or by having been accustomed to eat them for long periods of time, as under a medical regimen during an illness; or because they are made of substances which they consider as unclean, or because they are unwholesome, as being eaten by people whom they think less refined and delicate than themselves. This may not frequently be observed in persons of narrow and feeds, or children, and the effect is lost when the and children, whom such fanciful dislikes ought to be carefully but not harshly corrected. (See Locke’s Essay on the Understanding, b. ii. c. 33, § 7 and 8.)

Antipathy properly means, as we defined it, a dislike of an animate being for some sensible object. Its meaning, however, is sometimes improperly extended to inanimate beings—a phraseology now nearly obsolete, but which was much used by the ancient naturalists, who would, for example, have said that an alkali had an antipathy to an acid, or that water had an antipathy to oil. At other times the word is restricted to animate beings, and it is applied to things which are not objects of the senses. Thus it has been said that the alchemist had an antipathy to certain classes of actions; by which it is meant that it is endued with an innate faculty of distinguishing between right and wrong. (See Moral Sense.)

It is stated that antipathy is the contrary of sympathy; but this is not strictly true, at least as respects the use of those two words in modern language. Sympathy means joint sensibility, or the feeling of pain or pleasure in consequence of pain or pleasure felt by another sentient being. Antipathy, on the other hand, is the opposite of such sensibility, and signifies the dislike of one who feels delight in the same pursuits, amusements, or studies, as another, who would, in either case be said to sympathize with him. Sometimes sympathy is applied to the actions of a person who is under an illusion or delusion, c. c. Thus one eye is said to sympathize with the other, when an injury inflicted on one is felt by both. [See Sympathy.]

ANTI-PAXO. [See Paxo.]

ANTIPATHETIC TREATMENT, (from two Greek words, ἀντί against, and πάθος passion,) is the means of removing, or lessening, inflammation, and of obviating its effects. As it would be out of place here to consider fully either inflammation, or its causes, we shall merely state that these last are of two sorts:—first, those of a more general nature, as atmospheric changes operating on the body from without, or altered conditions of some of the organs or functions of the body, operating within, and influencing, more or less, the rest of the system. The effects of the first set of causes are, primarily, always local, but sooner or later become general, i. e., affect the whole system; the effects of the second set of causes may be, primarily, either local or general; but when local, having a much more temporary duration, than when general, seem to consist in an alteration of the vital action of the part, accompanied with pains, swelling, and increased heat and redness. The general effects are disturbance of various functions, such as respiration, secretion, exhalation, and nutrition, or assimilation; the heart's action, the respiration, and functions of the nervous system are also affected, but in different degrees and order in different cases. The change of the tissues of the part appears to produce a quickened movement of the blood in the extreme vessels, or capillaries, as they are termed, which are sometimes slightly contracted, though more commonly dilated, so that the blood presently begins to move more quickly along the vessels, and in the capillaries, as we may see in the white of the eye when inflamed. The blood, too, in the neighbouring capillaries, seems to incline towards the part, while the large arteries leading to it, and ultimately the heart, assume an increased action, which occasions greater frequency and, generally, force of pulse. The consequences of these alterations of the action of the vessels are, the effusion either of some of the constituents of the blood, as the serum, phlegm, or mucus, in their natural state, or their change into substances not found in blood, or any other fluid of the body, in its healthy state. These become the source of further change of structure, as suppuration, ulceration, &c., and the cause of disturbance in the functions of the system, as the result of the inflammation, its intensity, and other circumstances.

The means of preventing or moderating these constitute collectively the antiphlogistic treatment and regimen. We shall here only enumerate those which are more useful in the acute cases of inflammatory disease. Blood-letting.—We have just stated that one of the effects of inflammation is to produce effusion of the serum or lymph of the blood, the extent of which depends on the quantity of blood which goes to the parts affected. The processes of inflammation, in its earlier stages, may be very certainly restrained or arrested by diminishing that quantity. This is done by ablation of blood, either local or general. If the inflammation be allowed to proceed, suppuration, ulceration, &c., and other effects will ensue. Now ablation of blood, though it may prevent the extension of suppuration and ulceration to parts not yet affected, is rarely found effectual in check the formation of pus or matter, where that has been already established. We see then the necessity of the early employment of blood-letting, and the other antiphlogistic means, if we desire them to be productive of the greatest amount of benefit. The precautions and prevailing habits of the people are, however, generally in direct opposition to such beneficial measures; and too often timid practitioners allow their judgment to be overborne by the important request for delay or cessation of the blood-letting. Thus the time when these measures would have proved most serviceable is allowed to pass over; and when at last put into practice, their good effects not being so conspicuous, they are so not highly approved. Yet we would not have permitted blood-letting to be employed at an early stage, far from being useful, they are decidedly
hurtful. (See the case of a physician mentioned under the article Antistase.)

During inflammation of the gut, or cavities, i.e., those cases in which the cavity can not communicate with the external air, and which are lined with serous membranes, the disposition to effusion of much lymph, or the albumen of the blood, is greater than in other cases. To prevent this, mustard and cafeine are employed. Modern physicians have ascertained that mercury, especially in combination with opium, has a powerful influence, not only in preventing the effusion of lymph but in removing it. When a physician who requires the use of mercury, in its milder form, is not available, when, in the inflammation of the eye, called iritis, the pupil is filled up, and vision prevented by the lymph effused; yet this is speedily removed if a sufficient quantity of mercury be early introduced into the system. This, then, constitutes another valuable treatment.

Purgatives.—The quantity of blood in the system, and the amount of serum, may be greatly lessened by the use of purgative medicines, especially the salines purgatives, which generally produce very liquid motions, consisting of a large proportion of serum. These are not only proper, but constitute an essential part of the antiphlogistic treatment.

Nasoea, i.e., such doses of emetic medicines as occasion sudden nausea, are, in a great number of cases, very serviceable in reducing the action of the heart, and lessen the tendency to effusion, while they promote the absorption of the fluid already effused. They are, consequently, very useful auxiliary agents in subduing inflammatory attacks.

Diuretics. The quantity of blood may be diminished, and its economy lessened, by increasing the perspiration, or discharge from the skin, which in most cases of inflammation is lessened, and in some altogether suppressed. By this diminution or suppression of perspiration not only the structure of the body is retained in the system, but also those salts and acids which in a healthy state find an outlet by this channel. The means of increasing perspiration are termed diaphoretics, or sudorifics. These must seldom produce the desired effect, if there be much heat of surface, i.e., of the skin. This must previously be moderated by the use of the means already stated, viz., bleeding and purgatives, and also by the use of

Refrigerantia.—These consist of cooling drinks to be taken internally, and cold applications, as cloths dipped in iced water, or vinegar and water, or even ice itself, or evaporating lotions laid upon the part affected. The cold effusion is often very serviceable in reducing the temperature and producing curing sleep, during which a flow of perspiration, which frequently proves critical, is apt to occur. It is self-evident that no good can be expected to result from the use of any of these remedies. Under the same circumstances a certain quantity of blood circulates in the body, if we continue to supply the means of forming it as fast as we remove it. The diet of the patient is, therefore, a, we might almost say the, most important point in this treatment.

During inflammation, as stated above, the functions of secretion and exhalation, as well as of nutrition, are lessened or entirely suspended; there is, therefore, no means of consuming or disposing of the nutritious matter already contained in the blood. How incomparably then, and how absurd it is, if life be valued at all, to use means which greatly increase this? Persons do not die of inanition, or from the effects of the absolute privation of food, under many days or weeks, (see the two cases narrated under Antistase,) while thousands, millions, die of inflammatory diseases, in a period varying from a few days down to a few hours. At the beginning of all severe inflammations, there is a failure of the appetite; this inflammation in part of nature, overwatchful for the preservation of her works, cannot be slighted with impunity. Reason and experience strictly enjoin an immediate attention to the diet. Its quantity should be lessened, and in many cases, antiphlogistic drink should be substituted.

In respect to the reduction of quantity no limit need be placed at the commencement, as it can never be reduced too low; but during convalescence careful regulation of it is necessary, that it may not be insufficient on the one hand, or excessive on the other. Still there is much less likelihood of erring on the side of deficiency, than of excess. The vessels of the part being much weakened, are again easily distended, and the inflammatory process rendered much more troublesome. It must be remembered that he never observed a person having a relapse of fever where it has not been caused by eating animal food. It may be well to explain in what way animal food proves hurtful. During inflammation the use of the blood requires more frequent purification by exposure to the air in the lungs, or by expiration, not only is more frequent respiratory necessity, but also the heart's action is increased, so that the blood is propelled with greater frequency and force, and consequently the distillation of the blood is increased. The greater frequency of the respiration, occasioned by the greater demand for oxygen, during the use of animal food, is illustrated by the experience of the workmen in diving-halls, who require to breathe more frequently when living upon animal food and drinking spirituous liquors, than when living on vegetable food and drinking water. For this reason, the pearl-divers of Ceylon, who live exclusively on rice and other vegetables, can remain much longer under water than those who are reared to face to breathe, than any Europeans who live on a mixture of animal and vegetable food. Animal food and spiritual or fermented drinks must be strictly interdicted at the commencement of inflammation, and their use be avoided till the permission of the medical attendant be deliberately and voluntarily given: previous to which mild, farinaeous food, and diluent drinks, should constitute the only diet.

Rest.—A person suffering from inflammation requires less frequently than when in an upright position; the heart also pulsates less frequently. In every case of inflammation affecting the system generally, the patient should be confined to bed; and as there is mostly diminished power of the muscular and conjunctival surfaces, the air is rendered by the respiration of visitors. A supply of pure and cool air is requisite in all inflammatory complaints, but especially fevers, both for the benefit of the patient and the safety of others.

The repose of the mind is as essential as the rest of the body. All causes of anxiety should, when possible, be removed, and cheerful looks be put on before the patient, both by the physician and the attendants, in order that, as far as practicable, he may be inspired with confidence and entertain hopes of recovery.

This is a very brief outline of the means termed antiphlogistic, by which we attempt to restore both the part affected and the system generally, to the natural and healthy state, when labouring under an inflammatory attack. The special application will be given as each disease falls under notice, and we need not here do more than endeavour to impress upon every one a conviction of their importance. The circle of inflammatory attacks is more completely under the control of remedies than any other disease; and nevertheless, it is more or less concerned in producing a very large share of the mortality in every part of the world. (See Athanas. Quin. 8. 12.)

ANTIPHON, the son of Sophilus, and the eldest of the Athenian orators, who are generally known under the denomination of the 'ten,' belonged to Rhamnus, a demos or township of Athens, and was born about 4. 480 B.C., the year of the great victory over the Persians. He was a contemporary of the famous Gorgias who visited Athens, and somewhat younger than this sophist, but there is no distinct proof that he was his pupil, though it is sometimes asserted; nor are we told who was his master. In course of time he opened a school of rhetoric, and numbered among his pupils Thucydidcs, the historian of the Peloponnesian war, who, in a passage of his eighth book (chap. iv.), has commemorated the ingenuity and success of Antiphon in a completely trustworthy event in his life. The opinion that Thucyridcs was the master of Antiphon appears to us untenable. (See Van Spaan.) It was the profession of the orators to defend themselves in courts of justice, or wished to proceed against others, and also for those who had to address the public assemblies. According to tradition, he was the first who became a hired advocate of this description, though he merely wrote speeches, and never entered any except on one occasion, when he was himself concerned. According to several authorities, he is the eldest writer who composed speeches for the courts of justice; no speeches of this character but those by Thucydides (or Thukydidous, Photius, &c.) There is no distinct proof, that is satisfactory, of his being early engaged in public service.
the silence of Thucydides, as to all his life previous to the events related in his eighth book, proves that he was not engaged in any important military capacity, or that he was not in the society of the archon Eponymous, or chief archon of Athens (Ol. xc. 3, or c. 418) mentioned by Diodorus (xii). In the year B.C. 411, and in the latter part of the Peloponnesian war, a revolution was attempted by the Council of which the Hundred was abolished, and all political power was vested in a body of four hundred. [See Alcibiades, i. p. 279; Peloponnesian War.]

Antiphon, who never had come forward as a public man, did not show himself on this occasion, though he was the real author of the revolution, and Pisander, who appeared as spokesman, was merely his agent.

Shortly after this change, Antiphon and Phrynichus with ten others were sent to Lacedaemon to make peace on any terms that the Spartans might impose. The ten returned without effecting their object. Discontent grew stronger; Phrynichus was assassinated in the public place, a counter-revolution was immediately effected, and Alcibiades was recalled from exile. Immediately after the event, Antiphon, now seventy years of age, was tried for his life on a charge of treason to the state; he made, according to Thucydides, an admirable defence. His sentence (see the decree recorded by Cicero in the Life of Cato) was that he might be exiled, but he was condemned to death. Antiphon wrote a treatise on Rhetoric, which is lost.

Sixty orations were once extant under the name of Antiphon, but Cicero considered twenty-five of them to be spurious. At present there are fifteen extant, three of which are on subjects which were matters of judicial investigation, and are well worth reading. The other twelve are digressions, or forms of speaking on the same subject; they are merely rhetorical exercises, such as those to which Cicero alludes when speaking of Antiphon. (Brutus, chap. xii. 6.) The language of this writer is rough and the style does not appear to merit the praise bestowed on it by some of the Greek critics. The orations of Antiphon are in the seventh volume of Reiske's collection, and in the first of Bekker's edition of the Orators. They are also in Dobson's collection, vol. i., with Van Spaan's Dissertation, &c. The text of Bekker is the best.

ANTIPHORIC, ANTIPHONARY, in music, the book wherein the antiphonias were written. (See Antiphon.) By an order of Archbishop Chicheley, made in 1305, every church in the province of Canterbury was obliged to furnish with an antiphonary, among other equally expensive books; and Spelman states, that in 1424 two antiphonaries cost the little monastery of Crabhouse, in Norfolk, twenty-six marks, which he says was equal to 52L, according to the value of money in his time. We may, therefore, calculate the expense of a single one not less than from 60L to 70L by our present money. ANTIPHONY, in music, (Latin, antiphonare, singing) the antient name for a kind of anthem, the verses of which were chanted by each side of the choir, alternately.

The fathers of the church pretend that the method of antiphony was invented by the Jews, and that they revealed it to the Greeks. St. Ambrose introduced it in the western churches about the year 374. The chanting of the psalms in our cathedrals is a close imitation of the system of the antiphoners.

ANTIPODES, a term from the Greek, meaning literally those who stand feet to feet, as is the case with the inhabitants of two opposite points of the globe. Previous to the invention of the globe, it was impossible to ascertain the exact position of the earth, and during the centuries of discussion which took place upon this point, the existence of antipodes was the theme of constant ridicule in the mouths of the opposers of the globular figure. The sentiments of Lactantius, De Falso Sophistam, 217, may be taken as specimens of the common objections. He asks, 'Is there any one foolish enough to think, that there are men whose feet are higher than their heads? with whom those things that we place upon the earth are raised above the earth itself? Is there any person who can imagine that the skies are turned upside down, and rain and snow falling the wrong way? Will any one henceforward place the hanging gardens among the seven wonders of the world, when the philosophers make hanging seas, and fields, and cities, and mountains? The consolations of the philosophers have no place between the words upwards and downwards will be now universally apparent, but was not so in the time of Lactantius, who lived ad. 311; who, had he simply confined himself to the assertion, that the existence of antipodes could not be demonstrated, and treated it as a philosophical speculation, possibly true, but probably false, would have been justified by the general state of knowledge then existing. But not so when he endeavours to prove that they do in fact exist; he appeals to the authority of the ancients, and promises that he sees no alternative, but supposing its defenders to be either joking, or intentionally lying. The French Encyclopaedia is incorrect in stating that he appeals to the sacred writers as deciding the point.

Two or three MSS. declare, that in the same number of degrees of latitude, one north and the other south, unless one of the points be on the equator, in which case the antipodal point is the opposite point of the equator. Their longitude differs by 1800 or 12 hours, if we reckon longitude from 00 to 3600 east or west, and from 00 to 1800 east or west. When therefore we set off in opposite columns, the names of a few places which are nearly antipodal.

<table>
<thead>
<tr>
<th>London</th>
<th>Antipodes Island, S.E. of New Zealand</th>
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<tbody>
<tr>
<td>Nertchansk</td>
<td>Falkland Islands</td>
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<td>Nankin</td>
<td>Buenos Ayres</td>
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<td>Mouths of the Amazon</td>
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<td>Bermudas</td>
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<td>Azoars</td>
<td>Botany Bay</td>
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<tr>
<td>Baia</td>
<td>Swabian River</td>
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Antipodal places have the same climate, so far as that depends merely on latitude, but have all the seasons, days and nights completely reversed. Thus, noon of the longest day in the south is the midday of the most winter day at the newly discovered Antipodes in the middle of the Southern Ocean. These are in 37' south latitude, and 133' east longitude. When therefore we set off in opposite columns, the names of a few places which are nearly antipodal.

When it is noon at any one place, it is midnight at the antipodes, and sunrise and sunset are reversed in the same manner. But we may ask, when it is noon on Friday at London, is it Friday night or Thursday night at Antipodes Island? There is no rule to determine this; we might call it either one or the other with perfect consistency. If two travellers were to set out from London for Antipodes Island, one of whom should go eastward through Europe and Asia, and the other westward through America, whatever time they might respectively take for the voyage, they would not agree in naming the day of their meeting. If they meet at the moment when Saturday morning begins at London, that is, at midnight between Friday and Saturday, in which case it will be noon at Antipodes Island, the eastern traveller will call it Saturday, the western on Friday. According to this reasoning the traveller who goes east, sets out to meet the sun in the morning, and will therefore have that luminary on the meridian (that is, he will have noon) sooner than if he had remained stationary. He therefore shorten his day a short time. If he consider the whole time that is a larger proportion of the interval between two noons, and by thus gaining a 12 1/2 hours, he is 12 hours before London when he reaches the antipodes. The western traveller, on the contrary, turns back on the sun in the morning, which is therefore on his meridian later than it
would have been had he remained stationary. Before he reaches the antipodes, he has lost twelve hours; but the other traveller has gained as much. which together makes a whole day's difference in their reckoning. The reader who examines this question will find that the day always beginning at noon or midnight, it is impossible that the whole world should have the same reckoning. We see, therefore, that the reckoning of a place will depend upon the direction of the traveller. If one who should afterwards join them from the contrary direction would differ from them by a day. Thus, when Dampier reached Mindanao from the east, he was a whole day behind the ship. But with improved instruments and travel from the east. And Vareninus, a Dutch physician, who travelled in the east about A.D. 1670, states that the Portuguese at Macao were always a day in advance in the Southern Hemisphere. In the Philippines, the fact was, that the Portuguese came by the Cape and India, and the Spaniards from their American possessions.

Before we conclude this article, we must remark that it would be useful in teaching geography, if the maps of the southern hemisphere had the northern hemisphere drawn upon them in faint outline, reversed, in such a way that any one might perceive, at a glance, to what point of the northern hemisphere any point in the southern is antipodal. There is one fact which is insisted upon, that such an addition would not crowd any part of the map too much.

ANTIQUARIES, SOCIETY OF. Mr. Gough, in the introduction to the Archæologos, states what he considers to have been the earliest foundation of the Society of Antiquaries to the fourteenth year of the reign of Queen Elizabeth, A.D. 1572; when a few eminent scholars, under the auspices of Archdeacon Paul, Sir Robert Cotton, united their efforts for the preservation of the ancient monuments of their country. The members met for near twenty years at the house of Sir Robert Cotton, and as early as 1549 determined to apply to Queen Elizabeth for a charter of incorporation; a project inspired by the example of the Harleian Society (Titus, b. v. fol. 184) preserves the reasons which were urged at this time in support of the petition. But whether the petition was ever presented, or what was its success, does not appear. The writer of the life of Carew, the Cornish antiquary, says, their hopes were frustrated by the queen's death. This society, however, admitted members till 1604; about which time King James I, alarmed for the arcana of his government, and as Burke conceived for theEstablished church, thought fit to dissolve it. An attempt to revive the society was made in 1617, in an application for a charter, through the Marquis of Buckingham; but this also appears to have failed.

From this time to the beginning of the eighteenth century the society ceased to exist; or as Mr. Gough expresses it, remained in abeyance.

In 1707, a number of gentlemen, attached in a similar manner to the study of national antiquities, agreed to meet weekly for the same purposes as the former society, on a Friday evening, at the Bear tavern in the Strand. Among these were Humphrey Wanley; Mr. John Talman, John Bagford; Peter Le Neve, Norrey; Mr. Holmes, the keeper of the Tower records; Madox, the Exchequer antiquary, Mr. Batley; Mr. William Elstob; Stebbing, the editor of Sandford's Genealogical History; and Mr. Sanderson, clerk of the Rolls. Le Neve was at this time president. In 1708 they removed their meetings to the Young Devil tavern, in Fleet-street, and soon after to the Fountain tavern over against Chancery-lane. Here they were joined by Samuel and Richard Gale, Dr. William Stukeley, Mr. Browne, Mr. Willis, and Austin. The plan of their pursuits, comprising every thing which such a body of men might be expected to do for the illustration of their national antiquities, appears to have been drawn out for them by Humphrey Wanley.

In 1717 the members of the society, under the subscription of their society, and made their first election of officers; Peter Le Neve, Esq., was president, Dr. William Stukeley, secretary, Mr. Samuel Gale, treasurer, and Mr. John Talman, director. This question of the constitution, the eminence, became an active member. The number of members was limited to a hundred, and no honorary members were allowed. The minutes of the society begin January 1, 1718; which appears to have been the day set apart in the society as a national day, in order to be present, brought from time to time whatever they had of their own, or their friends,' that was curious or uncommon: as coins, medals, seals, intaglios, cameos, manuscripts, records, rolls, genealogies, pictures, drawings, printed books, extracta, or even memoranda; a few produced dissertations. In 1757 the society removed to apartments in Gray's-inn, and afterwards to the Temple. And for a very short period, seemed to decline. In 1728, however, they renewed their meetings at the Mitre tavern in Fleet-street, fixing them to Thursday evenings, after the Royal Society. In 1756, the society removed from the tavern to a house of their own in Chancery-lane.

In 1750, it was unanimously resolved to petition the king for a charter of incorporation on the plan formed in 1717, with improvements. But it was not without some opposition from Hardwicke, then lord chancellor, was obtained in the following year, when his majesty having declared himself 'Founder and Patron,' the society became incorporated by the name of Antiquaries of London; they were empowered to have a body of statutes and a common seal, and to hold in perpetuity lands, &c., to the yearly value of 1000l. The council to consist of twenty-one persons, including the president, to be elected yearly with the other officers. The first council named in the charter, bearing date November 2, 1751, pursuant to the powers therein given them, re-elected as members the other persons not particularly specified. In 1754 the society removed to Somerset-place, where, in 1751 the society removed from Chancery-lane to Somerset-place, where his majesty King George III. had been graciously pleased to grant them, as well as to the Royal Society. In 1756 the society held its first meeting there on January the 11th that year.

The anniversary of the society is held on the 23rd of April, when ten of the twenty-one persons elected by the council consist are annually changed. The election of members is by ballot; a certificate having been signed by three or more fellows, is previously exhibited for six successive meetings (including those of proposition and election), except in the cases of persons of the publick character, who may be proposed by a single member, and balloted for upon the same evening. The election is determined by a majority of two-thirds. Every member pays an admission fee of eight guineas, and four guineas a year; or an additional sum of forty guineas to the admission fee, to be constituted a member for life. The society's meetings are held on Thursdays from seven o'clock in the evening till nine, in the hall adjoining the Royal Society, in the front building of Somerset-place. The Royal Society's meetings succeed those of the Antiquaries on the same evenings; and the sessions of the two societies coincide as far as is practicable. No business begins with the society on Tuesday in November, and ending with the third Thursday in June. The number of members of the Society of Antiquaries, A.D. 1653, is 735. The presidents, since the incorporation of the society by charter, have been:—1731, Martin Folkes, Esq. 1755, Hugh Lord Willoughby, of Parham; 1765, Charles Lyttelton, LL.D., Bishop of Carlisle; 1786, Jeremiah Milles, D.D., Dean of Exeter; 1784, Edward King, Esq. (temporarily elected by the council); 1784, George Ferrar Townshend, Baron de Ferrars of Chartley, afterwards Earl of Leicester and Marquis Townshend; 1812, Sir H. Charles Englefield, Bart. (temporarily elected by the council); 1813, George Earl of Aberdeen, who is still president. By an act of parliament of 4. v. chap. 39, the President of the Society of Antiquaries for the time being is declared to be an official trustee of the British Museum.

The publications of this society as a body have been:—1. Vetusta Monimenta; 4 vols. folio, London, 1746-56, completed; and vol. vi., commencing with seventeen coloured plates of the Baieux tapestry. 2. Five Dissertations: one on Doomsday Book, and one on Danegeld, by P. C. Webb, Esq.: two on the Heredial Table, by Mr. Webb and Dr. Pettigrew; one on the Monuments of Portugal, by Dr. Pettigrew: quarto, 1756-63. 3. Folkes's Tables of English Silver and Gold Coins, with plates, quarto, Lond., 1763. 4. Archaeologia: or Miscellaneous Tracts relating to Antiquity, 25 vols., quarto, London, 1779-1801. 5. British Antiquitates, collected and published by J. Rotuliators Garderobe, anno regis Edwarii primi vicecomitatus octavo. A.D. 1299, 1300 (from a MS. in the society's possession), quarto, Lond., 1788. 6. A Collection of Ornaments and Devices for Engravers, with plates and designs, in Household, made in divers realms, from King Edward III. to King William and Queen Mary, quarto, Lond., 1799.
7. The Military Antiquities of the Romans in Britain, by the late Major General Roy accompanied with Maps, Plans of the Cathedrals, &c., &c., &c. L. 12s. 1763. 8. Account of the Collegiate Chapel of St. Stephen at Westmin¬
tester, by John Topham, Esq., folio, 1795, with additional Plates, described by Sir H. C. Englefield, folio, 1811. 9. Account of the Cathedral of Durham, and Caerleon, by Dean Lyttelton and Sir H. C. Englefield, folio, 1797. 10. Account of the Abbey Church of Bath, with Plans, &c., folio. 11. Some Account of the Cathedrals at Durham, folio, 1801. 12. Some Account of the Monuments of England, and Scenery, by Benj. Thore, F.S.A., octavo, London, 1832. This last work is the first of a series of publications of Anglo-Saxon and early English literary remains, intended to be edited under the superintendence of a committee of the Society, Layman’s Translation of Wace’s Chanson de Brut, to be edited by Sir Frederick Madden, in two volumes, will form the second work of the series.

Besides the works above-mentioned, the society has published in two volumes, of large size, accompanied by five historical dissertations. The prints are, 1. Le Champ de Drag D’Or; or, the Royal Interview of Henry VIII. and Francis I between Guises and Arwa, A.D. 1529. 2. Francis I, King of France, in his Way to the Wall at Pavia, 1525. 3. The Execution of Henry VIII. at Dover, 1532. 4. The Procession of King Edward VI, from the Tower to Westminster. 5. The Departure of King Henry VIII. from Calais, July 25, 1544. 6. The of King Henry VIII. at Harwich, July 14, 1544. 7. The Siege of Bowlogne by King Henry VIII. 1544. Also two sets of historical, and some miscellaneous prints, (including Agam’s Plan of London,) engraved by Mr. George Vertue, now the property of the Society; with a portrait of Sir John Harington, and four views of the landscapes at Stanton Harcourt in Oxfordshire, drawn and etched by Simon Ewel Harcourt.

ANTICUE, (from the Latin anticius, antient,) a term understood in general to designate ‘ancient works of art.’ But this definition may be objected to as not sufficiently precise (see Ancients). The term properly refers to works of Greek art in sculpture, bas-relief, engraving of gems, medals, &c. As these arts flourished in the states of Greece, and also under the Roman Empire, (though most probably they were always successfully cultivated chiefly by Greeks,) it is not possible to find any precise chronological limits that shall determine whether a work of art belongs to the Greek or Roman style, as there is always a great and progressive deterioration in the arts above alluded to, until in more recent times they have been again improved, it is clear that many works of considerable antiquity belong under the term antiques as we understand, in general, works that have been made, and may serve as models for imitation; or they are at least works of art that serve to illustrate and explain those ancient authors whose writings, by common consent, are allowed to be deserving of study.

ANTIQUE, a term used to signify a work of ancient art. The term seems not to have its meaning very accurately fixed in our language. It is sometimes used as synonymous with antiquities; but generally it has a wider signification. Books that treat of Greek and Roman antiquities, to which the term is commonly confined, treat not only of works of art, but of political constitutions, judicial and legislative forms, religion, architecture, domestic manners, naval and military affairs, weights and measures, mode of reckoning time, &c. Some of these branches of inquiry are capable of illustration, both from ancient writings that remain, and from existing works of ancient art; some can only be known to us from the study of ancient writings. This extensive signification of the word antiquities, though certainly not very precise, still keeps up a distinction between antiquities, as thus understood, and the remains of the Greek and Roman, and the study of the Greek and Roman languages. Yet we think the common use of the word antiquities in this country is a bad one, and we should prefer seeing it limited more closely.

The study of antiquity is generally understood to mean the study of all that belongs to the Greeks and Romans, of all the knowledge concerning them that has been transmitted to our times: the word philology is used in this sense in Germany. Under the general term antiquity, we now use, we understand, that which is ancient, that which it comprehends; such as ancient forms of policy, ancient systems of philosophy, of astronomy, with political history, ancient architecture, sculpture, poetry, &c. &c.

With a knowledge of the durable memorials which man has left behind him in various parts of the earth, we have applied the term antiquities to the monumental remains and to the works of art of numerous nations. We now speak of Egyptian, Persian, Hindoo, Turkish, and Roman antiquities. When referring to the works of art existing in these countries, or collected in European museums. The terms Egyptian and Hindoo antiquities, when not specially used with reference to the works of art of ancient nations, such as history, mythology, &c. But unless some qualifying word is prefixed to the term antiquities, we generally understand by it, Greek and Roman antiquities.

ANTIOCHU. [See Ancient and Antiquities.] ANTIS. A portico is said to be in antis when columns stand in a line, in front, with the ante or projecting ends of the side walls of the temple or other building. In the plan of the temple of Aegina [see Aegina] the external portico formed the external walls of the temple and was surrounded by columns upon which the entablature and pediments rested. This portico is called a peristyle. ANTIS/SCI/11, an old astronomical term derived from the Greek, signifying those whose shadows are in opposite directions. It is applicable, during part of the year, to any two zodiacal signs, particularly the signs of Antigonus and Sagittarius, and during the whole year, to any two persons, neither of whom lives within the tropics, and both in different hemispheres.

ANTISCORBUTICS, from ant, against, and scorbutus, a barbarous word, intended as the Latin for scurvy: the remedies, real or reputed, against scurvy. The term scurvy is popularly, but incorrectly, given to two distinct diseases, which arise under different circumstances, spring from different causes, and are cured by means not only unlike, but diametrically opposite. The confusion has crept in owing to the skin in true scurvy occasionally, but by no means invariably, peeling off in scales or scurf; while in the other disease, improperly termed scurvy, desquamation, or other affection of the skin, is an essential and invariable symptom, the portion or scale of which being commonly called scurf, the adjective scurfy has insensibly come to be used as synonymous with scurvy. The former or true scurvy is always connected with a peculiar constitution. The necessity of making this distinction is manifest, since the remedies for the one disease are few and certainly efficacious, the medicines for the other are multifarious and generally very inefficacious; the circumstance points out an essential difference between the two disorders; and it is of the means of curing the former of these that we here chiefly intend to speak, adding only a few remarks upon those for the latter.

The importance of the naval force to the safety, commerce, and maritime strength of the country, would justify a very lengthened inquiry into the causes of this disease and the means of prevention and cure, if it now prevailed among seamen to the extent that it once did, and if it still continued to impair the strength of the main bulwark of our national defence. The almost total eradication of this malady, however, renders such investigation altogether unnecessary, further than as a subject of interesting and instructive contemplation.

Of the degree to which this complaint existed a few instances will serve as proofs. In 1593, Admiral Hawkins is stated to have lost at sea 10,000 men who had fallen sick of scurvy, and Commodore Anson, in the course of his voyage round the world, lost above four-fifths of his men, and when he arrived at Juan Fernandez, of the two hundred men then surviving, they were driven to the verge of dying by the cases which had begun to fall off, and by the height at which the island was left without a single hand to guide it through the waters. This happened
in the case of the Spanish ship Orifamna, in which the whole crew perished, and in this state she was discovered with the dead bodies on board.

As a means of contrast it may be stated that, in the year 1780, there was a pestilence at the Royal Haslar Hospital at Portsmouth, under the care of the physicians, 6143 cases of disease, of which scurvy formed 1457; while, during four years, namely, 1806, 1807, 1808, and 1809, into the Royal Naval Hospital at Plymouth, there were admitted under the care of the physicians 30,000 cases of disease, of which two only were scurvy. During nine years of warfare, namely, between 1778 and 1795, the number of men voted by parliament for the naval service was 74,000; of those, 1810, or 2.45 per cent., were sick or disabled, of whom 2689, or 3.6 per cent., were men affected with scurvy, were sent sick to hospitals or on shore; while, during nine consecutive years of warfare, namely, from 1796 to 1806, the number of men voted for the naval service was 1,023,076, of whom there were sent sick only 123,949, a difference mainly owing to the disappearance of scurvy.

Let us inquire what were those causes which produced this dreadful disease, and formerly rendered it so frequent; and what are the circumstances which have contributed to its abatement or disappearance, and which now secure to our seamen so gratifying an immunity from it. Before doing this, it will be proper to detail the symptoms of the disease. Under the influence of the consuming causes, an individual began to lose his natural and healthy colour: the skin, first of the face, and afterwards of the rest of the body, became pale, and assumed a bloated appearance; the lips, instead of being red and well formed, were white and puckered; the countenance in this disease is always very much depressed, indicating a corresponding state of mind. The patient is conscious of weariness, and is averse to exertion; and when that of a bodily kind is attended with a languid and apathetic state of mind. It is seen by the weakness of the knees (which often become stiff and contracted) and of the whole muscular system, greatly increased frequency of breathing following the least effort. The skin is clear and smooth; the gums are swollen; the ulcers or any sores, cuts or scratches, blisters; these are seen to be healed or healed; even old ulcers break out anew, and broken limbs, apparently firmly united, separate again, and cannot be reunited so long as the disorder continues. The blood when drawn scarcely congeals, but remains loose and flabby; yet during the whole of this state the appetite generally continues good. These symptoms all denote great debility, which is occasioned by a peculiar alienation of the blood, and is produced by the causes we have now to mention.

One of the most extensive and powerful causes of debility is constant exposure to a cold and damp atmosphere. The seamen in accordance with the custom of the service, during the voyage, were continually exposed to the operation of this cause, which was further aided by the unwholesome exhalations from the bilge-water, the sand used for ballast, and the remains of animal and vegetable matter which were strewed about the ship; no means of removing or lessening these causes existed, from the utter absence or imperfect nature of the means of ventilating the ship, or washing it, without increasing the dampness. The sailors were also very inattentive to the necessity of the coats being cleaned and aired, and were too insensible of the advantage of changing their dress when wet, and were also without the opportunity of changing or washing and airing their bedding. The measures adopted in the course of this second voyage round the world, were very similar to those since universally pursued. Out of 318 men, during a voyage of three years and eighteen days, throughout all climates, from the coldest degree of cold to the hottest, scurvy has almost never occurred; it may be lost only once. For this, in the year 1776, he received from the Royal Society the Copley medal. (See Kippis's Life of Cook, 1788, p. 515.)

By the change effected by Sir Robert Seppings in the construction of the ship, and the substitution of iron instead of sand for ballast, and of iron tanks instead of casks for water; by the efficient means he has devised for ventilating the ship, without exposing the persons of the sailors to cold; and by the nutritious provision of fresh and wholesome food, the body is fortified against the deleterious influences of a certain quantity of spirits, which is withdrawn. This has
the effect of almost invariably preventing scurvy affecting any of the crew; but should symptoms of the disease begin to show themselves, they quickly disappear by an increase of the quantity of lemon-juice. Citric-acid, which has been crystallized and again dissolved in water, does not so effectually prevent scurvy as any other vegetable acid, such as tartaric, or malic, so useful, though the fruits containing them (unripe gooseberries, tamarinds) are the best substitutes for lemons, when these cannot be procured.

In the opinion of some men of science, it has been attempted to explain how these vegetable acids produce their beneficial effects. It may be remarked, however, that all acid fruits have a very cooling and soothing effect in many complaints; they are among the most efficacious refrigerants which sit on the stomach and restore its power, when in a very irritable or weakened state. This is particularly the case where the powers of the stomach and nervous system have been much impaired by indigestion, especially from the abuse of spirituous liquors, in which tartaric acid is ominously serviceable; even during a fit of intoxication, a draught of vinegar will restore the drunken man to his senses more speedily than any other means. These acids appear to exert a very considerable vital action on the system generally, but especially on the nervous centres. Further, lemon-juice and vinegar exercise a chemical influence on many articles of food difficult of digestion, as veal; hence the practice of serving these文章中未包含数据。
sition of a part of the whole. Partial decomposition occurs when a limb or other part of the body has been the seat of such violent inflammatory action that its structure is changed, and its vitality destroyed, so that it sloughs, as it is technically called, that is, becomes dead: complete decomposition occurs when the vital principle quits the entire frame, i.e. when death of the whole body takes place, and putrefaction begins. Putrefaction itself, however, does not always hinder the commencement of putrefaction, as we see the tendency to it manifested in the worst kinds of fevers several days before dissolution: on this account there is often putreferred matter in the discharges of the natural or putrefied principle. Complication of putrefaction, however, does not always hinder the commencement of putrefaction, as we see the tendency to it manifested in the worst kinds of fevers several days before dissolution: on this account there is often putreferred matter in the discharges of the natural or putrefied principle. Complication of putrefaction, however, does not always hinder the commencement of putrefaction, as we see the tendency to it manifested in the worst kinds of fevers several days before dissolution: on this account there is often putreferred matter in the discharges of the natural or putrefied principle. Complication of putrefaction, however, does not always hinder the commencement of putrefaction, as we see the tendency to it manifested in the worst kinds of fevers several days before dissolution: on this account there is often putreferred matter in the discharges of the natural or putrefied principle.

Nay, we afterwards found that a tenth part of a cubic inch in 20,000 volumes of air had nearly the same effects. Dr. Turner and Christison, in Breucker's Journal, vol. viii. p. 145.

These are principles with the chemical qualities of which we are well acquainted, and the sources of which we can easily ascertain, and often remove; but there exist others, of the nature of which we have no idea, and with which, though their effects are very conspicuous: such are the exhalations from decaying vegetable matter, termed marsh miasmata, or malaria, and the exhalations from the bodies of men and animals, when crowded together from that of men labouring under certain diseases, as fever, typhus fever, the matter of contagion, or from dead animal matter, in a state of putrefaction, termed putrid effluvia. These are the fertile sources of fevers, whatever their form, type, or appellation; and though it is true that the putrefaction of vegetable matter is always of an intermittent or remittent character, yet they often assume the continued form (see Ague); while the effluvia from animal matter mostly give rise to fevers of a continued and typhoid character.

What the precise nature of this deleterious principle is cannot be stated, but whatever it be, when received in sufficient quantity into the human system, it seems to act as a ferment or yeast, and produces a series of changes, the ultimate object of which is to reduce the body attacked to a state of putrefaction. We have no test of its presence beyond its effects, but we know the sources whence it springs, and how to obviate it. The system of medical chemistry is only a practical application of a general law of nature. Long-continued calms, in which there is a stagnation of the air, and during which fresh and pure particles of the atmospheric principles do not descend from the higher regions to react and combine, and contribute to the circulation of the surface of the earth, conduces much to the concentration and virulence of these agents. For several weeks before the plague broke out in London, in 1665, there was an unbroken and uninterrupted circulation of fresh particles of air to turn a vane. At the season in which the last plague visited Vienna there had been no wind for three months. To produce agitation in the air, fires were formerly lighted, and pieces of artillery discharged, means altogether insufficient to cause a considerable disturbance in the atmosphere at large, though a fire is extremely serviceable in renewing the air of apartments in houses: the only means adequate to this end are beyond our control, though the winds are the only natural agency by which they frequent those regions of the atmosphere, and the balance of the constituent elements of the atmosphere is maintained. But by a preponderance of the members of either of these kingdoms, an excess of the one principle and a deficiency of the other, which, when there is a large assemblage of men, the air is less fit for respiration, as happens in close apartments: the most melancholy example of this is to be found in the narrative of the Black Hole at Calcutta; of one hundred and forty-six persons confined in this dreadful place, one hundred and twenty-three perished during one night. Trees crowded together in plantations suffer more from deficiency of carbonic acid and oxygen, both of which are required for respiration, than from deficient nutriment by the roots—a fact of which proprietors and managers of timber-plantations are either not aware, or at least they neglect the practice to which it should lead. It may be remarked by every one that is acquainted with our decayed and uninhabited places, hospitals, and sick-rooms. The evils of neglecting this salutary measure contrast strikingly with the beneficial consequences of attending to it. It is remarked by Dr. Maclean, in his Essay on the Atmosphere, that while the inhabitants had no shelter but huts of the most simple construction, which afforded free passage for currents of air, they were not subject to fevers; but when, through the good intentions of the proprietors, such habitations were provided as seemed more comfortable and commodious, but which afforded recesses for stagnating air and impurities, which they had not the means, or had not a sufficient love of cleanliness, to remove, fcube infection was generally the consequence. This, though the air was diluted with 10,000 parts of air, destroyed the whole vegetation of a plant of considerable size in less than two days.
pitil-fevers, from their infesting these places: the survivors of the night in the Black Hole of Calcutta were, almost without a single exception, attacked by fever; and the unhappy victims of this disease, which may have been due in a large part to the exposure of the inhabitants or patients over a larger space; enhancing cleanliness of the apartments and of their persons, and freely ventilating every room. Formerly, in the hospital at Leeds, no patient suffering from compound fracture or other severe injury survived for more than forty-eight days; but this was afterwards much improved. One of the most convincing proofs of the different influence of foul and pure air is to be found in the Report of the Lying-in Hospital of Dublin. In the space of four years, every infant of a limited range was either dead or dying, and children out of 7650. But after freer ventilation, the deaths in the same period of time, and in a like number of children, amounted only to 279. Attention to this point will prove a prevention from numerous causes of disease. The annual mortality of Manchester in 1757 was 1 in 25, and in 1770, 1 in 28; but in 1811 it was 1 in 74, a change mainly attributable to the improvements in ventilation effected by Drs. Percival and Furnival, and the mud which remains after it has evaporated, marshes and places occasionally overflowed, emit exhalations not less noxious than those from decaying animal matter, or the bodies of human beings. These are the cases of rural and parochial districts. In general habitations, to the north and south, in the valleys of the Seine, and in the towns of the north of France, they rise to the height of fever-against. There are rapid in the air, and generally fatal in their close: in colder countries they produce continued remittent and intermittent fevers. These exhalations are always less hurtful in proportion to the activity of the vegetation. The inhabitants of the part of that town of Batavia which is nearest the mud and slime left by the tide suffer more from fevers than in other parts. The air is fresher than these are. In the marshes of Ankh, a great number of different kinds of grasses, rushes, &c., grow, and the spaces between these plants are covered with large quantities of the Plantago maritima, the leaves of which float on the surface of the water, and absorb a great quantity of the noxious vapours as fast as they are exhaled, and change them, by the aid of the sun's rays, into respirable air. This change is effected by the pista more than by any other plant; for it is known from experiments to be so powerful a preventive of decomposition of stagnant water, that if fishes be put into a small quantity of water, in which they would otherwise perish in a course of a few days, they may be preserved in a healthy state by cohabiting with this singular plant. The utility of a piece of moss introduced into the vase where gold fishes are kept is well known; and the lemma or duckweed, and other plants which cover the surface of stagnant water, render the air more salubrious. In Batavia, which was formerly termed antiseptics are either tonics or refrigerants: of which cinchon bark may serve as an example of the first class, and the mineral and vegetable acids, as dilute sulphuric acid, and tartaric acid or citric acid of the second. Tonic antiseptics cannot be employed with propriety or safety at the beginning of fevers or inflammatory complaints, but in many diseases a period arrives when they may be usefully administered. The period when their employment becomes safe requires the nicest discrimination on the part of the medical attendant; and too numerous are the instances where their premature employment has redounded the disease which might otherwise speedily have been cured. The refrigerant antiseptics are employed to free them at an earlier period in those diseases which we know to have a great tendency to lead rapidly to the death of some part; such as in the malignant or putrid sore-throat of scarlet fever, or in the putrid enteritis, and typhus fever, which is brought on by the air here, which the pista does to that about Batavia. Where marshes cannot be drained, the planting them with marsh and aquatic plants, and such trees as elders and poplars, is the best mode of mitigating the evils which result from them. The beneficial effects of draining and forming under-ground sewers are shown in the perfect immunity which London enjoys from ague as an epidemic, contrasted with former times. Dr. Cains, the most eminent physician in India at that period, states, that the mortality of London from ague in 1558 was such, that the living could hardly bury the dead.

When these natural means of preventing animal and vegetable exhalations cannot be employed, we must have recourse to artificial means of discerning them of their potency. Of the measures formerly resorted to for this purpose, some were useless, while others were hurtful to the sick, and could not be produced without the removal of the patients, which can rarely be accomplished. All of them, in point of efficacy and facility of application, fall short of two agents, which bid fair to render every other superfluous: these are the chlorides of soda and muriatic acid, which are in solutions chlorous, and when combined with the bases in such a way as to be susceptible of decomposition, and is evolved with more or less rapidity according to the ingredients or impurities it meets with in the air. The most common of these impurities being salts, which are inhaled both with the respiration of living animals, and by the decomposition of their bodies when dead. Another product of putrid animal matter is ammoniacal gas, which generally unites with the carbonic acid, and forms carbonate of ammonia, the presence of which is generally marked by musty and offensive odour, and the urine decomposes ammoniacal gas by abstracting the hydrogen from the nitrogen, and forming hydro-chloric or muriatic acid. One example of its beneficial action will prove its utility. Air was passed through blood, which had been left in vials for eight days, by means of the solution of the chloride of lime, carbonate of lime was deposited, and the air was rendered inodorous and completely purified. These agents can only be productive of benefit within a limited range, and can be applied only in cases in which the air has previously taken food. We did successfully to purify the air of hospitals, sick-rooms, &c.

Quick-lime, or charcoal recently prepared, has been employed to absorb fetid and noxious exhalations, and though inferior to the chlorides, may be used in some cases, such as when the patient cannot bear the smell either of the chlorides of soda or of lime. When the matter of contagion is supposed to be attached to woollen or cotton clothes, we may expose these to a high temperature, 212° of Fahrenheit, for some hours, and then wash them, and 212° will be done.

An equally important means of warding off the effects of exposure to a contagious atmosphere, is to put the body in a posture of defence by strengthening it, and regulating the natural functions. The general health of the system, the constancy and quiet of the brain, renders it less susceptible of being acted upon by impure air; hence nourishing food and tonic medicines may be regarded as indirectly antiseptics. It is a wise precaution not to visit the sick without previously taking food. It is useful as a supply of proper nourishment is, still it is of inferior efficacy, as a protective means, compared with ventilation and cleanliness, as is demonstrated by the instructive fact, that in Great Britain, we were 200 years later in getting rid of pestilence than the continent of Europe, which were formerly termed antiseptics are either tonics or refrigerants: of which cinchon bark may serve as an example of the first class, and the mineral and vegetable acids, as dilute sulphuric acid, and tartaric acid or citric acid of the second. Tonic antiseptics cannot be employed with propriety or safety at the beginning of fevers or inflammatory complaints, but in many diseases a period arrives when they may be usefully administered. The period when their employment becomes safe requires the nicest discrimination on the part of the medical attendant; and too numerous are the instances where their premature employment has redounded the disease which might otherwise speedily have been cured. The refrigerant antiseptics are employed to free them at an earlier period in those diseases which we know to have a great tendency to lead rapidly to the death of some part; such as in the malignant or putrid sore-throat of scarlet fever, or in the putrid enteritis, and typhus fever, which is brought on by the air here, which the pista does to that about Batavia. Where marshes cannot be drained, the planting them with marsh and aquatic plants, and such trees as elders and poplars, is the best mode of mitigating the evils which result from them. The beneficial effects of draining and forming under-ground sewers are shown in the perfect immunity which London enjoys from ague as an epidemic, contrasted with former times. Dr. Cains, the most eminent physician in India at that period, states, that the mortality of London from ague in 1558 was such, that the living could hardly bury the dead.

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All organized substances do not putrefy with equal rapidity, nor under all circumstances. Decomposition goes on fastest in substances which contain nitrogen; most slowly in substances which contain carbon; hence animal matter putrefies quickly; vegetable, especially of a woody texture, gradually: the decomposition of the former is characterized by an unpleasant odour, and the formation of ammonia; that of the latter is rarely unpleasant, except it be in the atmospheric or vegetable miasma of cabbages and fungi. The conditions necessary for the process of putrefaction to take place are, the presence of air, of a certain temperature, and moisture. If any one of these be excluded, putrefaction is prevented; the moisture may be either internal, or it may be the fluids of the body itself. The bulk of the animal frame is made up of fluids the preponderance of which over the solids is strikingly illustrated by an entire, but perfectly dry, natural mummy of a full grown native of the island of Teneriffe; though all the solid parts of it are preserved, it does not exceed seven pounds and a half in weight. The fluids must either be dissipated by heat, abstracted from the body by some chemical process, or rendered solid by a very low temperature, if we wish to preserve any animal substance in the state most near that of its natural constitution. For the sake of clearness, we shall here speak of the modes of preserving food under two heads, the dry and the wet.

The former modes comprehend those which effect this end by abstracting or excluding one or more of the chief agents,—heat, moisture, and air,—and furnishes the answer to the first question. The great difference between methods of preparation or mixture which may be considered to be the answer to the second question.

1st. Abstraction of heat. The presence of heat is essential to the exertion of those chemical affections which will place the process of decomposition; abstracting it, therefore, checks or suspends them; most articles of food keep better in cold than in warm weather. When the heat has been so completely abstracted that the juices are frozen, i.e., becomes ice, the preservation of the substance is more effectually accomplished. Indeed they may thus be preserved for a time almost beyond belief. In the year 1779, on the shores of the Frozen Ocean, near the mouth of the river Lena, two meteoric stones weighing almost as much as any that have been seen in the museum of the Royal College of Surgeons, Lincoln's-inn-fields. In the opinion of Cuvier, this animal differs from every known species of elephant, and is, therefore, considered by him as anæfide, and to have been preserved from the period of the deluge in the mass of ice which enveloped him.

On this principle the Russians preserve their poultry, which they kill in October, and pack in tubs with layers of flake ice. The implements of St. Petersburg are supplied with snow brought from a great distance in this state, as well as with whole hogs, sheep, and fish. The Canadians preserve their provisions in the same way. Almost the only instance in which we adopt this practice is in sending fish from Scotland to London; but it might be employed for the preservation of many other articles, eggs for example.

A preservation necessary in thawing them; for this end, they should always be put into cold water first. Indeed, in the case of persons lost in the snow, recovery is much more likely to be brought about by plunging the individual into cold water, than by placing him in a warm bed.

2nd. The abstraction of moisture by heat is employed in drying, and in other animal substances, as beef, bacon, &c., though in these the rapid tendency to putrefaction makes the employment of a certain quantity of salt, &c., along with desiccation necessary, unless the process be carried on with care. In nature, the sun has a high temperature and a free circulation of air. Hence in many places, where turf or peat is burnt, hams are hung within the wide kitchen chimney; but, by this means, the juices are dissipated, and, consequently, the flavour, as well as nutritious properties, are reduced. For butcher years or some years. A method better suited for the preservation of vegetable substances, such as grain, hay, &c. It is by this means that botanists preserve plants to form a hortus siccus, or herbarium, and many plants are preserved for medicinal use. But in the case of these last, a high temperature should never be applied, as it dissipates their active principles.

3rd. The exclusion of sources of oxygen-gas constitutes another means of effecting the end in view; and as the atmosphere is a storehouse of vegetable and animal life, and a source of oxygen, we shall limit our remarks to the means of excluding it. The influence of this is very great. Réau-
mur varnished some eggs, and found that at the end of two years, they were yet capable of producing chickens; and Bonnare mentions an instance where three eggs were inclosed within the walls of a church in the Milansene, and when found at the end of 300 years, they had not lost their flavour. On this principle butter is kept by careful housewives over their eggs; lime-water, however, is in the best medium in which to place eggs for long keeping. But more valuable articles than eggs are preserved by this means; and in a condition nearly equal to their fresh state. We allude to the method of preserving animal food, and vegetables, promul-
gated by M. Appert. This consists in boiling the articles (if meat, the bones must be first taken out) to nearly as great a degree as if intended for immediate consumption; they are then placed in jars, or canisters, which must be completely filled with a broth or jelly prepared from portions of the same meat. The jars are then corked and covered with a luting formed of quicklime and cheese, and the whole is covered in a mother of preparation or mixture which may be considered to be the answer to the second question.

The natural methods of preserving organized substances are few and simple; the artificial are numerous, as well as more complex. Nature must either in cause such substances to be destroyed or changed in the elementary constitution of a body as shall form a new and less destructible article, or by introducing some additional principle which shall hinder the exercise of the power of fermentation. For the purpose of fermentation, is a powerful means of preserving fruits, in which it is formed spontaneously, or to which it is afterwards added. Fruits are ripened by the conversion of the acid which they contain into sugar, and as this requires the aid of light and heat, fruits gathered in the afternoon are less acid than if gathered in the morning, and keep much better. The addition of sugar is practised in forming syrups, jellies, and preserves.

Those parts of plants which contain much carbon last the longest, whether dead or alive: many vegetable structures have been preserved entire, embedded in charcoal, in the most antient coal formations; and in bogs and mosses, trees are met with, having a perfect integrity of structure. Even in trees cut down and exposed to air and moisture, the bark, which contains most carbon, endures after the rest has perished. The seed also contains much carbon, and owing to this retains its vegetative property for two or three hundred years or more. When seeds are sent from India to England, they are always wrapped in recently prepared charcoal. When stakes or piles of wood are to be driven into the beds of rivers or marshes, they are previously charred; and to preserve water sent to great distances, from the side of the sea to the interior, the water is treated with charcoal. A more perfect mode of preserving water from becoming R 2
health, if exposed, is converted by gradual processes into forms of beauty and usefulness; the fetid gas is rendered a constituent of the aroma of the flower, and what might be poison, becomes nourishment to man and animals. (See Davy's Lec. 2.)

ANTISPASMODICS, from ἀντί, against, and ἀσπάσμα, espasm, the means of removing spasm. The state called spasm, or cramp, occurs only in muscular structures, and consists in an intense and often excessive, action of particular fibres of a muscle, of an entire muscle, or of several muscles. The muscles of an animal of the higher degrees of organization, such as man, are divided into two classes, the one set comprising those which are concerned in carrying on the ordinary functions of the body, viz., the circulation, respiration, and digestion, which act independently of the will, and are therefore called involuntary muscles; the other, which are organs of motion, and subject, in a certain degree, to the control of the will, are termed voluntary muscles. Each set act in consequence of the application to them of some stimulus; and their action is only uniform or natural when their appropriate stimuli are applied. The heart, for example, contracts from the stimulus of the blood; and the intestines are so constructed as to have proper motions excited in them by the food which we take, and the secretions which are mixed with it; which actions, in the healthy state, go on, not only without our willing it, but also without our volition; for our will has no influence over either a sensation felt in the part and communicated to the chief nervous centres, viz., the spinal chord or brain, or a spontaneous effort of volition proceeding from the brain, which, and originally developed in the process invented by Mr. Kyan. This consists in combining the albumen of the wood with bi-chloride of mercury (corrosive sublimate), which it converts into the proto-chloride, in the same way that animal albumen combines with, and converts into the proto-haemoglobin, the same compound (see A. N.); the wood is thus rendered insusceptible of the attacks of the fungi. Fungi often attack and destroy the cereal grains, particularly wheat: the worst of these, viz., the unripe, or black, or ayam, may be prevented from further developing itself by steeping the seeds for twelve hours in lime-water. (See Paper by Mr. Bauer, in Penny Magazine, No. 64.)

Insects are frequent agents of nature in forwarding the processes of decomposition. Some penetrate growing trees, and either injure them by opening a passage to air and moisture, or by depositing their eggs, the larvae from which feed upon the juices and organs of the trees. Such is the death of some individuals of the sycamore, or maple tree, in the L. forest, where a single tree is known to be 100 years old, and in the environs of London, suffered greatly from a small insect called the hylænus destructor. The only means yet known of stopping these, is the expedient suggested by Mr. M'Cleay, of cutting down the trees and burning them, when the eggs has been deposited, before they turn to larve or winged insects.

The collections of entomologists and botanists suffer much from the depredations of insects. Those which infest collections of insects may be driven away by placing camphor, in the cases, or by introducing a solution of bi-chloride of mercury into the blood-vessels of larger animals previous to stuffing them. Dried plants, for botanical specimens, may be preserved from insects both at home and by applying them, when perfectly dry, a solution of bi-chloride of mercury, of the strength of two drachms to a pint of rectified spirit of wine, to which a little camphor has been added. It must be applied to the whole specimen by means of a camel's hair pencil.

The last question proposed to be answered, was how to render the process of putrefaction of bodies useful, instead of pernicious. The obvious answer to this is, to bury them under the earth. And the bodies should be buried sooner than most vegetable substances; but cruciferous plants, such as cabbages, when exposed to the air, are as pernicious as, and should be buried; some years ago a visit to Cambridge, owing to the quantity of cabbages being there, made a garden-wall. Such matters should always be buried as manure. 'In this case the food of plants is prepared where it can be used; and that which would offend the senses, and injure the

A miserly too deep for tears.'

Anger often causes the bile to be secreted in greater quantity, to be altered in its quality, and often absorbed into the blood, thus giving rise to jaundice and other effects; which may be termed excitation often lessens the secretion of bile, but augments that of the kidneys; every attack of jaundice terminates in a profuse flow of limpid urine, which is destitute of the usual admixture of bile.
These mental emotions, either directly, or indirectly, through the altered and unhealthy secretions, occasion in many persons spasmodic contractions of some muscular organs, which are so violent as to produce alarming and often fatal diseases. Of this, ANONYMA PECTORIS furnishes an example. It is so frequent to find cases in which a more or less degrading joy in some instances, that the heart *bursting* is not a mere figure of speech, and of grief in other instances, that the heart *breaking* is not a metaphor, but a reality. Many spasmodic actions, such as the cough of whooping-cough, are kept up by habit; others, such as the strange gesticulations of St. Vitus's Dance, are acquired from imitation, as stuttering or stammering is occasionally; and both may become acquired as a distinct disposition.

What is termed sympathy is even more powerful than imitation, which implies a voluntary adoption of the peculiarities of others; scarcely any persons in a company can avoid yawning if one sets the example. Now, yawning is an involuntary spasm of the muscles of the jaw, which is thus propagated through a large assemblage of persons; so hysterical and even epileptic spasms are communicated from one to another, often to a frightful extent, if an individual subject to these complaints suffer an attack in theatres, churches, or private apartments. Such an occurrence is sometimes merely the result of affection, but more frequently it is the consequence of an irresistible impulse. No one less of consciousness is there in the spasm of a person affected with that exhausting disease; a circumstance which can only be accounted for by observing that in that the mind is in no degree implicated, the mental facts remain uninfluenced and uncontaminated. There is reason to believe that in this complaint some inflammation or peculiar state of irritability exists about the origin of the nerves, which no one can induce at will, and which neither primarily nor secondarily happens in the others, which are more strictly nervous affections, i.e. merely disorders of the functions of nerves without alteration of structure. The development of tetanus is slow, often not showing any sign of its intended attack till some days after the labouring on of the spasm of the person affected. The other symptoms are mostly instantaneous, unexpected, and rapid in all their stages. The impression they make on the bystanders is increased by the surprise felt at their unlooked-for occurrence, often without any obvious or sufficient cause. The more sensitive of those around are therefore most apt to fall into a similar state or train of actions. Of the persons so affected, the greater number will be found to be females. What causes render them more subject than others to such attacks is not clearly known. The same, however, is the case of persons more mobile, as it is technically expressed, i.e. more easily operated upon by slight causes than others, and their habits of life and education have often a great tendency to increase this state. In some cases the disease is of the nature of the mind or body, markedly predisposes to such complaints. The female children of the higher and middle ranks, feeble by birth, are rendered more so by the improper management of their diet, and by which they are subjected. After emancipation from the nursery and school-room, their minds and bodies are further enervated by an injudicious course of reading, and an early devotion to the prevailing habits and usages of fashionable life. Such pursuits preclude the possibility of applying themselves to solid studies, or the acquisition of any knowledge of the human system, and of the necessity of maintaining a regular action of every organ and performance of every function.

By a neglect of one of the most important of the natural functions, viz. regular and complete evacuation of the bowels, the tone of the intestines is lessened. Now, when the muscular fibres are particularly interfered with under a state of more or less tension than the rest of the system, this is communicated by sympathy to every other part of the body. This is particularly observable in the blood-vessels and intestines, both of which are muscular tubes; for a relaxation in a muscular tube interferes with the effects of every other part of the system. And as irritability and sensibility are very much affected by the degree of tension, a want of it in the vessels constitutes what is called a nervous habit, such as is associated with the generative organs, and with those eminently offensive of the other sex: such persons will generally be found to be of a cowit habit. The peculiarities of the female system have a large share in increasing the disposition to be powerfully acted upon, at times, by trilling causes. Exhausting discharges, to which they are very often subject, greatly augment the irritability; and all diseases of a very weakening nature will produce a similar effect in the individuals of either sex: during convalescence from these, a disposition to irregular distribution of the blood exists, and this excess sent to one part, or a deficient supply of it to another, will cause disorder of the functions of that part. If it be any portion of the nervous structure which is subjected to these errors, spasmodic action is almost surely the consequence, but they are not very frequent, or open to proof, than that convulsive motions result from two opposite conditions of the circulatory system, as relates to the quantity of blood, or rapidity of its flow. An animal while bleeding is at death or conversions, and an excess of blood sent to the head, or its stagnation in the vessels, will produce the same effect; which, indeed, often follows mechanical pressure of the brain, from a portion of depressed bone of the skull, or from effusion of the serum of the blood, in inflammation of the membranes of the brain. The fullness and distension of the vessels of the brain which precedes apoplexy often occasion vomiting, which is a convulsive action of the stomach and some other muscles, and is a warning sign, often unhappily neglected, of the approach of this disease. The more extensive and violent convulsions of epilepsy are, in all probability, the result of a temporarily deranged state of the circulation within the brain, as the medulla oblongata, when the cerebral convulsions, the active impairment of the intellectual powers, and the usual termination of the disease in apoplexy, palsy, fatuity, and death, attest.

The nature of the causes of the different diseases of which spasm forms, in general, a feature, the complication of these with other diseases or morbid states, and the manner in which each terminates, should all be taken into consideration, if we hope to make a beneficial selection of a remedial agent from among the number of antispasmodic medicines. But such a judicious preliminary measure is rarely adopted; and these articles are often administered in a manner truly empirical, by many professional as well as all unprofessional persons. Almost all forms of the spasm, or spasmodic medicines are employed, and which agree only in having spasm for one of their symptoms, while they often differ widely in their causes, nature, and termination, will convince every one how needful it is a knowledge of these points to guide us in the choice of the means of cure. The following is not given as a perfect classification or even as an approximation to one, but is merely intended to show the diversified nature of spasmodic diseases, and to furnish an argument for the selection of the proper treatment for the proper disease. The treatment must vary greatly, according to the particular disease attended with inflammation or not, or according as there is a risk of its occurring, either in the natural progress of the disease, or in the course of treatment. The proper means of treatment. The selection of remedies must be determined also according to the stage of the complaint, and according to the mode in which it is connected with the specific changes of the mental and nervous system, as in the train of morbid actions, if it be not cured before such a calamitous termination take place. Keeping these points in mind, we may arrange spasmodic diseases, in some degree, as follows.

Unattended with inflammation, primarily, or disturbance of the mental faculties:

*Simple Cramp. Cholic.*—These generally proceed from some undigested substance, or hardened feces, irritating the bowels: but in some other diseases, they continue to come on; and in the worst forms of cholic, called Ieus, or fliac-passion, and painter's cholic, it seldom fails to supersede, and then becomes the chief source of danger, as well as most important object of the treatment.

*Diarrhoea, or simple looseness, and Cholera.*—In these the cramps or spasms are never the first signs, but seem to result from the exhaustion occasioned by the profuse liquid discharges. Inflammation may occur during, or from, diarrhoea; and fever is occasioned by every other disease, i.e. of epidemic cholera: the occurrence of which in either case must lead to a modification or alteration of the plan of treatment.

*Anima Pectoris. Asthma.*—Affecting the organs of inspiration and circulation.

Attended with inflammation, primarily, but causing no disturbance of the mental faculties:

*DYSTENTERY.*—Affecting the organs of digestion.
Croup, Hooping-cough.—Affecting the organs of respiration.

Unattended with inflammation to an appreciable degree, perhaps in no degree:

Hysteria.—Not affecting the mental faculties, except the voluntary will and pursuit of the medical attendant. When appropriate treatment is directed to this part, most of the troublesome symptoms abate, or cease altogether.

Chorea. St. Vitus’s Dance.—Unattended with loss of consciousness; and—

Epilepsy.—Attended with loss of consciousness.

These two diseases sooner or later affect the mental faculties, and have a tendency to a coma or delirium, viz., the two substances unless they subside spontaneously, or are cured by medical treatment. Chorea generally originates from, or is connected with, the accumulations of the bowels, and epilepsy frequently with intense fever of the internal parts, such as worms, but its causes are numerous, and its cure, in most cases, difficult.

Spasmodic diseases, of an obscure nature, chiefly affecting the organs of respiration:

Tetanus and Lock-jaw. Hydrophobia.—These may at some period become attended with inflammation, or rather fever; but this appears to be the result of the constant suffering, and is seldom the direct cause of death, which seems to be the consequence of that depression of the heart’s action which long-continued pain or unpleasant sensations produce.

Diseases in which inflammation is the primary affection, spasmodic and secondary:

Inflammation of the Brain.—acute, Phrenitis.

Acute or chronic, Hydrocephalus, i.e. Water in the Brain, occurring mostly in children of a scrofulous habit.

Tetanus.

The treatment of these diseases is as diversified as their causes; and, to be successful, requires a degree of judgment and knowledge which few possess. To comprehend the nature of those spasmodic diseases which are unaccompanied by inflammation, and for which antispasmodic medicines are chiefly employed, we must be made aware that, in the human system, there are two distinct sets of nerves, having different origins, and fulfilling separate functions; the one set of nerves of sensation, the other nerves of motion. The former receive impressions, and convey the sensations from all parts of the body to the brain; the latter execute the dictates of the brain by conveying an impulse from it to the organs of motion. The organs of motion — i.e. the muscles — are so adjusted, and in the healthy state so equally supplied with nervous energy, as precisely to balance or antagonize each other (see Antagonist Muscle); and one muscle, or set of muscles, can only overbalance another, or several muscles, which can receive an additional supply of nervous energy, from an effort of volition. Thus the hand is opened and shut at will; when opened, the extensor muscles overpower the flexor muscles; when shut, the flexor muscles overpower the extensor.

In diseased conditions of the nervous system, this fine balance is lost from various causes: the nerves of sensation may become preternaturally sensitive; the nerves of motion paralysed; the power of voluntary motion may be perverted in various ways and degrees; the flexor muscles, independent of volition, may overpower the extensors, or the extensors the flexors. When affected with tetanic spasm, the extensor muscles of the back of a delicate girl could not be replaced in the natural state of equilibrium by any effort of the will, nor by a weight of eight hundred pounds: and under the influence of hysterical or epileptic excitement, a delicate person cannot be controlled by three or four men.

The action of the muscles is so violent that the fibers are sometimes torn across, or even the bones fractured.

Some of these spasmodic diseases give, at times, an intimation of their approach, generally by a peculiar sensation being experienced in some part of the body — often the thumb in epilepsy, or between the stomach and throat in hysteria; the spasmodic actions not commencing till these sensations have reached the brain. At other times no warning sensation exists. By a careful examination, some tender spot will be discovered, of which the patient was not in the least degree previously aware. In hysteria this tenderness is generally felt at some point along the course of the spine or the nerves; in case of spasms, it is usually where we omit a minute examination of this part. Should drawing the finger along the course of the spine, and making firm pressure as we proceed, not reveal its existence, a sponge, dipped in water as hot as can be borne, will, in its progress along the spine, cause the patient to start when it reaches the tender spot. The discovery of this will often furnish a key to all the strange symptoms and spasmodic actions, as well as explain the capricious conduct of the sufferer, which so allured the gaze of the medical attendant. When appropriate treatment is directed to this point, most of the troublesome symptoms abate, or cease altogether.

As most spasmodic diseases, especially if connected with affections of the men, have a great tendency to recur and become habitual, it is of the utmost importance to stop them at an early period.

The remedies which have been found most efficacious in treating these disorders, are hot fomentations, and some new and important impressions on the organs of sense, and thereby diminish the effect of sensations already existing, or such as blunt the sensibility in general, and thereby diminish all effects of sensation; or else such as raise the whole of the system to a level with the part spasmodically excited, and so establish the equilibrium, from which forced state all muscles may simultaneously subside.

The fibres of each muscle act generally in concert; if a few act independently of the others, these are in a state of cramp. Particular sets of muscles act in concert, as all the flexors, or all the extensors: one or more of these acting independently of the rest cause spasm. Now we often believe this does not exist, but the others influence it, and as volition simply is not equal to this, we use mechanical or medicinal means. Cramp of the limbs is often removed by pressing the toes or fingers against a resisting body, by which all the muscular power is brought to the exercise of some one level. A sample of a mechanical process is the only one worthy of mentioning, and is only applicable in slight cases, as cramp of the limbs is generally merely a symptom of some internal derangement of the bowels, of the spinal chord, or of the brain.

The medicinal means constitute the antispasmodic remedies, and are of different kinds. Very few articles are, strictly speaking, merely antispasmodics, i.e., used solely to relax spasm, and act only of this purpose. On the contrary, this is only a particular application of substances capable of serving other, and more general, ends. Consequently, many of the so-called antispasmodics belong to other classes of medicines, such as the stimulants, particularly diffusible stimulants, as alcohol (brandy), sulphuric ether, camphor, &c., or to the narcotics, such as opium, belladonna, &c.; or to the tonics, such as metallic salts, viz., of iron, zinc, and silver; or vegetable bitters, &c. All these act or stimulating antispasmodics act, apparently, by rousing the nervous energy of the system, and raising the neighbouring muscles to a level with the part in a state of spasmodic excitement. The second set act in order to underlie this system of cramps, and insensible to every sensation; in large doses producing complete insensibility, even to the extent of coma and death. These two are administered when a cramp is threatened or actually born; the one are antispasmodics, while the patient is free from an attack, and act by strengthening the system, so as to render it less susceptible of being acted upon by slight causes, particularly the irritating cause, known, or supposed, to excite the paroxysm or fit. The substances which are more especially considered as antispasmodics are volatile oils, such as mint, lavender, &c., derived chiefly from the tribe of the labiate; or rosin oil, from myrrh; or dill, anise, fennel, &c., from the umbellifer, from rosemary, &c., the secretions of which, being thus improperly termed, being gum-resins, such as asafoetida, galbanum, &c. These, with valerian and myrrh from the vegetable kingdom, and musk and castor from the animal kingdom, are the most suitable for this purpose. All the volatile oils seem to act in the same way as the purely stimulating antispasmodics; while the fixed gum-resins act by substituting new and powerful sensations instead of the morbid ones, and must be administered generally when the patient is free from an attack, and act by strengthening the system, so as to render it less susceptible of being acted upon by slight causes, particularly the irritating cause, known, or supposed, to excite the paroxysm or fit.
sentially necessary in respect to brandy, which is too commonly resorted to on every threatening or attack of spasm, such as cholic. So many of these diseases being connected with, or disposed to end in, inflammation, the free use of brandy, or other stimulant, is decidedly injurious. The inflammation in cholical hooping-cough, and every species must first be removed by appropriate means, and then when the cough will generally subside or disappear entirely: if it should remain, in hooping-cough, in a great measure from mere habit, antispasmodics may be used, but even then the nar- cotics, antispasmodics, such as Belladonna, ergot, or benbane, are to be preferred. The propriety of employing belladonna extensively in this disease is very questionable. (See Goli on Hydrocephalus, translated by Dr. Gooch.) The process of the stomach in those forms of inflammation, of the stimulating antispasmodics, is more allowable in cholic or hooping-cough; but here they act on a different principle, viz., that of counter-irritation. This is, in itself, a most valuable means of curing spasmodic diseases. An irritating application to the spine is of much service in hooping-cough: tartrate of antimony ointment or plaster (see Antimony) applied to the tender spot, which we have said often exists in hysteria, and other similar diseases, will be more soothing to that gland than all antispasmodics which can be tried. (See Teale on Neuralgic Diseases.) Stammering, or other difficulties of speech, might be materially diminished by repeated irritating appli- cations; as having a life of about six months, or less, to the nape and sides of the neck. Severe hiccup, continuing for several days, and which resisted all internal reme- dies, has yielded to a blister applied along the side of the neck. Every physiologist will understand how this hap- pened.

The means which may be employed to intercept the passage of the peculiar sensation to the brain are merely mechanical: for example, tying a string tightly round the thumb prevents the aura epilepticus, in epilepsy, reaching the brain, and wards off the attack. A cupping-glass would answer as well if applied to any large spot whence the sensation arose.

The best and most efficacious application of the gums in children, when teething, is much more efficacious in allaying convulsive affections than internal medicines, except mild purgatives.

The medicines which may be administered while the patient is free from a fit, or in the intervals of the paroxysms, are much more likely to effect a cure than the others. These are tonics and purgatives. For the reasons already stated, purgatives are of primary importance, as they unloose the bowels, improve the secretions, and impart vigour to the general system. Many cases of spasmodic disease have been cured by the use of purgatives only, and none can be cured without their free and daily use for some time. (See Hamilton on Purgatives Medicines, six, and it is certain they do not belong to the head of diseases, but where, as in epilepsy, there is reason to suspect the existence of worms, oil of turpentine is to be preferred.

After purgatives have been administered for some time, should the disease not have yielded, metallic or vegetable tonics may be employed with great advantage, particularly in hysteria, chorea, epilepsy, and stammering. In hysteria, chorea, and stammering, the preparations of iron are in gen- eral best; in epilepsy, preparations of zinc, of copper, but above all of silver, are preferable: sulphate of quinine is also very serviceable.

For the cure of hydrophobia, or tetanus, nothing has yet been found to succeed. There is some reason to hope that, for the benefit of his country, Dr. Jackson, from South America, called the scorpaen, may be beneficial, if we may judge by its effects on animals affected with tetrican spasm. (See cases by Mr. Sewell, in Morgan's Lectures on Tetanus, Appendix, 18.)

Several of the diseases of which we here speak being connected with mental emotions, and some of them originating from imitation or being kept up by habit, mental agency has sometimes been employed to effect a cure, and occa- sionally with success. Upon a threatened attack of hysteria or epilepsy, powerfully attracting the mind to a different object than that which occupies the attention of the patient may ward off the fit. But this remark is made with all respect for written works, as Diogenes Laertius tells us, extended to ten volumes (or perhaps treatises, ἔποιημα), they have all perished. From the list of their titles given by the biographer, they appear to have been mostly rhetorical or philosophical de-ications; and, like other such compositions, they had prob- ably plenty of point and smartness, but not much stirring value. Indeed, the only judgment as to their merits which Laertius allows is that of the Cynics, of whom the biographer of Timon, who thought their author an ingenious titter. Laertius has enumerated many of the sayings of Antisthenes; but, like the witticisms of the antients in general, most of them have an elaborate and ponderous air to them. In modern taste, one would have been much pleased with his sarcasm on the foolish choice of their magistrates and other public officers frequently made by his fellow citizens. He advised them one day, with a serious air,
to set to work and make their asses horses; and when they stared at the absurdity of the proposal, and exclaimed that the thing could not be done, he answered. It will be done if you merely command it; do you not in this way every day do what is quite wonderful, turning, inconceivable blockheads into generals and admirals? Another, which illustrates his religious opinions, is his answer to the priest of the Orphic mysteries, when he was assured by that personage that all who should anti-citize in that fashion would escape the punishment of their felons after death. Why, then, he said, do you not die? He was himself probably sceptical on the subject of a future state. When Diogenes came to visit him a short time before his death, as he lay ill in bed, he eagerly expressed his pangs for his sufferings, and in the arms of his uncomplaining, and unprejudiced, offering him a knife, this will relieve you in a moment. Ah! answered Antisthenes, it is not my life I want to get rid of, but my pain. Cicer (De Natur. Deorum, i. 13.) has preserved a theological dogma of this philosopher, which has been often quoted to his honour—Esse populares deos multos, sed naturalem unum: That the popular gods are many, but the God of nature is one. It has, however, been acutely remarked by Cudworth, (Introd. to System, § 4, 22.) that by the expression, populares deos, here, we are to understand, not the gods of popular superstition generally, or the multitudinous deities of the pagan system, but merely those different names given to one and the same god by the worshippers of different cities and nations. The meaning of Antisthenes is more clearly expressed in the version of Lactantius, Unum esse naturalem Deum, quamvis gentes et urbes suas habeant populares: 'There is only one God of nature, though each nation has their own popular (peculiar) deities.' Cudworth is of opinion that the philosopher had no design to take away all the inferior gods of the pagans, which, had he attempted, he would have been accounted an atheist, but only to point out the great truth which indeed was acknowledged by all superior minds among the antients (with some exceptions), that there was one God who was supreme over all the rest, and it is from this that the name of Zeus is derived, as Zeus, the Latins as Jupiter, the Egyptians as Amen, the Babylonians as Bel, the Scythisians as Pappas, &c., as likewise that the Jupiter of the heavens, and the Neptune of the sea, in the popular mythology, were only so many names for this one deity.

The moral maxims of Antisthenes sound, in general, very lofty. He regarded all actions as being either virtuous or vicious, and virtue as the only thing worthy of desire or esteem. Before giving him credit, however, as the author of a pure and elevated system of ethics, on the strength of these imposing generalities, it would be necessary to know exactly what he meant by virtue. Diogenes certainly considered virtue the greatest in the circle of his friends, but he had a greater influence on him than his master. The fullest and perhaps the fairest picture we have of Antisthenes is given by Xenophon, who has introduced this philosopher as one of the speakers in his Stoumeus, or Symposium, and put into his mouth a very striking discourse on the wealth of poverty. Altogether he is here represented in a very engaging light.

A few additional particulars respecting this philosopher may be collected from Laerterius and other sources. He is said to have had few pupils, and to have treated them with great harshness. Antisthenes has the credit of having set the example to his followers of wearing his beard long, and ordering his staff and sandals, (according to the fashion which afterwards became the distinguishing badges of the sect.) He is also stated to have first worn the cloak doubled, (προμέσαν τον παλτον και προμέσαν δομαόν) are the expressions used by the ancient philosophers that prove the fashion. It was a fashion likewise practised by his followers, and appears to have consisted in bringing the right end of the cloak a second time over the left shoulder, so as to leave the whole of the arm, shoulder, and a part of the breast exposed. When the lower garment was worn, the lower garment was dispensed with; and in this principally seems to have consisted the economy or convenience which recommended the fashion to the Cynics. (See Octavius Ferrarius, de Flor. Peripatetica, part ii., lib. iii., &c., pp. 185, 294, edit. Patavi, 1654, quarto.) The peculiar name for the philosophical cloak is παλτον, or in Latin tribunum, which signifies literally, a worn or threadbare garment. Antisthenes professed to be a pupil of Plato when the latter had expressed his admiration of a horse, distinguished by its noble bearing. 'You, Plato,' said Antisthenes, 'would have made an excellent horse.' The father of the Cynics, however, is affirmed on high authority to have had pride enough too, although it might not have been of so serious a nature that an orienter of the Academy. One day, we are told, when Antisthenes, being in the company of Socrates, had ostentatiously displayed a rugged part of his garment, by way of showing his philosophic modesty, the son of the philosopher, who usually was very vain, 'Ah, Antisthenes,' said Socrates, 'I perceive your pride through the holes of your cloak.' Antisthenes is said by Laerterius to have had a principal share in bringing Anaxus and Melissus, the successors of Socrates, to punishment. But it is not impossible that this statement was dashed rather than the fact itself, first states, indeed, the case, but the first states, what the accused ought to have done, and then what he has done.

But the term antithesis is most commonly used to express contrast of ideas; and the term is equally applied whether the contrast is effected by single words, or by single clauses. (See Quintilian, Institut. Orat., lib. ix. cap. iii.) The following example from the oration of Demosthenes, who has, in this instance, as in the preceding mention, in the speech of the orator, of Demosthenes, (in part, quoted by Demetrius Phalerus (Treatise on Orations, § 262), and by Hermogenes: it is a sample of antithetical invective, in which Demosthenes attempts to show his superiority over his opponent. You were employed in teaching, but I was taught: you were a mere menial in the service of religion, but I participated in the sacred rites: you were one of the chorus, but I was the chorus (director of the chorus): you were a petty clerk, but I was a public speaker: you were an actor and played a third-rate part, but I was a spectator: you failed in your part, and I had success.' This taste for antithesis shows itself very strongly in the Greek language, both in poets and prose writers, and is, perhaps, more especially remarkable in the case of the Greeks than in any other nation. It is generally and justly condemned by the Greek writers on style. The antithesis does not necessarily imply contrariety between the things which are brought together; for example, in the familiar metaphorical exercises of Gorgias, entitled the Encomium, of Helen, begins with the following antithesis:—'The ornament of a state is the courage of its men; of the body, beauty; of the mind, wisdom; of action, virtue; of words, truth. Quintilian (ix. 9) expresses the Greek term ἀντιθέσεως (which is equivalent to antithetic) by the Latin word contrapositum; and he remarks, that the antithesis does not always contain contrarieties or opposites. He gives the following example from the oratorical Rutilius: 'Let us first the common sense of the age: it is not possible that what is seen by all, and is the fruit of the earth: what we alone received, that have we diffused over the whole earth. To us our ancestors transmitted a commonwealth: we have rescued from servitude our allies also. The orator here has used a figure of speech that cannot be compared with similar examples in our own language:—'Quod scil. nihil prodest: quod necem, mutum obstet,' which may be very imperfectly translated—'What you know, does no good; what you do not know, does no harm.' What we have given is at once plain and justly condemned. It sometimes gives force to expression, and helps to fix distinctions in the memory; but its frequent and indiscriminate use tends to draw the mind from a true perception of the objects of which it treats. It is in the excess of the term of words more than on the real meaning of the sentence. ANTITRINITARIANS. [See Arians, Socinians, Unitarians.]

ANTITHETIC. [See Syntax.] ANTITROPE. [See Syntax.] ANTITRISnym, a Greek word (ἀντίσθενη) literally signifying 'opposite.' It is used by the Greek writers sometimes it means merely 'opposite' or 'opposite arguments;' sometimes it is used to denote the contrasting of one set of circumstances with another: as, for instance, when an orator or other person attempting to place the case in the most favorable light and eulogize, he compares the accused ought to have done, and then what he has done.
the Volsci, and noted in Roman history as the place of refuge of Coriolanus. Antium, after having been often the enemy and at times the ally of Rome, was finally taken by the Romans in the year B.C. 337, and became a Roman colony. On this occasion, the rostra, or metal beaks with which the prows of the galleys of Antium were armed, being taken as a trophy to Rome, were placed in the Forum, as an ornament to the husting from which the orators pleaded before the magistrates and the assembled people, and which, in consequence, took the name of rostra. Horace mentions the Temple of Fortune, which rose on the bold promontory within shelter of which the present Anzio is situated.

Nero, who was born at Antium, excavated a port and adorned it with fine buildings. He also built here a palace for his mother, the Empress Agrippina. Remains of ancient masonry are yet to be seen on the point of land which projects into the water. The port having been filled in after-tides, Pope Innocent XII. built a mole which serves to shelter vessels of light burthen. There is also a small fort, and a prison for the convicts who are sent here from Rome to be kept at hard labour. The native population of Porto di Anzio does not exceed 300 inhabitants, and it is altogether a miserable place. The malaria prevails all about the country around in summer, but is not quite so fatal within the place itself, on account of its situation projecting into the sea. From October to June the air is wholesome, and the climate remarkably mild and pleasant. This, together with the beauty of the coast and the charm of the water, enables it to serve as a one of the Cirencean Cape and the island of Ponza, and on the other to the mouths of the Tiber, induced several Roman noblemen about a century since to build palaces and villas near the shore, which now appear neglected and deserted by their descendants. Anzio exports vast quantities of charcoal made from the wood of the neighbouring forests. It is also frequently resorted to by coasting vessels, it being the only place of shelter in bad weather between Gaeta and Civita Vecchia. About two miles N.E. of Anzio is the town of Nettuno, on the sea-coast, with a population of 1200 inhabitants, chiefly sailors and fishermen. The women of Nettuno still retain their old Greek costume. The malaria does not seem to affect the people who live within the walls of Nettuno. Porto di Anzio is about thirty miles S.W. From here the Alban hills are seen rising to the north about fifteen miles inland. The plain between is divided into enormous farms, one of which, that of Camponorto near Porto di Anzio, measuring above 17,000 acres, has been visited of late years by various travellers, whose attention had been attracted to its peculiar economy by Chateauneuf in his Letters from Italy.

**ANTIVARI**, a town in Albania, in European Turkey, on the coast of the Adriatic. It is little to the N.W. of the mouth of the river Boiana, which forms the outlet of the lake of Skodrë (Scutari); and has a good harbour. It was settled during the middle ages by Italian colonists, and is still the see of a Catholic archbishop. It was taken from the Venetians in 1573; and the inhabitants are now chiefly Mohammedans. They amount to about 4000, and are for the most part seamen, being among the few Albanians who venture on that element; they enter into the naval service of the Barbary states.

Antivari forms the port of Skodrë, (from which it is distant about 20 miles), and is the depot of the valley of the Drin, the chief manufacturer of which is shoe leather. It is defended by a fortress: 42° 4' N. lat., 19° 9' E. long. (Hohbush, Balti.)

**ANTILIA PNEUMATICA**, the air-pump, a constellation in the southern hemisphere named by Locarno. It is bounded by Centaurus, Cepheus, Hydra, Pisces, and Argo. The magnitudes and numbering of its principal stars are as follows:

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**ANTOCI**, from the Greek, signifies those who live ever against each other, and is applied to designate the inhabitants of Antioch, which have had the same living and latitudes only differing in one latitude being north and the other south. For example, Malta and the Cape of Good Hope are nearly Antoci. Two antecial places have the same hour of day or night, but opposite seasons of the year.

**ANTOINE DE BOURBON**, Duke of Vendome, married, in 1468, Jeanne d'Albret, only child of Henry II., king of Navarre. Henry Prince of Béarn, afterwards Henry IV. of France, was a son of this marriage. Antoine assumed the title of king of Navarre in right of his wife. The Bourbons were collaterals of the Valois dynasty, being descended from Robert Count of Clermont, a younger son of Louis X. As such, Antoine de Bourbon aspired to be at the head of the administration of France after the accession of the youthful king Francis II., but being himself of an indolent, wavering disposition, he was supplanted by the more enterprising and ambitious Guises, uncles to the young Queen Mary Stuart. After the death of Francis II., the king of Navarre was named Lieutenant General of the kingdom, and adviser to the queen mother (Catherine de Medicis), during Charles IX.'s minority. When the civil and religious war broke out in 1562, the king of Navarre commanded the king's troops, and received a wound at the siege of Rouen, of which he died in November of the same year. [See Bourbon, and Henry IV.; ANTIOINETTE, (MARIE), queen of France. [See Marie.]

**ANTONIA MAJOR**, the elder daughter of Antonius the triumvir, by Octavia, the half-sister of Augustus, born 39 B.C. She was married Lucius Porcius Cato, who supported the interests of Antony in the disputes with Augustus, until a short period before the battle of Actium, and the grandson of L. Domitius, who fell in the flight from Pharsalia. Among the descendants of Antonia were some of the most illustrious personages in Rome. One of her daughters, Domitia Lepida, was the mother of Messalina, afterwards married to the Emperor Claudius; and her son Cn. Domitius, marrying Agrippina, became the father of the Emperor Nero. She has called this his Antonia the younger, to distinguish her from Antonia Alexandria, who was the wife of Agrippa with Suetonius and Plutarch. Tacitus, on the contrary, speaks of her as the younger daughter. (Ann. IV. 44; XII. 64.)

**ANTONIA MINOR**, the sister of the preceding, born B.C. 38 or 37. She married Drusus Nero, the brother of the Emperor Tiberius, by whom she became the mother, 1. of the celebrated Germans; 2. of Livia or Livilla, who was first married to Caesars Caesar, the grandson of Augustus, and after his death to her cousin Drusus, the son of Tiberius; and 3. of the Emperor Claudius. Caligula, being the son of Germanicus, was her grandson.

Antonia was not fortunate in her domestic relations: she lost her husband B.C. 9, before she was thirty years of age, by a fall from his horse. Early in the reign of Tiberius (A.D. 19), she saw the widow of Agrippina return from the east with the ashes of her son Germanicus. In 23, her daughter Livilla, corrupted by Sejanus, assisted in the murder of her own husband Drusus, but her guilt remained unknown to the world until eight years after, when Antonia herself became indirectly the cause of the discovery. Sejanus was then preparing to execute his final schemes for the destruction of Tiberius, when his intrigues became known to him. He forthwith incriminated her information through the freedman Pallus to the emperor. The ruin of the favourite brought many past crimes to light, among others the murder of Drusus; and Livilla met the fate which she deserved, her own mother, if we may believe one of the anecdotes given by Dio, opposed herself to the pardon offered by the emperor. Under the reign of her grandson Caligula, she was at first highly honoured, receiving every distinction which had formerly been conferred on the celebrated Livias. During the reigns of Caligula and Nero, she suffered much on account of her husband's neglect and ill-treatment; and at last her death was supposed to be hastened by his neglect, if indeed it was not brought about...
by more direct means. If we place her death in the first year of
Coligula, she was about seventy-five years of age. The
Empire during her reign, was the scene when a child
lived a little of maternal affection, but he honoured her memory
when he came to the throne in every way that the flattery of
the age permitted. Pliny speaks of a temple dedicated to
her. Of the private life of Antonia little is known. She died
in her 90th year, and still more for her chastity, in
an age too when that virtue was not common; and Pliny
has recorded the singular fact, that during her whole life
she was never known to spit, which he accounts for from
the high pitch of her virtues, and the extent of her morals.
The beautiful head of Antonia is taken from a gold medal
in the British Museum, which is exactly one half the diam-
eter of our drawing, and in most complete preservation.

ANTONIA, SAINCT, a small church near Tavant, in the
department of Tarascon and Gard, on the right, or north-
bank of the river Averon, which unite with the Tarn.
The inhabitants, who are given in the Dict. Geographique
de la France (1804) at 5605, and by Balbi (1833) at
5006, manufacture serge and leather. It is about
miles N. E. of Montauban, the capital of the depart-
ment: 44' 10" N. lat., 1' 46' E. long. (Dict. Geog. de la France:
M. Brun.)

ANTONINE COLUMN, a lofty pillar which stands
in the middle of one of the principal squares of the city
of Rome. It was raised by the senate in honour of the emperor
Marcus Aurelius Antoninus, and in memory of his victory
over the Marcomann and other German tribes. It was one
of the triumphs of the Senate and Antoninus, and
an inscription which has been found near it, and which
is now in the Vatican, is styled 'Columna centenaria Divi
Marei.' It was also called 'the greater Antoninus column,'
to distinguish it from another one, and
an inscription which had been raised in
honour of Antoninus Pius. (Nardini and Nibbi, Roma
Antica, and Vignola, De Columna Antoniani Pil.)
During the ages of barbarism which followed the extinction of
the Western Empire, this pillar, although it did
not even feel the hands of the invaders, as well as from the fires which frequently occurred
at Rome; the historian Poggio says also from lightning.
Peter Sixus V. repaired it at the expense of 10,000 sudi,
and placed the inscription which is now seen on the pedestal,
the original one having been probably defaced. He also
raised on the summit of the pillar a bronze statue of St.
Paul; that of Marcus Aurelius, which formerly stood there,
had been removed it is not known when or by whom.
The shaft of the pillar is 13 feet 1 inch in diameter at the
bottom, and one foot less at the top; its height, including the pedestal and capital, is 136 feet, of which 13 are under ground. Above the pedestal it is 274 feet more, making the whole height 165 feet, (Taylor
and Cresy's Architectural Antiquities of Rome.) The
pedestal of the Antonine column is disproportionate to the
shaft. The shaft is a mass of twenty-five blocks of white marble placed one above the other, a spiral
staircase of 198 steps is cut through the interior of the marble,
and leads to the gallery on the top, which is surrounded by
a balustrade. The exterior of the shaft is covered with
basal-riley) placed in a spiral line around, which represent
the victories of Marcus Aurelius over the Marcomann and
other hostile nations. One of the most remarkable facts
recorded in these historical sculptures is that of the unex-
pected and abundant, and on which occasion the
quench the thirst of the Roman soldiers, while fighting
under their emperor in a remote part of Germany, and
suffering from heat, fatigue, and the repeated attacks of
the surrounding barbarians, a. D. 174. The style and ex-
ceptional principal ornaments of the column are those of the
pillar which the artist evidently purposed to imitate. The
sculptures of the Antonine column have been engraved
by Santo Bartoli, and illustrated by Bellori. The pillar itself
is a piece of a building consisting of seven columns
and one of the principal ornaments of the modern city.
It has given to the square in which it stands the name of
Piazza Colonna. The palace Ghigi forms one side of the
square, and the street del Corso forms another. A hand-
some fountain by Giacomo della Porta also adorns the
square.

ANTONINUS PIUS, or, with his full name, according
to Capitoilinus, Titus Aurelius Fulvus Bojius Antoninus
Pius, was the son of Aurelius Fulvus and Arria Faustilla. He
was born September 19, a. D. 86, in the reign of Domitius, at
Lanuvius near Lavinium, a few miles south of the Alban Lake. His ancestors, on his father's side, were
of Nemestus, now Niames, in Languedoc. His youthful
years were spent at Laron, (a town on the north side of the
Tiber, not far from its mouth), under the care of his
paternal uncle, Marcus Fulvus Bojius Antoninus, who
had twice been consul, and Arrius Antoninus, who also had
twice attained the same honour. It seems probable, from his
character in after life, that he had been brought up with great
care, and probably in the principles of the Stoic philos-

Through his extensive family connexions he inherited
great wealth, and was speedily raised to the successful dig-

(Gold, Brit. Mus. diam. doubl.)
accepted by the husband, to the memory of a wife not altogether faultless. A temple erected to Antoninus and Faustina still exists in part in the Campo Vaccino at Rome. Antoninus even created an establishment for young females, who were called the Antoninianae, and the deified empress. This institution is commemorated in medallas that still exist with the inscription Puellae Faustiniana - the Virgins of Faustina. The general character of the policy of Antoninus was beneficent and just, and the Roman world perhaps never knew a more indulgent and amiable master. He continued the governors of provinces for many years in office when their conduct was satisfactory; and the provinces themselves enjoyed under his reign freedom from all excessive taxation. He raised himself above the council of chosen friends, without whose advice he took no public measure of any kind. Their counsels directed him in drawing up the imperial decrees (formae), which were to have the force of law. Judges who discharged their duty faithfully were never removed. In his elevated station the emperor maintained the simple character of his early life, mingling in the society of his friends like one of the same rank, and using his unlimited power more like a private citizen entrusted with it by his fellow-citizens than as the undisputed master of the empire. The practice of giving pensions or allowances had grown up under preceding emperors, and had become a part of the imperial system of patronage. Antoninus continued it, and gave, as Capito-

Linus informs us, salaries and honorary distinctions to the professors of rhetoric and philosophy in all the provinces. Apollonius the Stoic was specially invited from Chalced to superintend the education of M. Aurelius. But the idle and worthless who had obtained public dignities did not feel the effect of the prudent emperor's reforms, who remarked, 'that nothing was more disgraceful, nothing more cruel, than for a man to feed on the public property who had done nothing to improve it.' The people and the soldiery participated in the bounty which the policy or generosity of the emperor distributed: he relieved distress in time of scarcity, and for their amusement filled the amphitheatre with animals from all countries. The elephant, the hyena, and the snake, as well as the crocodile, so unwisely imported by Neron, and the tiger, were exhibited for the gratification of the people. On one occasion a hundred lions at once were let loose into the amphitheatre.

Under the reign of Antoninus, the lawyers, Ulpianus, Verus, Salvius Valens, Volusianus, Metilius, Lucius Marcellus, and Diobolusus, were employed by the emperor in improving the laws. One of the emperor's regulations of sanitary police was worth recording: he forbade the burying of human bodies in cities. With respect to his regulations about physicians, see the article ARCHITECT. His policy towards the Christians was mild, but the authenticity of a rescript which would show him to have been completely tolerant appears not to be absolutely proved. (Nepos and Jena, Gegenere Geschichte der Christlichen Religion, Ec. i. 151.)

Of casualties in his reign, which Capito1inus, like a good chronicler, does not omit, we find enumerated a famine, the fall of a circus at Rome, an earthquake in Rhodes and the province of Asia, and a fire at Rome which destroyed three hundred and forty houses. Naboneon, Antioch, and Car-
thage also suffered by earthquakes; and it has been observed that such occasions always actively employed in relieving human suffering. He embellished the imperial city with various edifices, and extended his liberality also to remote cities of the empire. Antoninus was tall, and of a handsomely person, as his biographer tells us, and his medals still show. His habits were abstemious and regular. He was honoured with the name of Deus (God) at his death, and all the tokens of respect paid to the best emperors. According to the fashion of the times, a special priest, public games, a temple, and a college of priests, as was usual on such occasions, were designed to perpetuate the memory of one of the most virtuous of the princes whom history has recorded. Whether he owes too much to the exaltation of his Friend Capito1inus, and the general absence of other evidence, we cannot decide. (See the Life of Antoninus by J. Capito1inus; and Schlösser, Universalhistorische Übersicht, vol. iii. pt. 1.)

ANTONINUS, THE ITINERARY OF, one of the most valuable works, in a geographical point of view, which has descended to us from the ancients. It is merely what the name imports; but the importance of the Roman empire in its widest sense, embracing all the main roads in Italy and the provinces, in each of which the different stations are named with the intervening distances. There is also attached to the above a brief maritime itinerary of the distances from port to port. This work, with the Peutingerian Table and the Jerusalem Itinerary, is of great use in constructing the maps of the Roman and Grecian world. In a work of such value it has been an object of some interest to determine the date of its publication and the name of its author; for the name of Antoninus, under which it now passes, has been retained perhaps more from the convenience of having some conventional author to refer to it than from any belief that such was really the author's name. In the different MSS. of the work it is variously ascribed to Julius Caesar, Antoninus Augustus, Antonius Augustus, and Antonius Augustus. On a consideration of all the arguments adduced for the date of the work, it would seem that, so far as the work is concerned, there seems to be reason for thinking that some share in the authorship may be ascribed to the three distinguished names, Julius Caesar, M. Antoninus, and Augustus; though such is not the opinion it should bear, 'to desec

ising himself. The main, though not the only argument of Wesseling, seems to be that, had such a work existed in the age of Pliny, it must have been mentioned by him. Negative reasoning of this kind is not of great weight, especially in relation to the authorship of an itinerary, since it is clear that itineraries of some sort must have existed in the time of Pliny can scarcely admit of doubt. Even in the history of Herodotus we find Aristogoras, the tyrant of Miletes, possessed of a map of the whole world on copper; containing every sea and every river; and this historian himself has given a rough kind of itinerary of the road from Ephesus to Susa, apparently from personal knowledge of the route. On the way to India was a corps of officers called Bematists (Bematarii), whose military duty it was to measure the roads and record the different distances. As early as the time of Polybius, the Romans had laid down mile-stones from the Rhone to the Pyre-
ean passes; and Strabo speaks of those from Apollonia on the Adriatic to the Hebrus was similarly marked by a column at every eighth stadia, or Roman mile. Agrrippa, among other ornaments of the Roman capital, designed a noble geographical monument in a representation of the whole world on a portico, a design which was completed by Octavia and her imperial brother in the Octavian portico. Even the provincial city of Augustodunum (Autun) had portraits of the same kind, where maps of every part of the known world was included, and the names were exhibited to the youth of Gallia. Now if any period were to be selected at which it was probable that the grand work of measuring all the roads in the empire would be undertaken, it must be that of the reigns of Julius Caesar in Greece, Egypt, Asia, Africa, and Spain, had at last consolidated the Roman conquests; and he who conferred on his country the great blessing of a well constituted calendar, would naturally direct his attention to an important object of a general survey of the empire. But we are not left to conjecture. Athanas (a geographical writer of uncertain date, but not later than the fourth cen-

tury, if it be true that the term "athenaiote" was borrowed from Greek into Latin) states in as many words that Julius Caesar, the author of the bissextime year, ordered a general survey of the empire under a decree of the senate. This was undertaken in three parts, he tells us, the east by Herodes Atticus, the west by Polyxenus, the middle by Polybius. After they had finished their labours in B.C. 44, the year in which Julius Caesar and M. Antonius were consuls, and finished them respectively in B.C. 30, 24, and 19, when Augustus, now sole
master of the Roman world, gave the sanction of the legislature to the results by a second decree of the senate. This passage of Silius, which certainly bears on the face of it no evidence of forgery or fraud, will well account for the various names prefixed, as above stated, to the MSS. of the Itinerary, and it is sufficient proof of the authorship above cited. Silius himself may have been the editor of the work in the form in which it has come down to us. The Itinerary has been found forming part of the same MS. with his Cosmographia, and indeed even the authorship of the work has been assigned to Silius more than one writer of the middle ages.

That the Itinerary, supposing it to be founded originally upon the above-mentioned public documents, afterwards received many additions and modifications, cannot and should not be disputed. The needful additions to a narrative of events in Britain could not have been added until the time of Severus, whose volumin, or great wall of protection against the Picts, (erected A.D. 209,) is more than once mentioned. The name Diodetianopolis (p. 350) carries us to a period between 285 and 364, and the expression "Porsulis quo modo Maximianopolis," (p. 321, see also p. 331,) "Porsulis, which has been recently changed to Maximianopolis," leads to the same date. The insertion of the name Constantiopolis after that of Byssonio affords but weak ground for any argument, as the words quo et Constantiopolis (p. 139,) and quo Constantiopolis (p. 323) are not found in the Vatican MS. So again the words a Constantinopolis etque Antiochias (p. 146) are omitted in the same place in 1709, as in Silius himself. These three omissions cannot be accidental. And besides these, there is not a trace of any name marking a period later than the reign of Diodetian, for the station Candidiana (p. 233) has no connexion with the son of Galerius, but may be connected with its site, Antiochus. The best evidence for these statements is to be found in parallels, in similar forms in pp. 55, 88, 89, 94, &c. On the other hand Ciria, the great city of Numidia, is not called Constantiopolis; Antiochus on the Phœnician coast is not called Constantiopolis. Nor is there any slightest allusion to Christian religion which might well have been made in speaking of Antiochus; while, on the contrary, we find the names of Juno, (p. 524,) Minerva, (p. 525,) Venus, (p. 526,) Apollo, Diana, and so forth.

As a specimen of the work, we quote a few lines which may be interesting to the reader of Horace's amusing journey to Brundisium. In this extract it will be seen that little regard is paid to the grammatical cases; but this is not an evidence of a very late age, for even before the time of Constantine it had become not uncommon to consider the names of places as indeclinable, and the case selected to serve for all was generally the accusative or ablative. Hence the form antwich, though a variation in the MS. some of which admit of easy explanation, but the occurrence of these errors in the number of miles is the chief drawback from the value of the work. The road commences from Rome.

Antiochus. M. P. XVI.
Tribus tabernis. M. P. XVII.
Appi Foro. M. P. X. [XVIII.]
Tarracina. M. P. XVII. [XVIII.]
Fundia. M. P. XIII. [XVII.]
Formis. M. P. XIII.
Minturnia. M. P. IX.
Sinussae. M. P. IX. [XIII.]
Capua. M. P. X.
Caudia. M. P. XI.
Benevento. M. P. X.
Equo tuco. M. P. XXXI.
Ripa. M. P. XX.
Eridonias. M. P. XVIII. [XVII.]
Canusio. M. P. XXVII.
Rubos. M. P. XXI.
Butuntus. M. P. XI.
Arbital. M. P. XII.
Turnus. M. P. XXI.
Egnatieae. M. P. XVI. [XXI.]
Sipolecas. M. P. X.
Arlacaliae. M. P. XIII. [XXIII.]

ANTONINUS, WALL OF. This was an entrenchment built by the Romans across the north of Britain under the direction of Lollius Urbicus, legate of Antoninus Pius, a.d. 140. It is supposed to have connected a line of forts erected by Agricola north of Antoninus; for of ancient writers, it is noticed by Julius Capitolinus only, and by him is termed a turf wall (murus cepititius.) The work was composed of a ditch, a rampart with its parapet, made of materials promiscuously taken from the ditch, and a military way formed with much skill, running along the whole line of the entrenchment at the distance of a few yards on the south side. It extended from Dunnglass Castle on the Tweed to the Mortimer Castle on the river Trent. Above Chichen, it is said, it crossed the river Avon on the Frith of Porth, or probably to Blackness Castle two miles farther on, though it cannot now be traced so far. In its course are nineteen forts, the eighteen remaining between which and them are 63,880, and the mean distance from station to station is 3554 yards, or rather more than two English miles. In the position of the forts, the Romans chose a high and commanding situation from whence the country could be seen. It was the work of the Antonines. He is the author of a work in Greek entitled A Collection of Metamorphosis (Μεταμορφωσις συγγεγραμμενη;) this collection is borrowed from a variety of authors, and is curious for containing many passages of old authors which have been lost. A manuscript was brought to the notice of H. Verheyck, Leiden, 1774. 8vo. See Bast’s Epistolae Criticae.

ANTONIO, MARCO. [See RAIMONDI.] ANTONIO, one of the claimants to the throne of Portugal after the death of King Sebastian, was the natural son of the Infante Don Luis, son of King Manuel. Antonio accompanied his cousin, King Sebastian, in his unfortunate expedition to Morocco, and was one of the 160 men who accompanied the Antonines. He is the author of a work in Greek entitled A Collection of Metamorphosis (Μεταμορφωσις συγγεγραμμενη;) this collection is borrowed from a variety of authors, and is curious for containing many passages of old authors which have been lost. A manuscript was brought to the notice of H. Verheyck, Leiden, 1774. 8vo. See Bast’s Epistolae Criticae.

Antonio, who had already returned from Spain, hastened immediately to Lisbon, where he summoned the people of the kingdom to receive him as king. Not succeeding here he repaired to Santarem, where the deputies of the third estate had removed from Alferins; and he flattered their vanity by telling them, that the power and conduct of the succeeding prince, Antonio, was the work of his own servants put a rag on the point of a monster. In 1578, after the rising of the English, Antonio, with the assistance of his father, was set on the throne of Portugal. The word was caught by the multitude, and he was proclaimed king.

Antonio now proceeded to Lisbon. The regents fled at
his approach, and he was proclaimed king in the capital also. The regency went to Setubal, where they found that the French forces were there. At the same time, the Spanish government proclaimed the regents as rebels, and a detachment of cavalry was sent in pursuit of them. But the Duke of Alba at the head of the Castilian army, in the meantime, in conjunction with the French, took the town of Setubal, and reduced Elvas, Villaviciosa, Estremos, Montemor, and other places. Alcázor de Sal also opened its gates to the Spaniards, and Setubal afterwards followed its example. The army of the French, with the Spanish fleet, had also taken possession of other places on the coast.

Antonio, at the head of 12,000 men, courageously opposed the invaders, but he was defeated, and the duke entered Lisbon by capitulation. Antonio retreated to Coimbra, and on the 19th of April, 1620, he submitted to Almeida, who plundered the town, and proceeded to Oporto, where he knew he had some adherents. The success of the Castilian arms, however, had so changed the dispositions of the inhabitants, that they had offered to surrender the town to Philip, and openly refused to admit Antonio. But some of his partisans having opened one of the gates, he entered the town like an enemy, and his soldiers committed the most violent excesses. The Spaniards soon arrived before Oporto. Antonio had only 3000 men, chiefly recruits, who fled before the Spanish veterans, and both conquerors and conquerors entered Oporto together. In this hurry and confusion, Antonio escaped to Viana do Minho, where he embarked; but the sea was so rough that he was forced to return. He was now placed in a very perilous situation. A large body of cavalry was in pursuit of him, and the sum of 80,000 ducats was offered for him dead or alive. In this situation he disregarded all the dangers only as a rule of the lower orders, he was able to remain for some months in Portugal, going from one town to another, until last it escaped to France.

Philip published a manifesto in Latin, French, and Dutch, and sent it to Holland and England, from which quarters he expected some assistance. This document bears the date of 1653. In 1658 he came to England, soon after the destruction of the Spanish Armada. He was favorably received by Charles II. and Buckingham, who first refused him any effectual assistance in invading Portugal, she was at last persuaded to equip a fleet in which she sent the exile back to his country. If we are to believe the Portuguese and Spanish historians of the period, the proposals of Antonio were most monstrous. They say that he offered, among other things, to receive English garrisons into all the principal places of Portugal, and to maintain them at his own expense; to abandon the city of Lisbon to the Portuguese; to take Corfu or Corunna, they anchored at Peniche, about twelve miles from Lisbon. The troops were safely landed, and part of them marched under their commander Norris towards Lisbon, while the admiral went up the river with the remainder. The land forces in their march found that the people, instead of joining them, as Antonio had promised, fled at their approach. They advanced, however, as far as the capital, without opposition, and assailed the outworks; but the garrison making a vigorous sortie, the English general commanded his men to retreat; some of them were cut off, and he saved himself, with the remainder, in the fortress of Cascaes. Here, both from want of provisi ons, and from seeing that they had been disappointed by Antonio, whose cause they now considered desperate, the English determined to return home. Antonio retired to France, where he ended his days in obscurity and indigence, in 1585, deserted by his friends, and neglected by all the sovereigns who formerly had espoused his cause. (See Lemos, Historia General de Portugal, vol. xvii.; Antonio de Herrera, Historia de Portugal; Mariana, from the 4th to the 6th of August, 1585. ANTONIO (NICOLAS or NICOLAO), a Spanish writer, born at Seville, in 1617. He received his early education at the Dominican school of that city, where he also studied divinity two years. In 1636 he went to the university at Seville, and became a doctor of laws under the celebrated jurist Ramos del Manzano. In 1639 he was made a bachelor of arts. He returned afterwards to Seville, and devoted his time entirely to collect materials for his Bibliotheca. In 1644 he was created a knight of the Order of the Patriarch of the Most Illustrious Order of St. Philip IV. appointed him general agent for the court of Spain at Rome, where office he held with honour until he was recalled by Charles II. He was then made a canon of Seville, and created a councillor of that city. He died in 1670, and was buried at Béjar. Subsequently, he went to Madrid, where he died of epilepsy on the 13th of April, 1684. He has left behind him the following works: 1. De Exilii Viee de Exiliis pana antiqua et nova, Exempla conditionis et jurisprudentiae, libri tres; cum indice. Antwerp, 1641 and 1659.—Of Banishment, or, of the Punishment of Exile, Ancient and Modern, and on the Conditions and Rights of the Exiles: Antwerp. Antonio was twenty years in Rome. He died in 1684. 2. Bibliotheca Hispana, the best and most complete edition of which bears the following title: Bibliotheca Hispana, vetus et nova, sive Hispanorum Scriptorum, qui ad Octavian Augustum aetatis anno et alumnus Christi MDCLXXXIV. forentur, Notitia. Curante Francisco Perezio Bayero. Matrii, Joachimns Ibarra. 1788. 4 vols. folio.—Bibliotheca Hispana, Ancient and Modern; or, An Account of the Spanish Writers who have flourished since the age of Octavianus Augustus to the year 1684. 3. Censura de Historias Fabulosas. A Criticism on Fabulous Histories. The principal work of Antonio is his Bibliotheca. Buillet says that he confers it to all the works of the kind in existence, not excepting that of L'Alegambre. 'The criticism of the author,' adds he, 'is correct, his Latin pure, his style elevated, though now and then it is obscure on account of its long periods.' This is our opinion, and, for Spanish literature, there is certainly neither a better nor a safer guide. Antonio was a man of a liberal and charitable disposition: notwithstanding the large sums of gold he held, he died so poor that he did not leave his heirs sufficient property to enable them to print part of the works which he left unpublished. Cardinal Aguirre, the author's friend, defrayed the expenses of the work. (See the author's own book and Buillet.) ANTONIO, ST., the most northerly of the Cape Verde Islands.

ANTONIO, MARCUS, the orator, was born 142 B.C.; in 99 he was the colleague of C. Postumius Albinus in the consulship; and in the following year he defended M. Aquilius on a charge of extortion during the servile war in Sicily. In 97 he was censor, and he fell a victim to the fury of Marcus Curtius, who threw himself from the Colosseum near Rome in 87. His eloquence is celebrated by Cicero in his Brutus, chap. 37. 38. Two of his sons appear prominently in the history of Rome.

ANTONIO, MARCUS, son of the orator, and father of the Triumvir Marcus: the younger, a famous orator of Mithridates over the Grecian seas and the adjoining coasts. This evil proceeded to such a degree, that in the year 75 B.C., through the influence of the Consul Cotta, Antonius was intrusted with the extraordinary province of protecting all the coasts of the Mediterranean. Crete was the chief scene of his operations, and though his successes for a time gained him the honorary title of Creticus, the outrages and extortion of which he was guilty, led at last to an insurrection in which he lost his life, about a.D. 69; and the credit of reducing the island was bestowed on Marcus. ANTONIO, CAIUS, surnamed Hybrida, another son of the orator, was the colleague of Cicero in his consulship (a.d. 63). It became his duty, under the orders of the senate, to conduct the war against Mithridates, but when he reached Mithridates' camp at Canes, he was surprised, or pretended to be prevented, by illness from appearing on the field, and the command devolved upon his lieutenant, Petreius. On the termination of the war, Cicero proceeded to Macedonia, where he was created a citizen of the province of Macedonia, which had originally fallen to Cicero's lot, but had been transferred by him to Antonius, from a patriotic desire to attach him to the cause of his country. Such, at least, is the assertion of Cicero. Antonius, on the contrary, gave out that it was the comfort of war, and as Cicero had stipulated for the payment in return of a large sum of money, a charge which Cicero's ambiguous
language and conduct on the occasion seem not to dis
countenance. To raise this money, Antonius was guilty of
great extortion, and his conduct gave such general disas-
terction, that at the end of the first year Pompey threatened
a motion in the senate for his recall. Cicero, who avows
in his private letters that he could not defend Antonius without
injury to his own character, nevertheless exerted his eloquence
most powerfully and successfully in his defence. Accord-
ingly, Antonius held the provocation for a second year; but on
his return (s.c. 59) he was formally brought to trial by
Caecilius on a charge of extortion, and of carrying on war out
of his province without the authority of the state. Though
again defended by Cicero, he was found guilty, and con-
demned to perpetual exile. The trial took place on the very
day that Clodius was adopted into a plebeian family, and thus
enabled to direct his attacks successfully against Cicero.

ANTONIUS, MARCUS, the triumvir, was the son
M. Antonius, surnamed Creticus, and Julia, a member of
the patrician house of the Caesars, sister of L. Julius Caesar,
the consul of 64 b.c. The year of his birth is somewhat
uncertain, being assigned by different authors to 86, 83, and
81 b.c. His father dying while he was yet young, he re-
ceived the greater part of his education under the direction
of his mother Julia, who was at that time married to
Cornelius Lentulus.

In his very outset into life Antony had the misfor-
tune to form an acquaintance with young Curio, and the
two friends entered upon such a course of extravagant
dissipation that Antony was soon deeply involved; but
Curio, being surety for the debt, prevailed upon his father,
by the intercession of Cicero, to discharge it. Among the
Roman nobles who were put to death by Cicero as accom-
plices of Catiline, one of the most distinguished was Antony's
step-father, Cornelius Lentulus, then pretor of Rome. He
was probably guilty; but the consul and the senatorary
party had still more certainly violated the laws in putting
citizens to death without trial. It was natural then, that,
Antony should attach himself to Clodius, when that powerful
tribune (whose character, it may be observed, should not
be taken from his accusers' testimony) was employed in
bringing Cicero to punishment. But Antony did more in
prove of the violence to which Clodius resorted. Accord-
ingly, he went over to Greece, where he diligently applied
himself to the two pursuits most important to a Roman,
ornate and military science. From thence he was invited
to join Gabinus, who, as proconsul of Syria, was engaged
in protecting his province from the ravages of Aristobulus and
his son Alexander (s.c. 57, 56). Antony in this war com-
manded the cavalry, and evinced great spirit and military
talent. In the course of the following year, Gabinus under-
took to restore Ptolemy Auletes to the throne of Egypt,
and again the credit of his success was chiefly due to Antony,
who secured the only road from Syria into Egypt, and made
himself master of Pelusium. Here he showed a goodness
of disposition, for which history has rarely given him credit,
in saving the inhabitants from the furious revenge of Ptolemy.
Gabinus returned to Rome in the autumn of 54, but Antony,
who had now become one of the most successful generals in
the world, hastened to meet his master at the camp near Gallia, where he was in the advice of the consuls for the
camp, and even aspired to the place in the college of augurs, then made vacant by the death of Crassus. His
pretensions to the latter office he withdrew in favour of
Cicero, who, at the intercession of Caesar, was reconciled to
Antony, and promised his election to the questorship,
while he in return opposed the turbulent conduct of Clodius.
No sooner was Antony's election completed than he hastened
back to Gallia, where, at the close of the year, he was left
by Caesar in command of the forces he had brought to par
and the troops there quartered. The following year he was employed
under Caesar in extinguishing the last embers of the Gallic
war; and so fully had he gained the support of the general
that though his weight and Cicero he was elected early in 52
into the college of augurs.

The senatorary party meanwhile had withdrawn Pompey
from his friendship with Caesar, but the tribunitial power was
still a check upon their arbitrary proceedings, and through
the influence of Octavius, Ciceron's son, the tribune was restored
to that dignity. The tribunes entered upon their office on
the 10th of December, whereas the consular authority com-
menced upon the first day of the year. Antony employed this
interval in advancing the just rights of Caesar with the
people. When the Kalends came, however, the senatorary
party put to the vote the fatal motion that Caesar should dis-
band all his troops by a given day, or be treated as a public
enemy. Antony and his colleague Cassius interposed their
tribunitial veto, but the senators were importuned to speak
down all the popular barriers of the constitution; the two tri-
bunes were allowed but six days to consider their veto, and
on the 7th of January the decree was passed which at once
suspended all the laws of the state, and declared the sena-
torian party despotic and irresponsible power over all the
citizens. The tribunes, thus at the mercy of tyranny, fled
in disguise to Caesar, whose army in a few weeks drove the
authors of the late revolution from Italy. On the first expe-
dition of Caesar into Spain, Antony was invested with the
command of Italy, which was again intrusted to him in the
winter of the same year, when Caesar crossed into Epirus.
In the performance of this duty he distinguished himself
by his able defence of Brundisium, and its capture against
the Pompeian fleet under Libo, and soon after he crossed the
Adriatic with reinforcements for Caesar. In this campaign
he on many occasions rendered the most efficient service,
particularly at the battle of Pharsalia, where he commanded
the left wing. In the following year, Caesar, being ap-
pointed dictator, selected Antony as his master of the horse,
an appointment which again gave him the chief authority
in the absence of the dictator. During this period he
showed his firmness in checking the violent proceedings
of Dolabella. Plutarch, indeed, attributes his conduct to a
mere feeling of revenge, in consequence of a supposed in-
trigue between Dolabella and his wife Antonia, for he had
married his own cousin, the daughter of C. Antonius Hy-
bridus. He succeeded in divorcing Antonia, and gained to
the most open licentiousness, about which Cicero's second
Phlepsis abounds with scandalous anecdotes, exaggerated
however most probably by the malice of the orator. One of
the most curious of these accounts, relates the appearance in
public with an actress named Cytheris in a
car drawn by lions. When Pompey's property was confis-
cated, Antony had purchased his house and gardens in the
street called the Via Nova in Rome, and it was agreed that the
money would never be demanded, and when Caesar insisted on the payment, he was obliged to sell a large por-
tion of his property, including a patrimonial estate at Mi-
seum, to raise the required sum. To the fact that Antony
occupied Pompey's house, there was frequent allusion in
Cicero's speeches and the anecdotes of Plutarch. Antony
soon broke off his connexion with the Grecian actress,
which had been the cause of so much scandal, and married Fulvia, widow of Cicero. Antony's army in Spain (45 b.c.) against the sons of Pompey, when Cicero was induced by some exaggerated accounts of their
successes to meditate an escape from Italy, he was checked
by the intercession of Antony, whose better on the occasion
still exists. The next year Antony was the colleague
of Caesar in the consulsipship, but the senatorary party again
dreamed of recovering their power, and the idle affair of
the Spanish war was seized as a pretext for the conspiracy against
Caesar. At once the conspirators there was an attempt on Cicero's life by the
conspirators to admit Antony into their body, but this was
prevented by Trebonius, on the ground that he had himself
made some advances to Antony the very preceding year on
this subject; and he had been declared to be one of them is one proof of the little foundation which Cicero thought
necessary for the grossest charges. He has not scrupled
to accuse Antony of joining Trebonius in a conspiracy to
murder Caesar, when we have the authority of Trebonius
ANT

himself, as reported by Plutarch, for the opposite statement. As Antony was not likely to join in the crime, it was next proposed to make him also a victim, but this was prevented by his escape, which was not disguised. When he was secured, he was put to death in conversation outside of the senate-house while the assassination of Caesar was committed within.

Antony, a man of spirit, but of prudence, said, that it was his design of preserving his friends to the end, so as to avoid their ends by assassination. He amused them, therefore, for a time with the most conciliatory conduct, knowing, perhaps, that the people would soon recover from their first alarm and rise against the murderers of their benefactor, more particularly the veterans who now feared to lose again the rewards of all their past labours. We omit to enumerate a number of acts on the part of Antony, such as his receipt of Caesar's treasures from Calpurnius, his speech over the body of Caesar, his publication of verses, real or pretended, as in the name of Caesar, because a much greater effect was attributed to these acts than they could of themselves have produced. The real power of Antony lay in the detestation in which the senatorial oligarchy was held. The self-styled patriots were soon afraid to appear in Rome, and Antony, supported by his two brothers, Caius and Lu- cius, who happened at this time to hold the offices of praetor and tribune respectively, had a prospect of establishing himself and forming a faction which Caesar had been thrown down. But he found the force of the strongest power in young Octavius (afterwards Augustus), the great-nephew and adopted son of the late dictator, who, with a spirit of friendliness to Antony, did not unite the support of the most opposite parties, the oligarchy and the veterans. Utterly unscrupulous about his means, he made an attempt, at least, Cicero gives his authority to the report, to remove Antony by assassination. After numerous intrigues on all sides, Antony left Rome in October to meet at Brundisium four of the veteran legions from Greece; but Octavius, or, as he now called himself, Caesar, found other veterans in the colonies of Campania ready to support one who was more to be suspected of a name; and two of the four legions from Greece suddenly passed over to him from Antony. Before the year was closed, hostilities commenced in the north of Italy, where Antony besieged Decimus Brutus in Mutina. On the 4th of April, a. c. 43, the first battle was fought, when Antony, after defeating Pansa, was himself the same evening defeated by Hirtius. A few days after, he was again defeated in a twofold attack from Hirtius and Caesar on the one side, and D. Brutus on the other, and compelled to cross the Alps.

The senatorial party were already enjoying their triumph, when the scene unexpectedly changed. The two consuls had fallen in the late contest. Decimus Brutus, though religious, was not without his vindictiveness, and unable to pursue; and Caesar, never sincere in the cause of the senate, and himself supported by the senate only for their own purposes, at last threw off the mask. Ventidius had joined Antony with three legions, and the presence of Antony with such numbers in the territory of Lepidus, then stationed in the south-eastern angle of Gallia, even if Lepidus was earnest in opposition to him. Finally, Ptolemy on the Isara and Pollio in Spain, after a long suspension, declared themselves likewise in favour of the more powerful party. Thus Antony, who had fled from Mutina, with a strong body of cavalry indeed, but with not more than a single legion, if we exclude the unarmed, now retraced his steps to the Alps at the head of seventeen legions, the greater part veterans, the remainder with men who accompanied him, and secured the important province of Gallia. Decimus Brutus, on the other hand, had only ten legions to oppose him, and of these eight were from the recent levies and all of them inferior in recruits to the veterans; but he pressed on to the end and to the equivocal conduct of the senate by marching upon Rome, and extorting the consular fasces.

In the autumn of this year the celebrated triumvirate was again restored, with only two of the three names, Antony, Lepidus, and Octavius, who was called by Lepidus, having once more united. Antony proceeded to Octavia with Pompey and Caesar. Here he heard that his lieutenant Ventidius, to whom he had left the conduct of the Parthian war, had been highly successful, that the invading army had been defeated, and that La- cinius had taken a city which his followers had presumed the same able officer gained a still more decisive victory over the Parthian prince Pacorus, who had invaded the Syrian province,—a victory the more gratifying to the Romans because the triumph followed the expiration of the defeat of Csesar fifteen years before. As these successes had been obtained by a lieutenant under the auspices of Antony, the latter was entitled, by the established principles of Roman warfare, to the honour of the triumph; but Antony, wishing to follow what he called the example of Scipio, sent Ventidius to Rome to enjoy this honour. Another of his lieutenants, Sosius, was scarcely less successful in a Jewish

* It is almost certain that he had previously seen her at Rome, where she was reading at the time of Caesar's death. Antony was at that time consul.
daughter married the learned African prince Juba. (See Cicerio’s Letters and Orations: Cesar; Vellutio; the Epist. Cannae, Life of Antony, Dion, Appian, &c.; and Clinton’s Fasti.)

The heads of Antony and Cleopatra are taken from a silver coin in the British Museum, in which the expression of Cleopatra’s face fully agrees with the assertion of Plutarch, that her fascinating powers depended not so much on her beauty, in which she was inferior to Octavia, as on the charms of her manner and conversation. Plutarch also mentions the remarkable aquiline nose of Antony.

ANTONIUS MUSA. [See Musa.]

ANTRIM, a county in Ireland, bordering on the coast at the N.E. extremity of the island, and in the province of Ulster. It is bounded on the N. by the Atlantic, on the E. by the north channel, (which forms the northern entrance into the Irish Sea, and separates Ireland from Scotland,* on the S.E. by Belfast Lough, on the S. by the county of Down, on the S.W. by Lough Neagh, and on the W. by the county of Londonderry, from which it is separated for the most part by the river Bann.

This county extends from N. to S. 56 miles, and from E. to W. 30½ miles; and contains, according to the trigonometrical survey now making under the direction of the Board of Ordnance, 739,808 acres, of which only 483,048 are arable, 225,970 being mountain and bog, and 49,790 under water. The sea-coast is romantic and picturesque. Near the western extremity of that part of it which belongs to this county, is the Strangford Lough, an immense inland sea, with perpendicular basaltic columns, varying in their number of sides, but chiefly hexagonal, touching each other on every side without intervals or void spaces, and forming a huge mole or pier which extends far into the sea. (Hamilton’s Letters concerning the Coast of Antrim.) (See Giants’ Causeway.) Other specimens of columnar basalt are found along the coast, as at the promontory of Bengore in the neighborhood of the Giants’ Causeway, and at Fairhead, a headland about eight miles east of the last, also in some places inland. From Fairhead, the coast, which runs so far nearly towards W. and E., turns to the southward to the entrance of Belfast Lough, and presents to the eye a succession of precipitous cliffs projecting boldly into the ocean, and broken by a few towns and creeks. On the coast lies the town of Skerries and Rathlin or Raghery. The Skerries are small islands of the Giants’ Causeway. Rathlin is larger, being seven miles in length, and containing about 2000 acres, of which about 500 are arable. It is crescent-shaped, with the horns turned towards the main-land, from which it is separated by the strait of Shunk-na-marr—a—the passage of this strait is often dangerous from the heavy swell. The inhabitants, who amount to 1000, are engaged in fishing, raising barley, or manufacturing kelp. At Don Point, in this island, are some singular basaltic columns, horizontal, perpendicular, and curved. The eastern side of the county is mountainous; there the mountains form irregular groups rather than a continuous chain of mountains intersected with bogs; while it also prevail in the western and flatter part of the county. The principal heights are Slemish, about the middle; and Knocklady or Knocklehad, in the northern part of the county. There is a popular opinion that Belfast is subject to much rain; but this opinion is owing rather to the frequency of the showers than to the actual quantity of rain that falls, which in the years 1795-98 was much below that at Londonderry in the adjoining county to the west.

There are no rivers or streams of any importance running through the county. The largest are the Bush, which, rising in the mountainous district to the N.E., near Knocklady, flows first to the west and then to the north, and falls into the sea.

The distance from the Mall of Caithness, in Scotland, to the N.E. point of the county of Antrim, is less than fifteen miles.

*Of this is mentioned in this article of the account of Antony and Cleopatra on opposite sides; the characters on the medal are Greek. As Antony here calls himself one of the triumvirs, it was probably struck before the downfall of Lepidus.
ANT

into the ocean at Ballintrea near the Giana's Causeway, after a course of about 20 English miles; and the Main, which has a southerly course of nearly 30 English miles from Lough Gule in Ennis, through the town of Randal's Town, and receives the waters of several tributaries. The Bann, a far more important stream, which flows through Lough Neagh, forms the boundary of this county towards the west, separating it from Tyrone. This stream, called the Loher or Lagan, rises in the county of Down, and has a course of nearly 40 English miles into the Belfast Lough, divides the counties of Antrim and Down.

Antrim is divided into fourteen baronies, Upper and Lower Glengarn, stretching along the east coast; westward, Kilconway, Upper and Lower Antrim, and upper and Lower Toome; upper and Lower Belfast, inclosing the county of the town of Belfast, on the south, and comprehending the most beautiful, improved, and populous parts of the county. These baronies include 74 parishes; one in the bishopric of Connor, the rest in the bishopric of Connor, both which bishoprics are in the ecclesiastical province of Armagh.

The estates, with the exception of land held under the see of Connor, are freehold; either immediate from the crown, or held by lease from the grantees. The fee of the greater part of the townland is in the Marquis of Hertford and Donegal. The other principal proprietors are the Countess Massarene, Lords O'Neil and Templeton, and Colonel Packenham. Agriculture is in a flourishing state; the farmers are strongly attached to raising potatoes, the quantity thus appropriated being regulated by the quantity of manure, which latter has been much increased by the use of lime; a small part to raising flax, the ability to purchase seed here guiding the occupier; and the remainder to dairying, coch and cattle, and the smaller part to hayraising, wheat and oats. The potatoe is the principal article raised in the county, and when the land is exhausted, it is left to lie fallow, or 'turned to rest,' until, by receiving the manure saved, it is fitted for raising potatoes again; after which come the oats (sometimes wheat) or flax. Barley is frequently sown, but seldom in large quantities. Beans are grown in one or two parishes on the coast, chiefly for export to Scotland. Clover has lately come to be an object of attention; but turnips, vetches, or kale are little regarded. The small size of these farms, if such they may be termed, and the rockiness of the soil, lead, on the use of spade husbandry; or if the farms are somewhat larger than ordinary, neighbours unite their horses, bullocks, or milch cows to form a team for the plough. Sometimes the work of several Londonderry farmers is united, and the small occupiers, take what are termed 'corn acres,' or 'coon acres,' i.e., ground hired to raise a single crop of potatoes or oats. In the northern part of the county, the tillage is everywhere inferior to that in the north of Ireland, chiefly of milch cows belonging to the small farmers, who cannot give the price for a good heifer; they are, therefore, of an inferior breed. The gentlemen farmers have, however, been desirous of improving their stock by importation. There is, on an average, a cow to each family, without reckoning the population of the towns. Butter is the chief object of the dairy: 92,000 firkins from this county and those of Down and Armagh were, in 1877, exported from Belfast. Cheese is made also; that made in the small market towns is much esteemed. Sheep are little attended to; very little wool is produced for sale, there being no more than is required for domestic purposes. Goats are continually seen round the sabbins; they are tethered by a cord fastened to the horns, and put to graze on the tops of the banks. The dog and the pig are inmates of almost every cabin, and may be considered alike as domesticated animals. The number of pigs reared is very great. In the three winter months of 1862-7, upwards of 71,000, averaging 290 lbs. each, were sold in Belfast, fetching from 1l. 12s. to 2l. 14s. per cwt. The small farmers depend on them for payment of their rents; and eight or ten are a common appendage to a small farm-yard. (Wakefield's History of Ireland; and M.S. Communication from Ireland.)

There is a coal mine at Ballycastle in this county, but the coal is of an inferior sort; and one of fossil wood or carboniferous coal at Killmuckna. Some lignite or English coal is imported into Belfast. Gypsum, marble, and beautiful crystal pebbles, and different sorts of orches are also found.

The great manufacture of the county is that of linen. Flax was once extensively grown in Antrim, but the cultivation of flax has diminished of late years. The seed is almost entirely brought from Holland. It is spun into thread by the women who are employed in the manufacture by industry; yarn spun by the hand is preferred to that spun by machinery, which has been introduced for this purpose, and has caused a great reduction in the price of yarn. The linen of Antrim is of a fine quality; it is spun on both sides, and varies from fine gossamer yarn, or unspun, and weaving it in their own families. Some of them employ journeymen. Others have in their houses two or three looms (costing 1l. to 2l. each) which they let at about 1l. per year, or 3l. or 4l. each to clothiers or bleachers, by whom they are finished, and generally sent to Dublin or London. Some are exported to England unbleached, in order to be completed there. The linens made in the county of Antrim are not, exceeding when bleached thirty-two inches; those of the width of three quarters of a yard are all made here, for certain widths are peculiar to certain districts. In the neighbourhood of Belfast and Lisburne fine yard-wide linens or cambies, lawns and papered flannels, are all made; and at the latter town is also a manufactory of damasks. The linen manufacture, however, it may have enriched the middling classes, has by no means raised the condition of the actual manufacturer, whose long time those hired agriculural labourers, so that many have left the loom to go to field labour. The cotton manufacture has flourished considerably in and around the county, and affords to the working man far greater advantage; by being supplied with the raw material, and the number of persons employed in Belfast Lisburne, Carrickfergus, and the neighboring districts, is estimated at 26,000, having about doubled since 1860. To the introduction of the cotton manufacture, and to the commercial importance of Belfast, may be ascribed the improvement observable in the condition of the people who live in the neighbourhood of that town; in which are concentrated nearly all the other manufactures carried on in this county, as well as a large portion of the foreign commerce. (See Belfast.) There are some salmon fisheries at Custendal, Tor Point near Fairhead, Ballycastle, Carrick-a-rede, and the Bush-foot. The most important one in the Bann near Coleraine rather belongs to the county of Derry. As soon as the fisheries are closed, a part of the catch is supplied with oysters and other fish from Carrickfergus.

The population of the county in 1831 (the last census taken) was 323,306: in 1790, Dr. Beaufort (Memor of Ireland) makes the population of the county of 12,000. According to the returns of the Commissioners of Education in 1824-26, the number of children receiving education in schools was 20,050, of whom 11,800 were boys and 8250 girls: 2685 were of the established church, 11,640 were presbyterians, 430 dissenters of other denominations, 3785 Roman Catholics, and of 330 the religious profession could not be ascertained. The shire town is Carrickfergus, once the first sea-port in the north of Ireland, and then defended by a strong castle, where a great garrison is still kept. The population of the county of the town of Carrickfergus was, in 1831, 8698. Belfast is, however, the place of greatest importance (population 55,287). Both of these are on the north shore of Belfast Lough. Lisburne, on the south, has a population of 5218, and Antrim near Lough Neagh, of 2655. (See the Articles on those places.)

The other towns are Larne, on a lough or inlet of the same name, on the east coast, (population 15,51), in an considerable place with a poor harbour: Ballymena, (population 4063) and Ballymoney, (population 2222), a neat little town, with stone houses, and slated roofs, and having a decent inn; (both these are on the road from Antrim to Coleraine); Glengormley, (population 1546), on the main road, on the north coast; and Randal's Town, a little to the N.W. of Antrim, and near the shore of Lough Neagh. The

* This return refers to the year 1809, and does not seem to include patches of less than one acre, which are very numerous. It is probable that the acre in the Irish acre, which is equal to more than an English acre and a half.
other places called towns in the population returns have
under 700 inhabitants, and are not worth mentioning, except
Connor, which contains the ruins of a cathedral, and gives
name to the diocese.

The chief antiquities are the above-mentioned cathedral;
the round tower at Antrim [see Antrim Town]; the re-
 mains of two other towers, one at Armoy near Bailiecaste,
and the other on Ram Island in Lough Neagh; Dunluce
Castle, at Portpatrick; the ruins of Ballymena, a castle
on the shore of Lough Neagh; and the ruins of a castle on
Rathlin island, which is said to have given shelter to Robert Bruce when driven from
his native land. A crooked and a rocking stone are to be seen in
Antrim town.

The county returns two members to parliament; Belfast
two; Carrickfergus and Lisburne each one. The number of
electors for the county under the Reform Bill of 1832
amounted to 5487, of whom 5305 voted; 165 freethinkers;
4683 in favor of the Reform Bill. Of these 3026 voted at the
last general election (of 1832). Antrim gives the title
of Earl to the family of Macdonnell. (Wakefield’s Account of
Ireland; Beaumont’s Memoir of a Map of Ireland; and MS.
Communication from Ireland.)

Antrim. A town in Ireland, in the county of the same
name, about 105 miles north of Dublin, and about 15 miles
N.W. from Belfast. 54° 43’ N. lat., 6° 6’ W. long. of Green-
wich. It is near 3 miles from the sea, and 4 from the
Lough Neagh, and is a principal town and port. It is
largely inhabited, and is a market town and port. It is
in Ireland, and on the Six-mile Water, a small stream which
flows into the Lough. Although Antrim gives name to the
county, it is not the shire town, and had, in 1831, a popula-
tion of only 2635. It was once, however, a place of
considerable extent and importance, being the capital of
the Dublin Union, returned two members to the Irish House of
Commons, from the mayor being admiral of a considerable extent
of coast, and from the corporation having been entitled to
the customs paid by all vessels within the limit of the juris-
diction thus enjoined by the mayor. This grant was repur-
chased by the crown, and the custom-house was trans-
ferred to Belfast. Antrim consists of one long street,
with the market house in the middle. The parish church
is a modern Gothic structure, with a steep and spire; and
there are a Catholic chapel and several dissenting meeting-
houses. The linen manufacture furnishes employment to
many of the inhabitants. In the neighbourhood are Shane
Castle, the ancient seat of the O’Neills; and Antrim Castle,
one of the seat of the Sackvinstons, Viscounts and Earls of
Massareen, and now of Sackvinston Foster, Earl of Ferrard.
The living is a vicarage in the diocese of Connor.

At Antrim is one of the ancient round towers found in
many parts of Ireland; it is perfect, and is 25 feet high.
The origin of these towers has been keenly disputed by an-
tiquarians; most of them, however, agreeing that they are
the work of the Osmen or Danese. Mr. Ledwich (Antiq-
uites and Art) gives them to have been the bell-tower of
ancient churches. Other opinions have been broached of
late, and by some people received.

This town was the scene of one of the severest contests
which occurred during the unhappy disturbances in the
year 1871, in which O’Neill, father of the present
Earl of Ferrard, received a mortal wound. The insurgents
were entirely defeated.

Antwerp, called by the natives Antwerp, by the
Spaniards Amberes, and by the French Anvers, is situated
on low ground on the right bank of the Scheldt, where
the river makes a considerable bend, in 51° 14’ N. lat.,
and 4° 22’ E. long. It is about 25 miles in a straight line,
next 180 vessels, the capitalized stock of which is 9
miles above Fort Lillo, and 45 miles reckoning to Flas-
ching, at the mouth of the Scheldt, where vessels bound to
Antwerp must take a Dutch pilot as far as Lillo.
The average breadth of the river opposite to the city is about
440 feet, and the rise of the tide is stated at
10 feet. For the two miles in front of the city of An-
twerp the depth at low water is from 22 to 24 English
feet.

Antwerp is a strongly fortified city on the land side, and
has, in addition, a large citadel on the south, built by the
Duke of Alba in 1568. The houses are generally of a sand-
stone called kareteelen, brought from Boom, a few miles
south of Antwerp. This is still magnificent, and once still
rich, and the buildings are most impressive, being the
buildings, and 162 streets, or, according to other accounts,
212. The great glory of Antwerp is its cathedral, the finest
building in the Low Countries; it is said to be 500 feet long,
240 wide, and has a spire of stone, generally said to be above
400 feet high. But accounts differ as to the exact height of
this steeple, some making it as much as 421 feet, and even
more than this. Of the turrets or spires originating in the
Gothic design, none is more magnificent or more strik-
ingly finished. By the kindness of a friend, we are enabled to retic-
the height of the spire of Antwerp cathedral, which must be
reduced to 366 feet at the outside; consequently it is lower
than the English spire far from the Salisbury cathedral, and
the height of this English spire can be depended on. The
height of the Antwerp spire were made with a mountain-
barometer by Jones, and were repeated in order to
secure accuracy. Being warned by this example, we will not
hesitate to venture for the accuracy of the other spires of
the cathedral. With a small telescope, objects may be
seen pretty clearly from the spire of the cathedral for 40
miles round. The interior is adorned with two of Rubens’
finest pictures, one of which represents from the Cross,
is almost unvalued in its masterly grouping. The Hotel
de Ville, or Town House, is a large and handsome building,
with a front of about 260 feet; and the Bourse, or Exchange,
which rests on marble pillars, was the finest building of the
kind in Europe, and is said to be valued at 50,000

dollars. The house of London and Amsterdam were built. St.
James’s church, which contains the tomb of Rubens, a native of the city,
the church of St. Michael, the hall of the Hanse Towns, and
the Antwerp Town Hall, which is the chief public place, are also fine edifices.

The new quay and the great basin of Antwerp were begun by
Buonaparte, when he intended to make this city one of his
strongest naval stations. The area of the great basin is 171
acres, and the depth of water in the basin is 25 feet; the
walls of the great basin are two careening docks, made during
the empire of Napoleon for repairing the ships of war con-
structed here. The new custom house is at the head of the
great basin. Along the whole line of the new quay a row
of elms has been planted, for the purpose of ornament
and to form a pleasant walk in the heat of summer. In such
modes of decorating their chief streets and the environs of
their towns, the people of the Continent are much superior to
ourselves.

Antwerp contains a great military arsenal, dock-yards,
and an extensive rope-walk. The citadel is a regular
pentagon, surrounded by a wet ditch 90 feet broad; it has
five bastions, each containing a casemate capable of holding
400 men. Some years ago it contained the great prison for
felons, where (in 1817) about 1000 were in confinement for
various periods, none for less than five years, for various
offences. They were kept hard at work, but their employ-
ments are described as sedentary, and some of the apart-
ments as ill ventilated and disagreeable.

Travellers cannot fail to be struck with some appendages
of Catholicism to be seen in the streets of Antwerp. Pious
images, and even statues, are dedicated to the Virgin and
child Jesus at the corner of the streets, the former exhibited
in glaring colours, and the latter with a gilded glory round
his head. Napoleon swept away these testimonial of super-
naturalism, if he perhaps showed less policy than the
Protestant king of the Netherlands, who restored the
Antwerp, which was the birth-place of Joaäns, Rubens,
Vandyke, the Teniers, and of Quintin Massays, who, as
the story goes, was changed by love from a blacksmith to a
painter, still possesses many memorials of these illustrious
artists in several good collections of paintings. The geo-
grapher Abraham Ortelius was a native of Antwerp. It
has also an Athenæum, a botanical garden, public library,
and an annual fair, which reaches from the 25th of
September to the 1st of October.

The commerce of Antwerp is still considerable, though
far below what it was in the fifteenth and sixteenth cen-
turies, when at one period it had a population of 200,000,
and 2000 vessels annually entered its port. Its population
in 1811, being due to Dutch authorities, was only 23,000.
995 ships entered its port in 1829, 650 in 1830; and 382
in 1831. A corresponding decrease took place in the number
of vessels that cleared out of Antwerp from 1829 to 1831
exclusive of those that entered into the inland trade, and
the canals with Mechlin, Louvain, Brussels, and with Ghent
by the Scheldt. Its chief fabrics are thread, tape, linen
doth, silks, sugar-refining, calico-printing, and diamond
cutting. They use the French costume at Antwerp, and
wear hats of the highest prices 210,000,000 jet and mercury
bottles, which is a branch of the Brussels bank. Antwerp
exports flax and bark to Great Britain; and madder, refined
sugar, and Belgian manufactured articles to other places.
The language which is most in use among the higher classes of Antwerp is the French, but the Flemish is the true language of the country and of the majority of the people.

We are not able to assign the period when Antwerp became a town; the Ambivareti of Caesar, which is probably a corrupted name, did not live on the Scheldt, as Malte Brun, without the smallest reason, supposes. Antwerp, in the eleventh century, was a small republic. The industry of its inhabitants, joined to its favourable situation, raised it to the rank of the first commercial city of Europe, during the reign of Charles V. But during the reign of his unworthy successor it suffered among the horrors of Alba’s government, and the stormy times that followed the declaration of independence at Antwerp in 1580. In 1576 it was pillaged for three entire days by the Spaniards. The siege of Antwerp, by the Prince of Parma, and its reduction in 1585 after a fourteen months’ siege, form an epoch in the history of the city. By the terms of the peace of Westphalia in 1648, the navigation of the Scheldt was closed, and this, added to other calamities, destroyed the prosperity of the city. The navigation of the Scheldt was opened at the time of the French occupation of Antwerp, which took place in 1792. In 1793 the French evacuated it, but took it again in 1794, when it became the capital of the department of Deux Néthes. It was surrendered to the allies after the treaty of Paris in 1814 by Carnot, who had defended it up to this time. The city suffered after the revolution of 1830 from the cannonading which the Hollanders in the citadel directed against the town.

The last memorable event in the history of Antwerp is the capture of the citadel by the French, under Marshal Gerard. The King of Holland having refused to evacuate the citadel of Antwerp, conformably to the terms agreed on by the high contracting powers, who arranged the separation of Holland and Belgium, the French entered Belgium on Nov. 18, 1839, with about 70,000 men, a large part of whom were merely intended to occupy the country round Antwerp. The citadel was defended by General Chasse, for the King of Holland, with 4500 men. The French broke ground on the night of the 29th of November; on the 14th of December, they made a breach in the face of the Fort St. Laurent by establishing three mines in it, and immediately took the place by assault. The French then directed their breaching battery against the Toldeo bastion, on which they soon made considerable impression. On the 24th the citadel surrendered, and the garrison became prisoners of war. The defence of General Chasse was neither vigorous nor well concerted, though his artillery was well served; and the only result of the obstinacy of the King of Holland was the loss of much life, and the infliction of much human suffering. The loss of the French, according to official reports, was 108 killed, and 695 wounded. The loss of the Dutch, in killed, wounded, and missing, was between 200 and 600. (See Journal of an Horticultural Tour, &c., Edinburgh, 1823; Journal of an Excursion to Antwerp, London, 1833, &c.)

ANTWERP, one of the eight provinces of the kingdom of Belgium, is bounded on the north by N. Brabant, by Limburg on the East, on the south by S. Brabant, and on the west by East Flanders and part of Zealand. The Scheldt separates Antwerp from East Flanders. Its area is about 1103 square miles, and the population (1829), 343,214. The following table exhibits the progress of population in the province of Antwerp for the ten years, from 1803 to 1813.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Births</th>
<th>Marriages. Divorces. Deaths.</th>
<th>Total</th>
<th>Increase of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1803</td>
<td>96,058</td>
<td>21,579</td>
<td>87,129</td>
<td>8,993</td>
</tr>
<tr>
<td>and, from 1815 to 1824</td>
<td>101,471</td>
<td>23,075</td>
<td>70,632</td>
<td>30,848</td>
</tr>
</tbody>
</table>

The following statistical facts are from the tables of Vander Maezen (Établissement Géographique de Bruxelles, fondé par Ph. Vander Maezen en 1830).

He makes the whole superficies of the province about 1097 English square miles, being eight less than our estimate: the uncultivated land is rather more than one fourth of the whole surface; the surface occupied by water (which is not included under the head of uncultivated land) is nearly 3/4 of the whole.

Population in 1831.

<table>
<thead>
<tr>
<th>City</th>
<th>Country</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>122,370</td>
<td>245,220</td>
<td>347,590</td>
</tr>
</tbody>
</table>

Education.

<table>
<thead>
<tr>
<th>Children in common schools</th>
<th>Children in private schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,617</td>
<td>8,557</td>
<td>20,164</td>
</tr>
</tbody>
</table>

Therefore one in every thirteen inhabitants is in the schools, nearly.
Antwerp sends to the chambers at Brussels four senators and nine representatives; the province has one archbishop.

The province of Antwerp is very level. The only river is the Schelde, which receives on the right bank the Rupel at Ruien and, running southwards, finally joins the Meuse at Mechelen, and the Senne which runs by Brussels. As this region belongs to the great delta of the Rhine, it partakes of the marshy character of that extensive country: the earth contains a great proportion of sand, with no stones in the flat districts. The rain water penetrates the surface of the earth and is found in the low parts at about ten feet depth, and is called the Kinsta.

Part of Antwerp exhibits the general productivity of the Low Countries, but this province contains, perhaps, a larger portion of heath and barren land than any of them except Limbourg, or we may say N. Brabant, as a great part of the marsh of Peell is given to N. Brabant by the treaty of London, Nov. 1831. A part of the barren Kesseland or Campine belongs to the east part of Antwerp. Between Breda in N. Brabant and Antwerp the country is described as flat, sandy, and poor, and in part incapable of cultivation, but improving somewhat as we approach to the latter city: as we come near Antwerp, it is pretty well cultivated. Between Antwerp and Brussels it is generally rich and well wooded; following the valley of the Senne we find the country more sparsely inhabited. Between Antwerp and Mechlin (which is near the southern limit of the province) the country is well cultivated. The inclosures made by ditches, dykes, and trees, are kept in good order: such inclosures, indeed, are deeply injurious to the soil. Good crops of wheat, rape, and carrots line the road. The houses are built of brick or stone, and generally thatched with straw; the roads are paved with broken stones. Many fields of broom may be observed along this road: the stems of the broom after three years’ growth furnish fuel for the kitchen or the oven, and are also used in burning bricks; the ground is also found to be in very excellent condition after the broom is cut down, and secures the fields a heavy crop. The valleys of the richest grassland extend along the Schelde as far down as Zantvlott, and to Bergen-op-Zoom in N. Brabant. These Folders, which are lower than the level of the sea and the Schelde at high water, are protected by dykes: they produce excellent crops almost without any other manure than ashes from wood.

The chief towns of the province of Antwerp are, Antwerp, Mechlin, Lier, Turnhout, Gheel, and Boom. The language of the people in the north is Flemish, that of the south is French, and is spoken by the educated classes in the towns. From the peace of Baden, 1714, the county and quarter of Antwerp, as the district was termed, (see Busching's Geography,) belonged to Great Britain in Austria. In 1830 the Austrian crown was put in possession of the Duchy of Brabant, and the former French revolutionary it was united to France, and formed the departement of Deux-Nèthes. In 1814 it became a part of the United Kingdom of the Netherlands, and in 1830 it became a province of the new kingdom of Belgium.

Anubis, an Egyptian deity, represented with the hand of a fox, dog, or jackal, and a human body. In some Egyptian remains we observe him studding by a bier, on which a mummy is lying. Anubis was the son of Osiris and Nephthys, the wife of Typhon, and sister of Astart. He appears to have been considered in some sense as the conductor and guardian of departed souls, and in this respect his vestments resemble those of Hermes, the guide of the Greeks, and Mercurius of the Romans. Other resemblances are suggested between this Egyptian deity and Hermes, (the god with the golden wand, ψαλαγμος,) by the supposition that the element Anub, in Anubis, has the same significance as the Coptic nasal, (see Coptic version, Matt. ii. 11,) signifying gold. (See Jablonsky's Pantheon, Anubis.) For the phonetic name of Anubis as son of Isis, see Anub, iii. 1. 18.

ANVILLE, (JEAN BAPTISTE BOURGUIGNON) D'), a distinguished geographer of the eighteenth century, was born at Paris in 1697. From his boyhood he showed a strong bias for geographical studies. At twelve years of age, while his father was engaged in the sale of a house, he had his hands engaged in drawing maps; these maps were not then so common as they are now, determined his pursuits. He began alone and without assistance to draw maps of the countries mentioned in the Latin classics which he was then studying. For this pursuit he sometimes neglected his regular tasks, and he was once caught in his favourite employment by the professor of his class, who, however, perceiving on the rough sketch before him evident signs of the genius of his pupil, encouraged instead of punishing him. The time thus gained to work at geography was the object of his special predilection. After leaving college, he became acquainted with several learned men of his time, and particularly with the Abbé de Longueve, a most ingenious man of letters, and the author of the account set about drawing several maps of France and its various provinces, for the Abbé's work; Description géographique et historique de la France ancienne et moderne. At the age of twenty-four he was appointed professor of Geography.

Soon after, his map of the kingdom of Aragon was published by desire of the Duke of Orleans, Regent of France, and against D'Anville's judgment, who did not consider it as sufficiently accurate. He was employed by the Jesuits to make an atlas of China for the edition of Du Halde, History of that empire. This Atlas (Nouvel Atlas de la Chine, &c.) was also published at the Hague in 1737. But the work that established his reputation, was his map of Italy, which he published in 1743. He constructed this map chiefly upon a close investigation of the ancient writers, and of the Roman itineraries; he corrected many gross errors of his predecessors, and the accuracy of his work was proved some years after, when Pope Benedict XIV, having enabled Father Bosio, a Jesuit, to visit foreign parts of the papal states, D'Anville's positions were found to correspond pretty closely with the observations of the mathematician. In 1744, D'Anville published his Geographical Analysis of Italy, in ill. fol. where the whole appears in a very clear manner. He shows the difference between his and Sanson and Delisle's maps, he having reduced the area of Italy by several thousand square leagues. He drew several maps of sacred geography, namely, 2 volumes of Africa, and the four Patriarchates of Constantinople, Antioch, Jerusalem, and Alexandria, for the Oriens Christianus of Father Le Quien. It would be too long to enumerate all D'Anville's works and maps, a full catalogue of which is given by Burdié du Bois d'Aulain in his Notice des Maitres sur la Carte des Côtes de la Grèce, 1751, 4to.; Notice de l'ancienne Gaule, tirée des Monumens Romain, 4to, 1760; a work much and deservedly esteemed, in which the author, however, confines himself to the Gaul as it existed at 27 B.C.; a part of it is reprinted and added: Edictumse descriptio geographica sur l'ancienne Gaule, 1743, 12mo.; Mémoire sur l'Egypte ancienne et moderne, suivie d'une Description du Golfe Arabique, 1766, 4to. Mr. Mitchell, in his Travels in Egypt, 1795, 8vo. relates the late part of his expedition to Egypt, says that they were struck with the accuracy of D'Anville's positions. Indeed when we look at D'Anville's map of Egypt, and consider what his materials were for constructing it, we readily admit that it is a most convincing proof of his great industry and acuteness. The navigator Bougainville, also gave a similar testimony in favour of D'Anville's map of Asia, especially with regard to the Molucca islands, and the coast of New Guinea. —Geographie de l'Europe et des îles de l'asie, 1759, 5 fol., translated into English under the title of Compendium of Ancient Geography, London, 1791, 2 vols. 8vo.; Traité des Mesures itinéraires anciennes et modernes, 1769, 8vo., a most valuable work, in which he estimates and compares the itinerary measures which have been in use in various ages, among the nations of Europe and Asia, and ascertains the variations which each had undergone in the course of time; Éléments de Geographie Universelle, 1769, 4to.; L'Empire Turc considéré dans son établissement et ses accroissements, 1772, 12mo. With regard to the geography of Turkey, D'Anville seems to have been fully sensible of the difficulties of the subject, owing to the want of observations, for he
used to say that people in his time 'were better acquainted with the geography of India and China, than with that of the kingdom of Philip and Alexander,' meaning Macedonia; and, in fact, he has himself fallen into considerable errors in his geographical statements. St. Clair shows in his <i>Voyage dans la Macédoine</i>. [See Amphipolis.]

A similar remark will apply to his map of Asia Minor, to the neck or isthmus of which he assigned a breadth from north to south, much less than that by which it is really measured in any degree: this fundamental error necessarily deranged many of his positions, especially in the eastern part of that peninsula. D'Anville's map of the Tigris and Euphrates, though some parts of it are of great value, and even the present delineations are partly founded; in others, and some important points, he has long since been corrected; but so ignorant are we still of the true course of some of the streams that enter the head of the Persian Gulf, earth which cannot we yet positively determine whether D'Anville is right or wrong. In order justly to estimate the merit of D'Anville's exertions, we ought to bear in mind, that in his time geographical information was much more scanty than at present; that comparatively few points of the earth had been determined by astronomical observations; that the surveys of coasts were very imperfect; and that he had, in consequence, but few guides whom he could trust. D'Anville himself had never travelled beyond a hundred miles from Paris; before he made the first measurements for these disadvantages by his indefatigable researches in the authors of antiquity, as well as of the middle ages, who could afford any information on geographical matters, and by comparing the names of rivers and mountains with our conflicting statements and opinions. He was greatly assisted by his wonderful memory. Geography made under him rapid strides towards accuracy; he used himself to say, for he was somewhat of an egotist, that 'he had found a geography made of bricks, and left one of gold.' (See his 'Eloge,' by Dacier, already mentioned.) The maps of D'Anville have been continually reproduced in England in various forms; and errors, which the author could not possibly have been made in our country.

But it was only on the subject of his favourite science that he showed any vanity; in all other matters he was simple and unassuming. He lived more in the past than in the present, more with books than with men. It is remarked by the biographer of D'Anville, (Biog. Universelle, D'Anville,) that his style is not good, and that owing to this and other causes there is often a want of method and clearness in his dissertations. In this opinion we entirely concur: his language sometimes is very inelastic and not very correct, and his discussion of the position of a place would sometimes hardly lead us to expect the precision which we find in his maps. In 1760 he took a professorship at the University of Paris; and the same year he succeeded to the vacant place of first geographer to the king. In 1777 he published his <i>Considérations sur l'Étoile et les Compositions que demande la composition des Queranges Géographiques</i>, a sort of legacy for those who should follow him in the same career. In 1779 Louis XVI. purchased his valuable collection of maps, which he had collected in the course of sixty years devoted to science. D'Anville's compositions, naturally delicate, became now exhausted, his sight failed, and he at last fell into a state of physical and mental imbecility, from which death relieved him in 1782, at the age of eighty-five. His wife, with whom he had passed fifty-one years of his life, died the year before, without his being sensible of her loss. D'Anville left only two daughters. There are two more works translated or compiled in English from D'Anville, besides the 'Compendium' already mentioned, namely <i>A Complete Body of Geography</i>, in six volumes, 1735; and <i>Veteribus Notus</i>, of D'Anville, with additions, London, 1775, and the Geography of the Greeks and the Romans in the time of Alexander and Augustus, London, 1816.

ANZUAN, commonly called Joanna, but more properly Hinzuana, the name given to it by the inhabitants, is one of that cluster of islands which are situated in the channel of Mozambique, nearly at an equal distance from the west coast of Africa and the island of Madagascar, and which are known by the name of the Comoro Islands. Though not the largest of these islands, being smaller than Comoro, Anzuan is the most important, from having the best anchoring-ground, and being the most commodious place for landing; it is much more frequently visited by English vessels trading to the East Indies and China, than has lately been the case. This island is of a triangular form. The most southern point lies in 3° S. lat. and 22° 50' E. long., and to the north it extends nearly to the 12th southern parallel. Its circumference is estimated at from seventy to eighty miles; as to area it may be compared to the island of Madeira, which it resembles in many other points. The shore rises in many parts with remarkable boldness,
and is broken by a few open bays. Rocky reefs extend from its extremities far into the sea; and from the south-western to the north-west point of the archipelago, the sea is bounded by a reef which is occasionally broken, so that two passages at the shore of the island present a succession of mountains and valleys. The mountains are of volcanic origin and some of them rise to a considerable height, probably to 6000 feet and upwards; most of the latter is the spinal range, which is formed of an oblong form and situated near the eastern extremity of the island. With the exception of the highest summits, which present barren rocks, the mountains are covered with tropical evergreen forests, fruit-trees and palm-trees. The valleys are rather narrow, but they contain in some places much level ground which is partly cultivated, and partly planted with trees. The continually changing variety of the landscape offers many highly picturesque views, and Sir William Jones describes them thus:—here he gives the preference over the finest views in Switzerland and Wales.

Though exact observations are wanting, the climate appears to be mild, the heat at least not oppressive even in July.

Rice is raised, but not in large quantities. A kind of vetch is much more cultivated; and forms the principal food of the inhabitants. Yams, papayas, and sweet potatoes, abundant in the kitchen-gardens. The fruits consist principally of various sorts of bananas, coconuts and plantains. The areca-palms are numerous, as well as the shrubs that yield henna: the fruits of the former and the leaves of the latter are used here as in India.

On the most part, the inhabitants are of rank and persons of rank travel in rudely constructed pañakins. Cattle are numerous and excellent, but rather small, weighing only from 300 to 350 lbs each. Goats abound, and a wild species inhabits the most rugged eminences. Poultry is very common, and of the Guinea-fowls thousands may be seen in a wild state. No snakes, nor other venomous reptiles exist in this island: the only annoyance of the inhabitants is the mosquito. Fish abounds everywhere along the shore. Whales are frequently visited the coast of Mozambique, and are often killed by the inhabitants of this island. Cows are found on the shoals in the neighbourhood, and form an article of export.

The population consists of Africans and Arabs. The latter, who compose the upper classes, have introduced their religion, laws, and a part of their knowledge, especially of navigation. But the Africans, who compose the bulk of the population, are very ignorant, and very little advanced in civilization. The government is a monarchy limited by an aristocracy. The king has no power of making war by his own authority: but if the assembly of nobles, who are from time to time convened by him, resolve on a war with any of the tribes, they are free to make the voluntary contributions; in return for which they claim as their own all the booty and captives. As the succession to the title and authority of sultan is not fixed by unalterable laws, but is the subject of the confirmed will of the chiefs of the island, it gives rise to factions, and occasional frequent civil wars, which, together with the depredations of pirates from Madagascar, have lately much reduced the number of inhabitants, who formerly were estimated at about 100,000.

The town of Matalambo, which lies at the end of an open bay, is visited by European vessels for refreshment, and is populous. But the king resides in another town, called Dom młod, which is a good distance from the main town of the island. The trade of this island is very considerable. It sends nothing to the markets of Europe, but has some intercourse with the island of Madagascar, the coast of Mozambique, and the other Comoro islands: it exports the merchandise received from the Europeans returning from Bombay, which it exchanges for elephants' teeth, rice, cattle, and other productions. (Sir William Jones: Capt. Williamson: and Horsburgh's Directory for 1807.)

The Aorta, a Greek word (αορα), is the largest of the vessels from which all the arteries of the body which carry red blood derive their origin. It arises from the upper end of the aorta immediately opposite the lower margin of the cartilage of the third rib on the right side of the chest. From this point it ascends behind the pulmonary artery, still inclining a little to the right side of the chest. It continues to ascend as far as the top of the second vertebral of the back. All this part of the vessel is called the aorta ascendens. When it reaches as high as the lower margin of the first rib, it bends obliquely backwards to the body of the third vertebral of the back. This part of the vessel is called the transverse arch of the aorta. From the third vertebral of the back, where its arch terminates, it proceeds in a straight course downwards through the chest, immediately in front of the spinal column, which banches as it ascends into the right descending and the straight portion of the thoracic aorta. Having passed through the diaphragm into the abdomen, it is called the abdominal aorta; it continues to descend along the front of the spine a little obliquely, until it reaches the fourth vertebral of the loins: here it divides into two branches of equal size, and may be said to terminate, for it now loses the name of aorta; the two great branches into which it divides being the common carotid arteries.

The first two branches which are given off by the aorta are those which supply the heart itself. The great branches which spring from the arch of the aorta are principally distributed to the chest, head, and upper extremities. The branches which arise from the descending or the straight portion of the aorta supply the viscera of the thorax; those which supply the lungs being called the bronchial arteries. The branches which are given off from the abdominal portion of the aorta supply, for the most part, the vessels of the abdomen; and the iliac arteries are distributed principally to the viscera of the pelvis and to the lower extremities.

The structure of the aorta does not differ materially from that of arteries in general (see Artery). At its origin, in the left ventricle of the heart, are placed three valves of a semilunar or crescent shape, termed the semilunar valves, (see Heart) which effectually prevent a reflux current of blood from the vessel into the heart.

The aorta is subject to the same diseases and accidents as the blood-vessels in general, e.g., inflammation, aneurism, ossification, &c. [See Carditis, Aneurism, Ossification, &c.]

Aosta, the duchy of, one of the five divisions of Piedmont, or rather, speaking more properly, according to the present administrative system of that country, one of the eight divisions of the continental states of the King of Sardinia. It consists chiefly of one long valley of the same name, which follows the course of the Dora Balsei. This river, from its source in the Grisan Alps, runs first eastwards for about thirty-five miles, and then turns abruptly southwards below Challant, flowing in the same direction to the village of St. Martin, where it enters the province of Ivrea, or enters the valley of the Po at its main source into the main one on both sides, following the course of the mountain streams which flow from the Upper Alps into the Dora. The principal are on the north side, the Val Lessa, which begins at St. Martin on the Dora and extends for some distance to the great valley of the Dora. The river Challant, called also Val d'Ayas, beginning at the town of Vernez, the Vitricium of the Romans, and stretching likewise northwards to the glaciers of the same range; Val Tournanche, which begins at Challant and runs to the foot of Mont Cervin, to the eastward of which is a pass, called the Joch, perhaps the highest in Europe, and leading to Vieu in the Valais; Val Pellins, which extends north-east of the city of Annecy, and from Mont Velan and Mont Combin to the Col d'Oren, over which there is another pass, nearly 6000 feet high, into the Valais; the Val du Butter, so called from the torrent of that name, which leads from Aosta to the Great St. Bernard. Ascending the Dora from the city of Aosta nearly as far as the Col de Valtournanche, the valley branches out into several high and narrow gorges: of these the Val d'Entrevets contains the village and the baths of Cormaurie, from whence a pass leads northwards over the Col de Linge to the main valley of the river into the Col de la Seigne, over which there is a pass into Savoy. Here the Dora branches into two streams, the right one, called also Allese Blancos, skirts several vast glaciers that descend from the range of Mont Blanc, and leads to the Col de la Seigne, over which there is a pass into Savoy. Here the Dora branches into two streams, coming from the south-west, joins it at Pré St. Didier, a village with mineral waters. The valley that follows this stream, and leads to the pass of the Little St. Bernard, is called Val de la Tuile. This is the best and the easiest of all the passes leading from the Val d'Aosta over
the Alps. A lofty summit, called the Creston, covered with perpetual snow, divides the Val de la Tulee from the Alièr Blanche. The other valleys that branch out from the main one south of the Dora are: Val Grianche, which leads from the village of Grevolone, and includes the famous Bietschhorn, a lofty peak in a lofty group of Alpes that projects eastward of the Grisan range between the Little St. Bernard and Mont Iséran; Val Regence, called also Val di Reima, which leads in a parallel direction from Traversa, Vescovato, Savioche, leading from Villeneuve, on the southern bank of Lake Dora, to the foot of Mont Iséran; Val di Cogne, extending from Aosta to Mont Sanna, an offset from the great chain of Mont Iséran, which incloses the province of Aosta on the south. The valley is the seat of the ancient town of Aosta, the valley of the river Orca in the province of Turin; and, lastly, Val Campontier, which stretches along the same range, and opens to the right bank of the Dora, nearly opposite St. Martin.

Each of these valleys contains villages and hamlets; several hamlets are ranged in groups on the side of the mountain, and the principal one of the group is distinguished by the parish church. The lower parts of the valleys are very fertile; they produce little wheat, but plenty of barley, oats, and rye, all sorts of fruit, and above all, rich pastures, which feed a great number of cattle and flocks of sheep. The Val d'Aosta supplies the neighbouring provinces with milk, cheese, and butter, the latter is of the finest quality, is made by Swiss shepherds from the Valais, who come down by the St. Bernard and buy the milk of the farmers. The peasants of Aosta are industrious, most of them are possessed of some land, and those of the lower villages are always clothed in the finery of the winter, and earn their bread by various callings in the neighbouring countries, from which they return in summer for the labours of their scanty fields. Some have mules, and act as carriers or guides across the Alps; others are tanners.

A considerable transit trade is carried on between Switzerland and Italy by the St. Bernard, which is the most important connection between Bern and Turin. The vine thrives on the plains, and along the valley of the Dora, and the openings of the wines of the Val d'Aosta, especially those of Chambeva, Donaz, and Carema are not inferior to those of Montferrat; there is some very good muscadelle among the rest.

In the Val d'Aosta there are all seasons and climates within a short range. On the Alpine summits are perpetual ice and snow; next are forests of firs and larches; lower down, chestnut and walnut-trees; then vines; and, lastly, the olive, almond, fig, and mulberry-trees growing in all the luxuriance of the south. The traveller who descends the St. Bernard finds at once the climate and the sky of Italy, he hears the shrill cicala, and feels a sun as hot as that of Naples.

The lower Dora and the other streams afford excellent trout. The duchy of Aosta is rich in iron, copper, and lead ore. There are iron works at St. Vincent, near Chatillon, at Monjorat, at St. Marie, at Grusson, at Cogne, La Tulee, &c. There is manganese in the Val de Chalant, as well as at Monjorat, and cobalt at Chalain. There is an abundance of mineral springs. Gold-mines are reported to have been worked in the time of the Romans, but all traces of them are now lost: particles of gold, however, are found in the streams, especially in the Evron, which flows through the valley of Chalant, and Saussure says that some of the peasants in his time gathered them in a considerable quantity out of the sand.

The people of Aosta are honest, quiet, and civil race, who speak a dialect different from the Piedmontese, but resembling rather the romance prosaie of Savoy and western Switzerland. Most of them, however, understand French, and speak it well enough for common purposes: Italian is like a foreign language here, although it is the language of the government, and, as such, spoken by all civil officers and magistrates. The country people retain their old costume: the men wear long frocks of blue, red, or green, with capes, and hose, and worn stockings are of the same colours, buckles to their shoes, and huge hooked-cats. The women wear black or white caps, fastened under the chin, which serve partly to conceal the goitre, or wen, with which most of the people are afflicted. There is, however, some fortune which the people of Aosta have, in common with their neighbours of the Lower Valais, north of the St. Bernard, many of them are blind. This disease is transmitted by some to the water they drink, and by others to the thickest, damp vapours which remain stationary in these deep and narrow valleys. (See Cretinism.) A French traveller, Raoul Rochette, states, that while the Val d'Aosta was under the French civil code, and all the children, female as well as male, shared in the advantages of the establishment ofCretinism gradually diminished, the young women consulting their own taste in the choice of their husbands; but under the present Piedmontese law of succession, daughters being deprived of inheritance are induced to contract marriages with Cretins; and, at present, it is said that there is a move to have visibly forwarded the spread of goitres. The duchy of Aosta, although small in extent and population, is one of the most interesting provinces of North Italy. It is only attached to the Kingdom of Italy by the nature of the highest summits in Europe; Mont Blanc, Mont Iséran, the St. Bernard, Mont Combin, Mont Cervin, and Mont Rosa tower above it, and almost inclose it with their glaciers. It is bounded on the north and north-west by the Pennine chain; on the west and south-west, by the Graian Alps; on the south, by a projection from the latter: and on the east, by an offset from the range of Mont Rosa, which separates its easternmost valley, the Val Lèva, from the neighbouring province of Valais. In the division of Nivara, over this last range is the pass of Col Valdobbiado, above 7000 feet high, affording a communication between the two provinces. A hospice has been lately built on the summit.

It is only at the foot of this mountain that the rocks of Aosta that the mountains leave an outlet into the lowlands of Piedmont, through which the Dora makes its way, and by the side of the river is the only road passable for carriages. The pass is often confused between the mountains on one side and the avalanche on the other; and a road twelve feet wide has been thus made. The land is parapet on the river side, cisselled out of the rock itself: this work is ascribed to the Romans. A column, eight feet high and two in diameter, is sculptured in relief on the side of the mountain, bearing the number XXX. The fort of Bard, now destroyed, rose high above the village of the same name, and completely commanded the pass. The French army under Bonaparte, coming down from the St. Bernard, in May, 1800, was stopped here for several days, by an Austrian garrison of 400 men: the delay might have proved fatal to the conqueror, if the French soldiers had not found means to cut a path over the mountain above, and thus turn the fort; the artillery was hurried through the village in a dark night under a shower of balls from the castle.

The Salassi, a Celtic tribe, are the first inhabitants of these regions mentioned in history. Strabo (book iv.) gives a vivid account of their mode of life. They fought on foot against the Romans: they were defeated in the year 718 B.C., by Marcus Valerius Messalla, who was obliged to winter among the Alps. The poet Tibullus accompanied Messalla in this expedition, to which he alludes in his pontifices. His Gracilis, in his protestation of his love, elsewhere says, "I am not compared to Augustus sent Terentius Varro, who carried on a war of extermination, and completely subdued them: 36,000 of both sexes were sold as slaves at Eperoide (Ivrea). Augustus sent afterwards a colony of 3000 Pannonians, who built the town of Augusta Prætoria, now Aosta. Terentius Varro, having also subdued the Centrones on the other side of the Graian Alps, that country took the name of Taranis, which it still retains. Augustus over the mountain, called the Little St. Bernard, which became the great line of communication from Milan to Vienne on the Rhone. Traces of this road are still to be seen in the Val d'Aosta. After the fall of the empire, the country passed under the domination of the Aosta, the Longobards, and the Burgundians; and lastly, of the Counts of Savoy. Amadeus III., in the thirteenth century, conquered the valley of Aosta, whose inhabitants had involved themselves in the war; and imprisoned the king. The second son on his passage by Turin, granted Amadeus the title of Duke of Aosta, which was borne in the last century by the second son of the King of Sardinia. The last who had it was Victor Emmanuel, who afterwards became king, and who abdicated in 1802. The duchy of Aosta is one of the oldest Italian possessions of the House of Savoy, preserved its integrity, its separate administration, and its own laws, and usages. The whole division, province, or duchy,
for, in this instance, they are all synonymous terms, contains 73 communes, forming seventy monarchical states, and twenty
months to the southern annual). The population, by the census of
1826, was 64,640 inhabitants. The length of the province from
east to west is 55 miles, and its greatest breadth is 30 miles; but the great inequalities of the ground addlargely to the variety of its surface, and to which, it is
ever is occupied by barren mountains and glaciers. (Saus-
ure, Voyage dans les Alpes; Millin, Voyage en Savoie et en
Piemont; Della Chiesa, Istoria del Piemonte.)

Aosta, (in Chish.,) the capital of the province, is
half of the city, is built on the left, or northern, bank of the
Dora Baltea, and at the confluence of the Butier, the water
of which is made to flow through the middle of the streets.
Most of the houses have gardens and orchards; the streets
are more open than in the city of Turin, and the number of old
towns; and the extent of the city consequently appears large
in proportion to its population, which, by the census of 1826,
was only 5,000. Aosta is the residence of the intendente
of the province, and is the seat of the courts of justice; it has
likewise a bishop's see and a chapter, three parish-churches,
besides the cathedral,—a large, old, Gothic structure, in
which is the monument of Thomas, Count of Savoy, who
died here in 1332. In the eastern part of the town are some
ancient ruins, and the remains of the ancient amphithe-
atre, the arena of which is now covered with grass and
trees. The cellar of a neighbouring convent was formerly
the dens of the beasts, and communicated with the arena
by some subterraneous passages. At the north-west angle of the
town is a round tower, which appears to have been intended
for a mausoleum. In the city walls, as well as on the out-
side of several houses, are seen stones and slabs taken from
the foundations of the old Vercellae. At the entrance of the
town is the road to Ivrea, stands a simple triumphal arch of Roman
architecture; it is built of a kind of pudding-stone, and the
marble with which it was casued having been removed, no
inscription or ornament remains, except fragments of the
frieze and the lateral pilasters. Aosta is pleasantly situated
at an opening made by the meeting of several valleys, and
in a fertile country. It is nearly 2000 feet above the level
of the sea, and is 50 miles N. by W. of Turin, and 65 miles
S. of Neapol, on the 40° 27' lat., and 7° 10' long.
Archbishop of Canterbury under William Rufus and
Herbert, a man of considerable learning for his age, was
a native of Aosta. Bernard, of Menthon, in Savoy, the
founder of the Hospice of the St. Bernard, was Architect of
the cathedral of Aosta.

Apanage, (Apanagium, Apanamentum,) the provision of
lands or feudal sovereignty assigned by the kings of
France for the maintenance of their younger sons. This
portion of land assigned was called the apangist, and he was regarded by the ancient law of
that country as the true proprietor of all the seignories
dependent on the apangist, to whom the fealty (fief) of all subjects within the domain was due, as to the
lord of the dominant fief.

Under the first two races of kings, the children of the
deceased monarch usually made partition of the kingdom
amongst them; but the obvious inconvenience of such a prac-
tice occasioned a different arrangement to be adopted under the
dynasty of the Capets, and the crown was permitted to
descend entire to the eldest son, with no other dismemberment
than the severance of certain portions of the dominions for
the maintenance of the younger branch of the family.
Towards the close of the thirteenth century the rights of the
apangist were still further circumscribed; and at length itecame an established rule, which greatly tended to consoli-
date the royal authority in that kingdom, that, upon the
failure of lineal heirs male, the apangist should revert to
the crown.

The period at which this species of provision was first in-
troduced into the law of France, the source from which it
was borrowed, and the origin and derivation of the term
itself, are matters on which the historical antiquaries of
France seem not to agree. (See Pasquier's Recherches,
lib. ii. cap. 18. lib. viii. cap. 20; Calvini Lex Jurid. Ap-
angii; 1726; Paradis, Traité des Fiefs; and Hensault's Hist. de France, Anno 1283.)

By a law of 224 November, 1790, it was enacted, that in
future no apangist real should be granted by the crown, but
that the appanages of the younger branch of the family of France
should be educated and provided for out of the civil list until
they married or attained the age of twenty-five years; and
that then a certain income called rentes appanagères was to be
given to each apangist, which was to be ascer-
tained by the legislature for the time being.

'It is evident, says Mr. Hallam, that this usage, as it
produced a new class of powerful feudatories, was hostile to the
interests and policy of the sovereign, and retarded the
reconstruction of the French monarchy, in which, however, the
monarchy was not to be abrogated, and the scarcity of
money rendered it impossible to provide for the younger
branches of the royal family by any other means."

It is thus explained by the decrees and through the provision of
the Salic law, which made their inheritance of the crown a
less remote contingency, the princes of the blood-royal
in France were at all times (for the remark is applicable
long after Louis XIV.) a distinct and formidable class of
men, whose independence of the government and the-reigning monarch, and, in general, to the people." (Middle
Ages, vol. i. p. 121, 22 edit.)

Apatite, a mineral substance crystallized in the
regular six-sided prism, usually terminated by a truncated
six-sided pyramid. It occurs variously modified by the
removal of its lateral sides and angles. Its specific gravity
varies from 3.25 to 3.5. It is scratched by feldspar, but
scratches fluor-spar. In colour it passes from white, through
various shades of yellow to green and blue, and some speci-
cims possess a red tint; it is usually translucent, but
rarely transparent. From the analysis of Gustav. Rose.
apatite appears to be a compound of phosphate of lime with
some metallic oxides, and is identical with the mineral
which is found in the veins of St. Michael's Mount, Cornwall,
and also in those of Bohemia and Saxony. It has also been
observed in a massive mineral called phosphorite, which
appears to possess a similar chemical constitution, and has
been found abundantly in beds alternating with limestone
and quartz, near Logrosan, in Estramadura in Spain.

Aplome. [See Garnett.]

Ape, (Pithécum,) in zoology, a genus of quadrumanous
mammals, which is fairly justly ascribed to the human species
in anatomical structure, and is justly regarded as the con-
necting link between man and the lower animals. The
word ape seems to be of doubtful origin: in German it is
afse, from which the verb affen appears to have come; this
is, perhaps, more probable than to suppose that affen
came from affen. The name exists, with very slight variation, in
all the modern languages of Teutonic origin; as aep in Eng-
lish, afe in German, aep in Dutch, &c.; these, also, are the
terms of the French Naturals, which retain the original
names to distinguish these animals from monkeys in general.
Our own language is even more copious than others in
terms for distinguishing the different characters of this class of
animals; we say that an ape is a monkey without a tail, and a baboon a monkey with a short tail, reserving the
term monkey more particularly for those species which have
very long tails; and though our early writers use these
three words indiscriminately as synonyms, and apply them
differently to the same animal, yet the significations here
given have generally prevailed since the time of Ray, and
are now exclusively adopted. It must be confessed, how-
ever, that these significations are extremely vague, and
uncertainty does not express the zoological relations which sub-
iminate between the different sections of this group of animals.
Naturalists, therefore, being under the necessity either of
inventing new names, or of changing the meaning of the old,
have, in the present instance, preferred the latter, and
though the change may at first be disagreeable, language
and science will be ultimately benefited by its adoption.

According to its modern zoological definition then, the
genus Ape, or Pithécum, is comprised of all those
mammals which have the teeth of the same number and
form as in man, and which possess neither tails nor cheek
pouches. This definition, whilst, on the one hand, it ex-
cludes certain tailless baboons and monkeys, comprehends,
on the other, all those subgenera and species of the apes,
and gibbons, which, though considered by many good zoolo-
gists as genetically distinct, yet differ from one another by
characters too slight to warrant their separation. Nor are
these the only cases in which the term human is applied
to the apes. Thus, all other animals, approach most nearly to
the human species in organization: indeed, as far as can be
judged from the young subjects usually brought to Europe, their most essential difference in this respect consists in certain modifications of the extremities, which diminish their power of walking with ease on a level surface, but which are admirably adapted to increase their faculty of climbing and grasping. The arms are so long as almost to touch the ground when the animals stand erect on their hind legs; but the legs themselves are scarcely one third of the entire height. The cerebellar stricture of the line and the thighbone; the knees are turned outwards, and the feet are articulated at the ankle in such a manner that their soles turn inward so as to face or be opposed to one another. By these means the sandal embraces or grasp the trunks and branches of trees with much greater force than if their members were constructed like our own: they thus become essentially sylvan or arboreal animals, and never voluntarily abandon the forests, where they find at once the most congenial food and the most perfect security. Their whole organization peculiarly adapts the apes to these habits. Besides the conformation of the extremities just noticed, the fingers and toes are long, flexible, and deeply separated from one another, and the thumb, characterizing the other four, is completely opposed to the other four, as well on the posterior as on the anterior extremities; thus, their feet and hands are equally formed for prehension. They are not quadrupeds, as Buffon has justly observed, but quadrumanous animals, or intermediate between the two. One part of their organization renders them intermediate between the bats and ordinary mammals; another, makes them the connecting link between man and the animals of the same system. In the formation of the anterior extremities, compared with those behind, are precisely what we observe among winged mammals, only that the fingers are not connected by a flying membrane; and their economy and habit equally correspond to the intermediate structure. They are neither confined to the surface of the earth like the generality of mammals, nor do they possess the power of elevating themselves into the air like the bats: but they choose a middle habitat, the forests, where they avail themselves of this very circumstance in another manner: their long arms serve them instead of crutches, and their pace is precisely that of a lame man who walks with the assistance of these instruments. From the oblique angle of their arms, and the situation of the fore-arm, they throw out, on the outer edge of the foot, but the waving equilibrium thus occasioned is secured by the long fore-arms, which can easily touch the ground in all directions; and, while a very small portion of the weight of the body is borne by the half-closed fingers, the weight of the body is borne by the half-closed fists, and then swinging the hinder extremities forward, precisely like a man on crutches. In their native forests the extreme length of their fore-arms is turned to the greatest advantage: hence it acts upon the principle of the rock-dancer's balancing pole, and completely secures their equilibrium even with the most precarious footing. Thus it is that travellers have seen the apes poised at the very extremity of the slender tree-tops with the utmost ease; that they are enabled of a branch from side to side, with the most graceful and easy motions.

Another circumstance in the structure of the apes, in which they differ from most other quadrumanous animals, has considerable influence upon their habits; this is the entire want of a nose. Where it is wanting in other respects superseded by the length of the fore-arms, which supply its place in adjusting the proper balance of the body, the only function which the tail performs in the composition of the head is at the greatest importance distinguishes the real apes from the rest of the quadrumanous, viz., the want of cheek-pouches. These are sacks or cavities in the cheeks, which open inside the mouth between the cheek and the lower jaw, and serve to hold any extra provision which the animal may not at the moment require. The Semnopithecus alone, of all the other monkeys of the old world, resemble the apes in this respect, and hence arise some of the most striking resemblances which the characters and habits of these two genera present. In other respects they are sufficiently distinguished from one another, by the long tails of the Semnopithecus, not to mention their extremities of nearly equal length, and the peculiar stricture of the line and the thighbone; the knees are articulated at the ankle in such a manner that their soles turn inward so as to face or be opposed to one another.

Oliver and some other zoologists have considered this circumstance of sufficient importance to warrant the separation of the apes into two distinct genera, the one characterized by the absence, the other by the presence of cheek-pouches; but it is to be observed that, even where these organs do exist in the apes, it is always in a rudimentary form: they are never developed to such an extent as to indicate the presence of the habits which we here infer, and are not even to be considered as generic characters. In other respects, except in these diminutive cheek-pouches, the gibbons and orang-outang do not differ from the other apes; and even in the same system, the species of the lion, and are most formidable weapons. Unfortunately we know but little of the manners of these animals in their adult state; but this circumstance gives us strong reason to suppose that the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters in proportion to the development of their muscular force, and that in their adult state they are as formidable and mischievous as the extreme gentleness and placidity observed in the young individuals usually brought to Europe do not continue to characterize them in their native climates, but that their disposition alters
our knowledge regarding the gibbons, or that section of the genus which approaches the lower tribes of monkeys by the possession of rudimentary calliories. It consists in the connexion of the index and middle fingers of the hind hands, which are united as far as the last or nail joint, and are, consequently, incapable of separate or individual motion.

The species in which this singularity was first observed has even been named by Sir Stamford Raffles Simia syndactyla, from this circumstance; but if the observations of M. Duvaucelle are to be relied on, it would appear, that this conformation is by no means peculiar to this species. It was the opinion of that naturalist, that the females of most, if not of all the gibbons, partake of the same structure, whilst it is supposed to exist in the male of the Simia syndactyla alone. Now it must be observed, with regard to this opinion, which certainly does not appear to be well-founded, that besides the physical improbability of the males and females of the same species differing in so important a point of their organic structure, a difference of this nature, which there is no other known instance throughout the entire class of mammals, M. Duvaucelle's opinion amounts, after all, to a mere conjecture, since he infers the identity of the species to which he attributes this sexual difference, only from the circumstance of having procured his specimens at the same time and in the neighbourhood of one another.

The female of the Simia lar, also described by the accurate Daubenton, and supposed by MM. Duvaucelle and Frederick Cuvier to be the same as the oonko of the former naturalist, was certainly devoid of this character, expressly assigned to the female oonko, and differed in many other respects, as will appear in the sequel. If, therefore, we adumbrate on the one hand, that M. Duvaucelle's observations establish the existence of this organic singularity in other species besides the Simia syndactyla, it appears probable on the other hand, that this gentleman was led into error in attributing it to the females only, from having too hastily considered as sexual differences merely, distinctions which are in reality the characters of different species. This view strips the case of its most serious difficulties; for, as far as the mere union of the fingers is concerned, though it is certainly a remarkable circumstance in the organization of animals so high in the scale of existence as the apes, that modification is by no means peculiar to these animals. The greater number of the marsupial quadrupeds of New Holland, the kanganoso, petorosos, koalas, phalangers, petaurus, peramelas, and phascolomes, possess the same formation, and it is well known that the entire order of inceessores or perching birds are principally distinguished by the same character. In no known instance, however, has it ever been observed to mark a sexual distinction.

1. The Chimpanzees (P. troglodytes, Linn.) is that species of ape usually placed next to man in the scale of animal existence; though Baron Cuvier has contested its right to this position on the ground of the greater development of the region of the brain, and the comparative height of the forehead, as exhibited in the very young individuals brought to this country. M. Duvaucelle's preference of the latter species arises simply from the greater development in the region of the brain, and the comparative height of the forehead, as exhibited in the very young individuals brought to this country; but it is to be observed, that these marks of superior mental powers are completely obliterated in the adult animal; and that, in other respects, both the organic structure and intellectual capacity of the chimpanzees appear to be of a higher order than those of the orang-outang. The African species, for instance, has nearly the same proportion between the anterior and posterior extremities that is exhibited in mankind; nor has it the deformed neck and high shoulders of its Indo-Malayan congener. These circumstances probably preclude a greater facility of walking upright, as this species is commonly reported to do, and which is greatly impeded, by the long and disproportionate arms of the orang-outang. But no adult specimens of these animals have ever been brought alive to Europe, and are very seldom to be seen even in their native forests; and we are not aware that the full grown chimpanzees exists in any museum. Our information is, consequently, derived either from the observation of various young specimens, or from the statements of African travellers only, and is not detailed at second hand, and, therefore, to be admitted with caution.

The head of the chimpanzees, even in the young individual, is much inferior to that of the orang-outang, a prominent bony ridge or crest over the eyes, and the entire absence of the eyebrows, though not so marked a distinction, as respect it is certainly inferior to the young orang-outang, which exhibits a remarkable elevation of forehead, and a rotundity of the
apes... by forming a purely fictitious being, out of two or more real natural animals. Linnaeus, upon this, as on all other subjects, judged with greater accuracy than Buffon; yet the great author of the Systema Naturae, with all the profound knowledge, acuteness, and calm unbiased spirit of inquiry by which he was so eminently distinguished, long hesitated whether to consider the chimpanzees as a second species of the genus homo, or the first among the apes. It was only, indeed, in his last edition that Linnaeus finally adopted the latter opinion, and learned to consider this extraordinary animal as generically distinct from man himself. That the stories of the pygmies, cynocephali, and other strange and deformed people, supposed by the antiquaries to inhabit different parts of Africa, arose from vague reports of different species of apes and monkeys, appears to be highly probable; but the term troglodytes, which some authors have supposed to refer to the animal at present under consideration, denoted in reality a race of barbarians, as is well known to those who interest themselves in antient geography. [See Trogology.]

All travellers agree in assuring us, that, in a state of nature, the adult chimpanzees live in society in the woods, where they construct huts to protect themselves against the sun and the tropical rains, by intertwining the leaves and branches of trees; that they walk upright, arm themselves with clubs, and unite to defend themselves against the attacks of wild beasts, compelling the elephant himself to abandon the districts in which they reside. It is dangerous for men to enter these forests, unless in companies and well armed; women, in particular, are often said to be carried away by these animals, and one negro is reported to have lived among them for the space of three years, during which time they treated her with uniform kindness, but always prevented any attempt on her part to escape. When the negroes leave a fire in the woods, it is said that the chimpanzees will gather round and warm themselves at the blaze, but they have not sufficient intelligence to keep it alive by fresh supplies of fuel.

The chimpanzees generally brought to Europe, and whose manners have been observed by naturalists, were all of immature age. A specimen exhibited some years ago at the Egyptian Hall, London, in company with the orang-outang, of about the same age, afforded a very favourable opportunity for comparing the form and habits of these two animals. The chimpanzee, though in a declining state of health, and rendered peevish and irritable by bodily suffering, exhibited much superior marks of intelligence to his companion; he was active, quick, and observant of everything that passed around him; no new visitor entered the apartment in which he was kept, and no old one left it, without his noticing it. On the contrary, exhibited a melancholy and a disregard of passing occurrences almost amounting to apathy; and though in the enjoyment of better health, was evidently much inferior to her companion in quickness and observation. On one occasion, while these animals were dining off potatoes and boiled chicken, and surrounded as usual with a large party of visitors, the orang-outang allowed her plate to be taken away, without exhibiting the least apparent concern: not so, however, the chimpanzee; we took advantage of an opportunity, whilst his head was turned to observe a person coming in, to secrete his plate also; for a few seconds he looked round to see what had become of it, but not finding it, began to pout and fret exactly like a spoilt child, and presenting a young lady, who happened to be standing near him, laughing, or, perhaps, suspecting her to be the delinquent, he flew at her in the greatest rage, and would have probably bitten her had she not got beyond his reach. Unaccustomed to the use of fingers, he cornered the monkey on the subject of his plate, and succeeded in regaining it. The orang-outang, on the contrary, seeing the expression of his rival, smiled, and then devoured his share of the repast. This was the first time that the chimpanzee had ever been seen at such a meal, and his amazement on the first occasion was so great that he was never afterwards induced to share in it.

The orang-outang (P. Sultryus, Lin.), the most celebrated of all the species of the most remote and unfrequented forests in the interior of Borneo, Java, and Sumatra: perhaps also of the southern provinces of China and the Malay Peninsular, but the authorities upon whom their latter habitats rest, are not so in unequivocable. Though exhibiting in early youth a rotundity of the cranium and a height of forehead altogether peculiar, and accompanied, at the same time, with a gentleness of disposition and gravity of manners which contrast strongly with the petulant and irascible temper of the lower orders of quadramanous mammals, the orang-outang in its adult state is even remarkably for the flatness of its reposing forehead, the great development of the superorbital and occipital crests, the prominence of its jaws, the remarkable size of its canine teeth, and the whole form of the skull, which from the globular shape of the human head, as it appears in the young specimen, assumes all the forms and characters belonging to that of a large carnivorous animal. The extraordinary contrasts thus presented in the form of the skull, as different epochs of the same animal's life, were long considered as the characters of distinct species; nor was it till intermediate forms were obtained, exhibiting in some degree the peculiarities of both extremes, that they were finally recognised as distinguishing different periods of growth only.

These characters of the adult animal, as well as the disproportionate length of the arms, the short, thick neck, formed by two large membranous sacks, which give a peculiar shrill and hollow tone to the animal's voice, and other details of its general organization, debase the orang-outang in the scale of existence when compared with the chimpanzees. The great length of the arms is certainly the most striking peculiarity about this animal, more particularly when compared with the shortness of the body and legs: when standing perfectly upright, the fingers can almost touch the ground, and hence it arises that the biped station is by no means so convenient for this species as for the chimpanzees. It is seldom, therefore, that the orang-outang attempts to walk on the hind feet alone; but when it does, the hands are invariably employed for the purpose of steadying its tottering equilibrium, touching the ground lightly on each side as it proceeds, and by this means recovering the lost balance of the body. Like the chimpanzees, this species is destitute of callousness; the muzzle is considerably prolonged, the mouth large and ill-formed, the lips thin and protruberant, the chin almost wanting, the ears remarkably small, and the nose so flat as to be recognised only by the nostrils. The face, ears, and hands are naked, and of a reddish brick colour, the fore parts of the body also are but thinly covered with hair, but the head, shoulders, back, and extremities are very thickly clothed with long hair of a dark vinous red colour, directed forwards on the crown of the head, and upwards towards the elbows, on the fore arms. The nails of the hand thumbs are sometimes wanting in young individuals of this
species, but the character is by no means general, much less universal, nor is it a specific distinction, as some writers would have it. The relations which Europeans have maintained with India, ever since the end of the fifteenth century, have afforded frequent opportunities for observing this animal, and different observers have been at different times introduced into England, Holland, France, and Portugal. In youth it is principally remarkable for its gentle and affectionate disposition, but the cold and moist character of our northern climates always prevents the development of its faculties and terminates its life in a very few months. The following account of the habits and manners of a specimen, observed by Dr. Clarke Abel in Java, exhibits the animal in more favorable, because more natural, circumstances.

The common orang-outang, says Dr. Abel, is found in a tall tamarind tree near my dwelling, and formed a bed by intertwining the small branches and covering them with leaves. During the day, he would lie with his head projecting beyond his nest, watching whoever might pass under, and when he saw any one with fruit, would descend to obtain a share of it. He always retired for the night at sun-set, or sooner if he had been well fed; and rose with the sun and visited those from whom he habitually received food. On board ship he is commonly slept at the mast-head, after wrapping himself up in a sail. Sometimes I pre-occupied his bed, and teased him by refusing to give it up. On these occasions, he would endeavour to pull the sail from under me, or knock me down, till I had signed about it. If all the sails happened to be set, he would hunt about for someone other covering, and either steal one of the sailors' jackets, or empty a hammock of its blankets. His favourite place in Java was a grove of cocoanut trees, or climbing over the roofs of houses; on board, in hanging by the ropes, or romping with the boys of the ship. He would entice them to play by striking them with his hand as they passed, and then bounding from them, but allowing them to overtake him and engage in a mock scuffle. Of some small monkeys on board he took little notice whilst under the observation of the persons of the ship. Once, indeed, he openly attempted to throw a small cage containing three of them overboard; but I had reason to believe that he was not so indifferent to their society when free from observation. On one occasion I observed him, lying on his back, partially covered with a sail, contemplating with great gravity the gambols of a young monkey which was bounding over him: at length, he caught him by the tail and tried to envelop him in his covering. The monkey seemed to dislike the confinement, and broke from him, but again renewed its gambols, and though frequently caught, always escaped. The intercourse, however, did not seem to be of equals, for the orang-outang never condescended to romp with the monkeys as he did with the boys of the ship. Yet the monkeys had evidently a great predilection for his company, for whenever they broke loose, they took their way to his resting-place.

But though so gentle when not exceedingly irritated, the orang-outang could be excited to violent rage, and on one or two occasions committed an act which, in a rational being, would have been called the threatening of suicide. If repeatedly refused an orange when he attempted to take it, he would shriek violently, and swing furiously about the ropes, then return and endeavour to obtain it; if again refused, he would roll for some time like an angry child upon the deck, uttering the most piercing screams, and then, suddenly starting up, rush furiously over the side of the ship and disappear. On first witnessing this act, we thought that he had thrown himself into the sea; but, on searching, found him concealed under the chains.

It is very seldom that the adult orang-outang has come under the observation of Europeans. An interesting paper, relative to the capture of an individual seven feet high, likewise from the pen of Dr. Clarke Abel, is contained in the 15th volume of the Asiat. Researches. This animal was discovered by the company of a merchant ship, at a place called Rambon, on the north-west coast of Sumatra, on the 20th of April. After being there but few days it was evident that he had come from a distance, for his legs were covered with mud up to the knees, and the natives were unacquainted with him. On the approach of the ship it came down from the tree in which it was discovered, and made for a clump at some distance, exhibiting, as he moved, the appearance of a tall man-like figure, covered with shining brown hair, walking erect with a waddling gait, but sometimes accelerating his motion with his hands, and occasionally impelling himself forward by the bough of a tree. His motion on the ground was evidently not his natural mode of progression, for even when assisted by his hands or a stick it was slow and vacillating; it was necessary to see him amongst the trees to estimate his strength and agility. On being driven to a small clump, 'says Dr. Abel, 'he gained by one spring a very lofty branch, and bounded from one branch to another with the swiftness of a common monkey, his progress being as rapid as that of a swift horse. After receiving five balls, his exertions relaxed, and reeling exhausted against a branch, he vomited a quantity of blood. The ammuniotion of the hunters being by this time exhausted, they were obliged to fell the tree in order to obtain him, but what was their surprise, to see him, as the tree was falling, effect his retreat to another, with seemingly undiminished vigour! In fact, they were compelled to cut down all the trees before they could force him to combat his enemies on the ground, and when finally overpowered by numbers, and nearly in a dying state, he seized a spear made of a supple wood, which would have withstood the strength of the stoutest man, and broke it like a reed. It was stated by those who aided in his death, that the human-like expression of his countenance, and his picturesque manner of placing his hands over his wounds, distressed their feelings so as almost to make them question the nature of the act they were committing. He was seven feet high, with a broad expanded chest, and narrow waist. His chin was fringed with a beard that curled neatly on each side, and formed an ornamental rather than a frightful appendage to his visage. His arms were long even in proportion to his height, but his legs were much shorter. Upon the whole,' adds his biographer, 'he was a wonderful beast to behold, and there was more about him to excite amazement than fear. His hair was smooth and glossy, and his whole appearance showed him to be in the full vigour of youth and strength.'

3. The Stiasang (P. syngactylus, Raffles) is an interesting species of ape discovered in Sumatra by the combined researches of the botanist, Diardi, and Ducrueuille. It is the largest of the subdivision of gibbons, or apes distinguished by the possession of small rudimentary callosities, and in this respect, as well as in the lower structure of the hands and feet, in which it stands inferior in the scale of natural beings to the chimpanzee and orang-outang. Its skull is small and depressed; its
face naked and black, a few red hairs only marking the forehead and chin; the eyes deeply sunk under large projecting brows; the nose broad and flat, with wide open nostrils; the mouth opens almost to the articulation of the jaws; the eyes, especially, are very striking, being large and black, and the chin rudimentary. The hair over the whole body is extremely thick, long, and of a glossy black colour, much closer on the shoulders, back, and limbs, than on the breast, which is peculiarly thin in the females, its being nearly naked. The scrotum of the males, also, is furnished with a tuft of very long straight hair, which descends to the knee, and readily distinguishes this sex from the females, which, on the other hand, are recognised by their naked breasts and bellies, and prominent nipples, being always covered by large, prominent nipples. The ears are entirely concealed by the hair of the head; they are naked, and, like all the other naked parts, of a deep black colour. Beneath the chin there is a large bare sack, of a lax and oily appearance, and producing those astounding cries, which, according to M. Duvaucelle, account, may be heard at the distance of several miles.

Nor is this the only point in which these two species resemble each other. The orang-outang, M. Duvaucelle says, has the hair of the head directed forwards so as to shade the forehead, as in the human species, and that of the fore-arm directed upwards towards the elbow; where, encountering the hair of the head, which grows in the contrary direction, it forms a prominent tuft. But the greatest part of the organization of this species, consists in the union of the index and middle fingers of the posterior extremities, from which it derives its specific appellation of *syndactylus*, and which, being connected together as far as the nail-socket, are altogether destitute of separate or individual motion.

The habits and character of the siamang are so vividly painted by M. Duvaucelle, from observations made upon this animal, on its high mountain, nor can we do better than translate his account as communicated in a letter to M. F. Cuvier. 'This species,' says M. Duvaucelle, 'is very common in our forests (those, namely, in the neighborhood of Sumatra, in Sumatra), and I have had frequent opportunities of observing it as well in its wild state, as in bondage. The siamangs generally assemble in numerous troops, conducted, it is said, by a chief, whom the Malays believe to be invulnerable, probably because he is more agile, powerful, and difficult to attain than the rest. Thus united, they salute the rising and the setting sun with the most terrific cries, which may be heard at the distance of many miles, and which, when near, stun, when they do not strike fear into the breast, but a mountain-shaking noise, which the Malays, but to the inhabitants of the town, who are unaccustomed to it, is a most insupportable annoyance. By way of compensation, they keep a profound silence during the day, always keeping into the dark wood, or among their sacred temples. These animals are slow and heavy in their gait; they want confidence when they climb, and agility when they leap, so that they may be easily caught, when they can be surprised. But nature, in depriving them of the means of readily escaping danger, has endowed them with a vigilance which rarely fails them; and if they hear a noise which is not known to them, even at the distance of a mile, fright seizes them, and they immediately take flight. When surprised on the ground, as is generally the case, they think that resistance, either overwhelmed with fear, or conscious of their weakness and the impossibility of escaping. At first, indeed, they endeavour to avoid their pursuers by flight, and it is then that they show the most apparent signs of terror. Their body, too, tall and heavy, for their short slender thighs, inclines forward, and availing themselves of their long arms as crutches, they thus advance, jerks, as if they trembled under the weight of a lame man, whom fear compels to make an extraordinary effort.'

However numerous the troop may be, if one is wounded it is immediately abandoned by the rest, unless indeed it happens to be a young one; then the mother, who either carries it or fetches a branch behind, either makes it, and uttering the most frightful cries, precipitates herself upon the common enemy with open mouth and arms extended. But it is manifest that these animals are not made for combat; nor can they defend themselves; nor, on the contrary, the animal in a fit of rage or terror, when it is almost mad, endeavors to throw a branch or a stone; and if it happened to fall into the hands of the tree, it then seizes the most flexible branches, and...
balancing itself two or three times to secure its equipoise, it thus springs successively, without effort as without fatigue, to the nest and up again. As a wild domestic animal, the wouwou exhibits no extraordinary faculty. It is less clumsy than the siamang, its movements are more prompt and graceful, but its manners are less lively than those of the monkey tribes in general, in looking up and down, beckoning with the extremity of its long slender arms and short bony legs, one would be far from supposing that its muscles were so vigorous and its address so surprising. Nature, however, has not bestowed upon it a large portion of intelligence; in this respect, it is not superior to the siamang; superior species are equally deprived of that high and expanded forehead, which indicates superior intellectual powers, and this is one of the principal points of coincidence between them. When the wouwou is excited, however, I am inclined to think that the wouwou is susceptible of a certain education; it has not the imperturbable apathy of the siamang; it may be frightened or pleased; it flies from danger, and is sensible of good treatment; it is glutinous, curious, familiar, and sometimes even gay. Though deprived of the guttural sound so remarkable in the siamang, its cry is very nearly the same; so that it would appear that this organ does not produce the effect of increasing the sound usually attributed to it, or else, that it must be placed in the wouwou by some analogous formation.

The height of the adult wouwou, measured from the sole of the foot to the crown of the head, is two feet seven or eight inches, from ear to ear, one foot twelve inches, and in its arms nearly touch the ground; the thumbs of the hands are very short, but those of the feet are long in proportion, and capable of being completely opposed to the other toes; it has a hand, in fact, like that of a man. It has external eye-sockets, and cheek pouches, and in other respects perfectly resembles the common ape of the gibbon family. The female is rather smaller than the male: it is known by different names in Sumatra, of which wouwou is the most common, and is meant to imitate the voice of the animal.

5. The Onuko (P. Rafflesi, Geoffr.) is another species discovered, like the siamang and wouwou, during the expedition of Sir Stamford Raffles and Mr. M. D. D'Urville in the unexplored forests of the interior of Sumatra, and named by M. Geoffroy St. Hilaire, after the first of these distinguished zoologists. This animal, which is called onuko by the Malays of Padang, appears to be of very rare occurrence; since, during fifteen months' residence on the island, the French naturalists above named never had reason to suspect its existence, though they had penetrated the woods in all directions for the express purpose of investigating its souteny. It has only a short time previous to their departure that they made the discovery; and as they enjoyed no opportunity of studying its manners, we are, consequently, deprived of those interesting details which have been furnished regarding the habits and economy of the species last described.

The size of the onuko is a little less than that of the wouwou, to which it bears so close a resemblance in form and proportions, that these two species are only to be distinguished by the difference of their colours. That of the onuko is in general black, less deep and brilliant indeed than that of the siamang, and in some degree resembling the fur of the wouwou in its length and thickness, and in the brown shade which it assumes in certain lights, especially on the loins, which are a uniform dark brown. It further resembles the latter animal by its large white whiskers, uniting to form a scanty white beard under the chin, and by a short black tail, sometimes covered with white. As to the throat it is not naked and distensible as in the siamang, but only more sparingly furnished with short hair than the breast and belly, and the scrotum is provided with a long pendent tuft of hair which hangs down nearly to the knees. The female, according to M. D'Urville, has the index and middle fingers of the posterior extremities united as in the siamang; and upon dissection it was found that this animal had fourteen pairs of ribs, being one more than in the former species. As to its voice, 'the onuko bears a close resemblance to the siamang in the nature and colour of its fur, and to the wouwou in its white eyebrows and whiskers, its physiognomy and general proportions; in the absence of the guttural sound in the index and middle-finger on the hind hands of the female only.' This sex further differs from the male by its smaller stature and the absence of the white whiskers, of which no further trace remains than two light brown marks over the eyes. With this exception the head is uniformly black; the ears and nostrils are black; and the back and shoulders are unusually long and thick, and forms a kind of mane, of which some traces likewise exist, though in a smaller degree, in the siamang and wouwou. The hair of the fore-arms and hands, from the lithographic plates of M. F. Cuvier, is reversed, as in the siamang and orang-outang; whilst in the wouwou, it is directed towards the wrist as in ordinary mammals.

6. The Tarsius (Tarsius, Cuv. or Proceedings of the Zoological Society, 1830), originally described by Buffon and Daubenton, and confirmed by Sir Stamford Raffles (in his Catalogue of Sumatran Animals, inserted in the 13th volume of the Transactions of the Linnean Society) with the onuko, is, however, a very distinct species, and is not only different from the former neither from the latter, but also from any described in its internal conformation. It is indeed true that these two species resemble one another in the quality and general colour of their hair, and in the white circle which more or less surrounds the face of both, but the hands and feet of the onuko are black, like the rest of the body, whilst in the gib- bon they are light-grey, and form a striking contrast with the colour of the other parts; the hair of the fore-arm, likewise, is reversed in the former species, and directed in the usual manner towards the wrist in the latter; at least such is the direction given to it in the engraving of Buffon, and there is nothing said to the contrary either in his description, or in that of the accurate Daubenton (in the memoir, in which he could not possibly fail to notice it). As to the front of the face, in the index and middle hind toes are separate in the female gibon; whilst in the onuko they are united (always presuming that M. D'Urville's specimens were really the male and female, as he seems to have thought them to be, with some reason to doubt); and, finally, there are but twelve pairs of ribs in the gibon, and fourteen in the onuko, as demonstrated by the dissections of Daubenton and D'Urville respectively.

The gibbon observed by Buffon was, like the generality of its congers, of a gentle, affectionate disposition, and quiet and deliberate in all its movements; it was fearful of cold weather, and shied at the least rustling of leaves. It was certainly as leathery as any other gibon whose vehicles presented to it, with a gentleness very different from the abrupt and eager manners of the monkeys and baboons. It was brought from the Indian Archipelago.

7. The Pithecus leucatus of Geoffroy, also called wou- wou by the Malays, is a species of which we have at present but an imperfect knowledge. It closely resembles the P. agilis, but is of a uniform ash-grey colour, with a black, naked face, and white or yellowish underparts. It possesses much larger calves. Its hair is of a softer and more furry quality than in the other apes, and its face is surrounded by a circle of light grey, the ears, hands, feet, and top of the head being black, and its tail mostly brown. Pursuing this animal, obtained his specimen from the Molucca Islands, where the species is often seen swelling itself among the long slender branches of the bamboo. It is said often to walk upright; its habits are active, and its disposition irritable and passionate.

APPELLEANS. [See HERETICS.]

APPELLES, one of the most celebrated Greek painters, is generally considered to have been a native of the little island of Cos in the Aegaean sea. Nearly all that we know about him, with the exception of some few scattered notices, is contained in the 10th chap. and the 25th book of Pliny's Natural History. The time of his birth is not fixed, but it is generally agreed that he flourished about the middle of the 4th century, and that he was the author of some of the earliest works we know nothing; but we are told that his diligence was unwearied, and that he never passed a day without doing something; ' ut non linearis duxerat artes, sed etiam delapsa manu sedes,' or ' that he never passed a day without trying to improve himself as a draughtsman,' a sense which the words will very well bear. The story of his first acquaintance with
Protagoras the Rhodian painter, as told by Pliny, is credi-
table to the character of both artists: indeed Apelles is
much praised for the frankness and plain-dealing of his
character. Apelles was told of a manner natural enough in
such circumstances. To prevent the books from getting into the hands of the King of
Per-
gamus, in whose dominion they resided, and who possibly
might have observed a defect in the capital without much regard to the rights of the owners, they
concealed them in a cellar under ground. Here they re-
mained until they were purchased by Apelleion from the
descendants of the persons by whom they had been thus
secured, about two years after the death of the figure, by
a half price. Apelles, however, suffered much from their long entombment, and the
copyists whom Apelleion employed to transcribe them
were not very well qualified to restore the passages which had been removed. But when Apelleion published, they consequently appeared in a very faulty state.

When Sylla conquered Athens (86 b.c.) he carried to Rome,
among other literary treasures, the library of Apelleion, who
had just died; and this particular collection, Plutarch says,
he retained as his own property. Tyrannion, the gram-
marian, who was a great admirer of Aristotle, contrived to
ingratiate himself with Sylla's librarian, and obtained the
privilege of reading these manuscripts. A copy of one of the
originals: this, indeed, says Strabo, is a common occurrence
in books which are copied for sale, both here (in Rome) and among the Greeks. It was
published, and a new edition of the Peri patakeis, as
Rhodes (see ANDRONICUS), who was an acquaintance of
Tyrannion, undertook the task of correcting the writings and
putting them in order, that they were given to the
author, who was the first to bring the Peri patakeis before
the public. Tyrannion says that Apelleion embraced the opinions of the Peri patakeis;
and a work of his, in defence of Aristotle, is quoted in a passage of another ancient writer pre-
paried by Eratosthenes, under the title of τό Αιθιοπι
(see ΑΙΘΙΟΠΙ), and that the name of Apelleion is used in the plural number; Livy and other Latin
authors use Μονάς, singular in the singular; the geo-
grapher Strabo uses both the singular τὸ Ἀντί
τούς ἄρεος, and the plural, τὰ Ἀντιπάρων ἄρεος, from which probably comes the modern plural appellation: but the term Μονάς Ἀπαπνί-
νειος, and τὸ Ἀντίπαρος, or τὰ Ἀντίπαρων ἄρεος, were applied,
equally with the modern ' Apennines, to the whole system of
mountains from the Alps to the extremity of Calabria.
(See Strabo, vii. p. 241.)

The great mountain boundary of Italy on the north and
north-west terminates on the shores of the Mediterranea
with that subdivision of the chain called the Maritime Alps.
Emerging from Monte Cottianus, and descending before
the Mont Cottian Alps, and the most conspicuous feature in that
group, rising in a beautiful conical form to the height of
12,586 feet above the level of the sea, the Maritime Alps
have a gradual fall to the coast. They also stretch nearly to Toulon, where they may be said to have a natural
termination by gradually sinking to a plain; but towards the east, they have an arbitrary line of division, in the north of Savoia, where the Apennines commence, which may be considered as a prolongation of the great chain of the Alps. The north-western extremity of the Apennines is thus situated near the source of the river Piemont; in a south-western direction; and the Col de San Giacomo, the last of the conspicuous heights of the Maritime Alps, and the Col di Cadibona, the first mountain of the Apennines. From this point (about 41° N. lat., 15° E. long.) the range proceeds in a north-easterly direction until they reach the pass of the Bocchetta, due north of Genoa; thence they continue to run eastward, and a little to the south, to the neighbourhood of Pavia, and then south-west to the Po, in a nearly south-easterly direction, but not without some deviations, through the peninsula, at a nearly equal distance from the coasts of the Adriatic and Mediterranean, to Cape di Leuca, on the eastern side of the Gulf of Taranto. From the centre of Calabria a branch extends nearly due south to Cape Spartivento, (37° 56' N. lat., 15° 5' E. long.) the farthest extremity of Italy: they consequently run through 6° 20' of latitude. The length of the chain is about 650 English miles in a direct line; but, including its windings, it is little short of 800 miles.

The general outline of the Apennines presents neither the vertical neeles of the Alps, the sharp peaks of the Pyrenees, the picturesque cliffs of the Grisons, nor the extensive ranges of the mountains; their forms are smooth, rounded, and wavy, bare rocks scarcely ever appearing, except in the highest parts. The most elevated point is nearly in the centre of the chain, a little to the north of Monte Corno, rising to a height of 5251 feet, an elevation, however, which is below the limit of perpetual snow in that climate. The great chain is usually divided into four principal groups, called the Ligurian, Etruscan, Roman, and Neapolitan Apennines.

1. The Ligurian Apennines encircle the Gulf of Genoa from the Maritime Alps to Monte Gisa, north of Pontremoli, at the source of the little river Magra, and from thence they stretch in a south-western direction as far as the confines of Tuscany. The length of this group is about 120 miles; the crest of the mountain chain is from seven to thirty miles distant from the Mediterranean, and from thirty to fifty miles from the Po. From this to the most western extremity the elevation rather diminishes until they reach the pass of the Bocchetta; but from this point there is a gradual rise, and in Monte Pellegrino, near the south-eastern extremity, they attain an elevation of 3161 feet; the breadth of the group is about 12 miles; the height, but not anywhere exceed twenty-five miles. The slope of the mountains toward the sea is abrupt, and is broken by numerous deep gullies, the beds of torrents, which rush down with prodigious velocity. The beds of the Magra and Varaita rivers by the Maritime side there are only two rivers with a moderate length of course, the Vara and the Magra, which, after uniting their waters, fall into the sea at the entrance of the Gulf of Genoa; but from the northern and eastern slope there are many considerable streams, all tributaries of the Po,—the Bormida, Scrivia, Trebbia, Nura, Taro, Grottole, and Secchia. The beds of all these rivers are sometimes filled with great torrents, and at times nearly dry, on account of the small quantity of snow which lies upon the mountains from which they are fed. The scenery of the Ligurian Apennines, particularly on the Mediterranean side, is of the most varied and beautiful description; and in the south-eastern part of the range, the height is far greater, and more magnificent than the prospect on issuing from the wild mountain ravine, especially to those who there, for the first time, look upon the dark blue waters of the Mediterranean. The mountain barrier between the basin of the Po, and the coasts of the Gulf of Genoa is traversed in several directions by great roads, constructed at a vast expense and with much skill. The most considerable of these are, 1. the road from Monte Carlo through the town of Ventimiglia to Acqui and Spigno, over the pass of Montenotte on an elevation of 4460 feet, to Savona. 2. That from Alessandria over the plain of Marengo, by Novi, Gavi, Voltaggio, and the Bocchetta to Genoa. 3. From Parma by Fornovo, up the valley of the Trebbia, north of Pavia, and then south, and thence by the valley of the Magra to Allua, Sarzana, and the Gulf of Spezia. The communication between the south of France and Italy is by the celebrated road begun under Napoleon, called the Corniche, which runs along the sea coast between the towns of Genoa, Ongenia, Savona, Genoa, Chiavari, and Massa, to Leghorn.

2. The Etruscan Apennines extend from Monte Pellegrino to Monte Carnaro, in 15° 3' E. long., and in a direct line between Florence and Fano, a distance of about 75 miles. In a line of direction between the Endine, the lake nearest to the Adriatic, Monte Carnaro being about twenty-four miles from Rimini, on the Adriatic, and nearly about 150 from Orbetello on the west coast. The slope is rapid toward the Adriatic, but not so as to produce great accumulations of silt, and it is in the northern part that there is a gradual fall to the marshes of the lower Po and the sandy plains which stretch from thence southward along the coast. On the western side, the mound3 rises more gradually towards the Mediterranean, sinking southward into the low marshy country of the Maremma. The highest points of the group are, Monte Cimone, 6975 feet, and Monte Amiata, west of Radicofani, 6574 feet above the level of the sea. From the summit of the former, which is a little to the west of a direct line between Modena and Pistoja, there is a most extensive prospect; on one side the vast plain of Lombardy, including the territories of Parma, Reggio, Modena, and part of Romagna, with the Adriatic in the distance; on the other side, a great part of Tuscany, showing the whole course of the Arno to its embouchure in the Mediterranean, which terminates the view. On the eastern side are the sources of the Tiber and the Po, which, though much less than the Tiber, becomes a considerable stream only by the way of the valleys first opened from these mountains. The communication between Lombardy and Tuscany is by two great roads over the Apennines, the one from Modena by Pavullo, Pieve-Pelago, on the west side of Monte Cimone, through the pass of Fimalbo, by Pistoja; the other from Bologna to Legnano, through the pass of Pietra Maia, at an elevation of 3524 feet.

3. The Roman Apennines run nearly through the centre of the peninsula, from Monte Carnaro to Monte Velino, and on a direct line between Rome and Naples, a distance of 120 miles. In this group are the two most lofty points of the whole chain of the Apennines; they are situated not far from each other, in Abruzzo Ulietore, the one called II Gran Sasso della Scopoli, Italy, of which the summit, Monte Corno, is 9521 feet above the sea; the other, Monte Velino, is 8133 feet high. Besides these, there are three other mountains of great height; namely, Monte Vitor 8135 feet, Monte Sibilla, near Ascoli, aneioently Mons Frontis, 5460 feet, and Monte Febbio, near the town of Rieti, 7034. These are all covered with snow the greater part of the year, for snow falls sometimes in May and September. Between Monte Sibilla and Monte Velino, there is a very extraordinary ascent, by a mountain pass on one side, and towards the Mediterranean on the other, the latter having a south-west direction, and one of them accompanying the lower course of the Tiber, as far as the plains near Rome.

4. The Neapolitan Apennines include all that part of the mountain system of Italy which extends from Monte Velino to the two extremities of the Terra di Otranto and Calabria, Cape Leuca, and Cape Spartivento, and which no longer forms a great range, but is a varying group of subordinate chains. The highest point, towards their northern extremity, is Monte Miletto, in the eastern part of the Terra di Lavoro, the ancient Samnium, east of Venusium, and near the borders of Campania and Lucania. It is 8000 feet high, and in the valley of Mattes, near its summit, snow is found nearly the whole year. From Monte Chiilon, west of Trast, a great branch is thrown off from the central chain, in a north-easterly direction, between the valleys of Capo d'Istria, turning eastward, runs out to the promontory of Gargano, Monte Garganus in Apulia. It rises in several places into considerable elevations, the most conspicuous of which is Monte Buciero, 7902 feet, which is nearly as much. Another great branch is thrown off not far from Venosa, Venosa, and stretches south-west, through the districts of Barli and Otranto, and with a gradually diminishing fall terminates in the low hills between the towns of Gallipoli and Otranto. The near neighbourhood of Venosa the mountains also take a western direction, bending a little to the south, and terminating in Cape Campanalis opposite the rocky island of Capit; thus
from Cape Campanella to Cape Leuco the mountains form a continuous curvilinear boundary between the northern parts and the southern portion of this great peninsula. The main chain of the Apennines stretches from the neighborhood of Venosa to the extremity of Calabria, and rises in many places into mountains of great height. The most lofty of these, Il Pollino, is on the southern limit of the province of Basilicata, (about 40° N. lat.) and is 7076 feet high; pasturing, or spreading, lies between 1000 and 2000 feet. The other lofty mountains of Calabria are, Monte Sivino in Basilicata, 6000 feet; La Sila, east of Cosenza, 4935 feet; and Monte Alto, the highest point of Monte Aspro, east of the province of Taranto.

Geological Structure. — A kind of conventional boundary has been laid down between the Alps and the Apennines, but it is impossible to draw any line of separation from difference of geological constitution; there is too great a blending and intermixture of formations of different ages, to enable us to say where one system of mountains ends, and the other begins. According to Signor Pareto of Genoa, who has examined the Northern Apennines with more care than any other geologist, there are three great deposits to which the various stratified rocks of Liguria refer; that are older than the tertiary, may be referred. The lowest is an assemblage of gneiss, mica-slate, clay-slate, talc-slate, and a sandstone which resembles the common sandstone of the argillo-slate, marly sandstones, and slates, sandstones, and limestones; and the uppermost consists of a series of marly limestones, and a sandstone called macigno, with impurities of mica-slate, and talc-slate. Among them, some partial deposits of puddingstone, are all more or less inclined, sometimes nearly vertical, and frequently much contorted, particularly the uppermost strata. Upon these are found deposits of tertiary formation, usually in horizontal strata; sometimes these occur in spots of limited extent, on the Mediterranean side of the chain, while in Piedmont and Lombardy, they form a continuous zone, skirting the northern slope of the Apennines, from Ceva on the west, to Formone on the east. The stratified rocks of Liguria are, according to Brocchi, is that known in the country by the name of macigno; but that term is applied to sandstones of very different ages, and to some of the more or less inclined formations, in which it is used. It contains subordinate beds of limestone, but no veins or other deposits of metals have hitherto been found in it. Besides the calcareous beds that are subordinate to the macigno, there are extensive beds of diorites, developed by nature, which at least improperly, a transition limestone in the Ligurian Apennines, and the same rock appears in several places southward, along the shores of the Mediterranean. The mountains of San Julian near Cefalu' is a formation of this kind; and the marble of Sienna is a variety of it, and it is found in insulated hills at Piombino, Civita Vecchia, and Cape Circello, the antient Cirena promontory. Not a trace of this so called transitional formation is observed by Brocchi, on the eastern side of the Apennines. The southern limit of the macigno is not exactly known, but it is supposed not to extend beyond the neighborhood of Cortona.

Among the unstratified rocks of Liguria, serpentine is far the most important. According to Pareto, it is not found in the Marittimo Alps, but commences near Savona, and occupies a considerable extent of country between that town and Genoa, and rises in many places, as Voltaggio. It is also met with in many parts of the Ligurian Apennines, forming detached groups of hills many miles distant from each other, and Brocchi describes it as occurring as far as Orbietto, which seems to be its southern limit. It is not confined to the Mediterranean side, but rises up in Bobbio, Formono, and between Sassuolo and Modena, in the basin of Lombardy. A variety of serpentine, containing a mixture of felspar and diaspore, called in the country grumiti, has been found at Formone, where the slate-rock, is found in several places; and occasionally of a quality that makes it applicable for works of ornament. Serpentine, under all its forms, is now classed by most geologists among the rocks of the tertiary age. The occurrence of Parnassus by Hoffman, de la Beche, and others, is probable that the great dislocations and contractions which are observed in the stratified rocks of Liguria have been produced by the forcible injecing of these rocks, in its developed state, from the interior of the earth. That the serpentine was at a highly heated condition is inferred from the altered structure of the slate and limestone, in many places where they are seen in contact with each other. Pareto is of opinion that this eruption of the serpentine took place prior to the deposit of the tertiary beds, but Elie de Beaumont considers that eruptions have repeatedly taken place, and even after the formation of the most recent strata, as the tertiary deposits, though usually horizontal, are sometimes highly inclined. Near the southern extremity of the Ligurian Apennines there is a distinct group, called the Alpi Appuani, separated from the main range by a considerable depression. In this group are situated the celebrated marble quarries of Carrara, which have been worked in times immemorial, and continue to supply many kinds for architectural purposes and the finest qualities for sculpture: there is an immense export of the marbles to all parts of the world. This limestone was long considered a primary formation, and was usually referred to as the type of primitive limestone; but it was afterwards thought by many to be of a more modern date, and the German geologist, F. Hoffman, has who has lately visited that part of Italy, has discovered that it contains organic remains, and he ascribes it to the same geological age as the olite or Jura limestones. The highly crystalline state of the rock, and the disappearance of the greater number of the organic remains, he attributes to its having been melted; and the occurrence of the serpentine took place. He traced the limestone uninterruptedly to where it contains numerous fossils; from that point the beds increase in inclination, and gradually change into the slate-rock, and at last into the macigno. From thirty miles long, scarcely ever at a less elevation than 4000 feet above the sea, and rising often much higher, as in the Panie della Croce, at the southern extremity, 6102 feet, and the Pizco d'Uccello, the north-west end, 6147 feet, and Monte Sacro above Carrara, 5540 feet, on the slopes of which the numerous quarries are worked. The limestone in the valley of the Frigidole lies upon clay-slate, which rests upon mica-slate, and this last upon grumiti, and Mr. Hoffman of Oxford is of opinion that the very existence of the depth of the quarry than the two latter rocks are the clay-slate altered and rendered crystalline by the action of heat.

After leaving Liguria, the rock which is the greater part of the Apennines is covered, is a limestone, which presents itself under different aspects. It contains very few fossils, and affords very little interest to the geologist; its uniformity is absolutely wearisome. Once entered within its domain, we may trace the limestone for ages, without finding any attempt to relieve the tedium of its eternal sameness. It is the sole constituent of the Apennines of Tuscan, Romagna, Fabriano, Foligno, and the Abruzzi, and stretches uninterruptedly through the provinces of Umbria and the Salerno up to the extreme point of Oranto. The Apennines come close to the left bank of the Tiber until that river takes a sudden turn to the south-west, in the immediate neighborhood of Monte Sant' Oreste, the antient Soracte, which is an outlier of the Apennines, and which is remarkable for the fact that when they are composed of the same materials as the main ridge: it rises to the height of 2140 feet. In the Campagna di Roma, a range of mountains, composed of the same limestone, is separated from the central chain by the valley of the Toler. This detached group, the territory and stronghold of the antient Volsci, extends in a direction nearly north and south, from Monte Fortino, a part of the ancient Montes Lepini, to the sea at Terracina, and rises in some places to considerable heights: according to the measurements of Prony, Monte Schiera d'Asino is 4878 and Monte Capreo 4816 feet above the level of the sea. Another extensive range extends from Sainenno and Nocera to Capamaelalia, on the southern side of the gulf of Naples, of which the island of Capri is a prolongation. In this group, Monte St. Angelo di Casteliameara rises to the height of 4688 feet, and Monte Solaro, in the Capri, to 2325 feet, according to Tenore in his Physique du Royaume de Naples.

On the western side of the Apennines the limestone is composed of calcareous conglomerates which seldom appear far from the central chain, unless when the subordinate branches rise to considerable heights. On the eastern side the tertiary deposits do not extend so far south, at least they do not rise so high, as in the limited state, from some places, as in Puglia Petrosa, a part of antient Apulia, the limestone rises to the surface of the ground, in inclined
which are laccustrine, that is to say, the materials must have been deposited in fresh-water lakes. A formation of this sort occurs in the Upper Val d’Arno: this great valley, which is surrounded by precipitous rocks, consists of three terraces, the lowest of which consists of the geologically youngest beds of the Apennine limestones, and, indeed, we cannot say if they belong to one or to different periods; it is generally supposed that they belong to some part of our secondary series. The walls of the valley, not far from the village of Arceo, the next that of Figline, and the lowest that of l’Incisa. The basin of Arceo contains a deposit of rolled pebbles, heaped together without any order, with fossil bones of birds, of which one of the best is a blue micaceous clay, with bones and beds of lignite. In the basin of Figline, the same clay is covered by rolled pebbles, fine sand, and coarse quartzose sand, and the bones have been found in all these strata. In l’Incisa there are the same deposits of clay and sand, but the pebbles are wanting: these last are larger in size and more numerous in proportion as they are the nearer the secondary rocks of Vannombrosa, in the upper part of the valley, from which they have been derived. The beach is considerably above the present bed of the Arno; the blue clay, which is always underneath, from 50 to 60 feet; the gravel as much as 200. They contain no fossil marine productions whatever, their shells belonging exclusively to fresh water. The most extraordinary circumstance connected with this laccustrine deposit, in the very centre of the Apennines, is the enormous quantity of the bones of great quadrupeds belonging to many different kinds of these animals, and all of extinct species. They are the mastodon, elephant, rhinoceros, and hippopotamus; the skeletons of the latter are exceedingly abundant, no less than forty individuals having been found prior to 1829.

Low hills of rounded undulating forms skirt the northern slopes of the Ligurian Apennines, and cover the greater part of the country on both sides of the Tuscan and Roman Apennines between the mountains and the sea. They have been called by geologists the Subapennines, as they never rise above a moderate degree of elevation. They are composed of marls, covered by yellow sand, both abounding in organic remains, and have been called by Brocchi, who first noticed them, other values; by another, agitated by others, belonging to one period of formation. But Mr. Lyell is of opinion that, while there is a considerable correspondence in the arrangement and mineral composition, there is not that close connexion which Brocchi remarks. If the marls of the Apennines should lead us to assume an exact identity of age, and that the fossils they contain indubitably prove that they were deposited during three distinct periods. He considers that the tertiary strata of the hill of the Superga, near Turin, as well as the greater part of those in the valley of the Bor- mida, belong to the Miocene period; that the greater part of the Subapennine formations of Northern Italy and Tus- cany, and perhaps those around Rome, also, belong to the Miocene period; and that the tufaceous formations of Naples, the calcareous strata of Otranto, and probably the greater part of the tertiary beds of Calabria, were deposited during the newer Pliocene period. (See Lyell’s Principles of Geology, vol. iii. ch. xii.)

The marls are composed of clay, with much calcareous matter, are of a greyish-brown or blue colour, often without lines of stratification, but sometimes thinly laminated. They are frequently of great thickness, as in the neighbourhood of Parma, where the marl is 2000 feet thick. They contain beds of lignite and of gypsum, and detached crystals of gypsum; sometimes they pass into compact lime- stone, and occasionally there are interstratified beds of sand- stone and conglomerate, of a great thickness of the latter, but more usually are covered with sand. The great arenace- ous deposit lies generally upon the marl, but sometimes it is seen reposing on the Apennine limestone. It sometimes presents a horizontal sand deposit, as near Plomaggio, and Poggibonsi there is a range of conglomerate belonging to the same deposit, extending eleven miles, the pebbles of which are chiefly limestone. (Lyell, ibid. vol. iii.) Both the marls and the yellow sand abound in organic remains, but not universally, for there are often large tracts of both without any fossils. The shells are usually in a high state of preservation, even to their colours and the ligament which unites the valves; they are refrangible to species and families of which bones are extremely diversified, some living in deep, others in shallow water, some in rivers, others at their mouth. Many are identical with species now inhabiting the adjoining sea; others with species now living in tropical seas. The remains of corals and fishes are not un- frequent, as well as detached bones, and even entire skele- tons of whales and other cetaceans. The skeleton of a whale twenty-one feet long was found by Cortesi near Castel Azzone, near Piacenza, in the Ticino river; and if the oyster-shells were adhering to a part of the head, showing that it must have lain as a skeleton at the bottom of the sea. Bones of land animals are frequently met with, and that they were transported is evident from the fact that in some parts they are being associated with marine shells, and from the thigh-bone of an elephant having been disinterrated, with oyster-shells attached to it, as in the instance of the whale’s skeleton mentioned above.

Besides these marine tertiary deposits, there are others beds, from the central range to the sea shore; and in the culture of the olive and vine in that country, they break the masses of limestone to come at a layer of ochreous earth in which to set the plants. From the great scarcity of organic remains, as has been mentioned before, little is known of the geology of the age of the Apennine limestones, and, indeed, we cannot say if they belong to one or to different periods; it is generally supposed that they belong to some part of our secondary series. The walls of the valley, not far from the village of Arceo, the next that of Figline, and the lowest that of l’Incisa. The basin of Arceo contains a deposit of rolled pebbles, heaped together without any order, with fossil bones of birds, of which one of the best is a blue micaceous clay, with bones and beds of lignite. In the basin of Figline, the same clay is covered by rolled pebbles, fine sand, and coarse quartzose sand, and the bones have been found in all these strata. In l’Incisa there are the same deposits of clay and sand, but the pebbles are wanting: these last are larger in size and more numerous in proportion as they are the nearer the secondary rocks of Vannombrosa, in the upper part of the valley, from which they have been derived. The beach is considerably above the present bed of the Arno; the blue clay, which is always underneath, from 50 to 60 feet; the gravel as much as 200. They contain no fossil marine productions whatever, their shells belonging exclusively to fresh water. The most extraordinary circumstance connected with this laccustrine deposit, in the very centre of the Apennines, is the enormous quantity of the bones of great quadrupeds belonging to many different kinds of these animals, and all of extinct species. They are the mastodon, elephant, rhinoceros, and hippopotamus; the skeletons of the latter are exceedingly abundant, no less than forty individuals having been found prior to 1829.

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Besides these marine tertiary deposits, there are others
In the quarries there, which have supplied the paving stones of the city both in ancient and modern times, the lava is observed to be sixty feet thick, and to rest upon progressively ejected cinders. The Lago Bracciano, north of Rome, was an ancient port, now surrounded by hills of solid lava, which send forth numerous branches, ancient streams of melted stone, into the surrounding country; and between the lake and Civita Vecchia there is a chain of limestone hills at the base of which the lava has burst through, and now forms great vertical masses. Another range of hills, composed of compact lava, which branches out on every side, is in the neighbourhood of Viterbo; and here, too, the ancient Mons Ciminius, is 4183 feet above the sea. The whole surface of the district we are now describing is not covered by volcanic products, for both the Appenine limestone and tertiary formations rise up in many places from beneath them. In other places they are covered by fresh water deposits which have been formed since the eruptions ceased.

The country round Rome is overspread with volcanic matter, and the seven hills themselves are composed of the same materials lying above marine tertiary formations. These last are laid bare at the foot of the Capitoline Hill; and Monte Mario, on the right bank of the Tiber, 446 feet high, is wholly composed of the Subapennine deposits, large systems of which also form the walls of the Vatican summit. The volcanic products are found high up among the sinuosities of the Appenine valleys: ascending the bed of the Teverone, stone tufs form lofty rocks near Vicenza, still farther, at a short distance from Subiaco, stand the terraced tufs of Soracte, and it is also found in the valleys of that branch of the Appenines which terminates in the sea at Terracina. It is an important circumstance in the geological history of Italy that the volcanic wells which are continually breaking out in many situations with the tertiary marine deposits, and that elephants' bones have been found at considerable depths imbedded in the tufs. Marine shells are contained in the tufs or volcanic sand on the slopes of Monti, i.e. of Monte Lerno, at an elevation of more than 3000 feet above the sea. We pass over, at present, Mount Vesuvius and the great volcanic district which surrounds it, because these will be treated of with more detail upon a future occasion. There are several instances of volcanic action more in the centre of the Appenines, and far detached from the great region of volcanoes we have been speaking of, as at Tivoli, between Capua and Benevento, and Mount Vultur in Apulia.

We have alluded to deposits still newer than the volcanic ejections; these are of fresh-water formation, and are an important feature in the physical structure of the country. They are composed of sands, clays, and marls, and of the solid deposits of plants which, by the action of rain, have formed limestone, and which name for it, viz. Tumbitum, because it was found in great abundance near the town of Tibur. All these deposits contain lacustrine shells, particularly as frequent stagnant water lakes, which, through the action of climate, have become fossilized. We have already spoken of carbonate of lime in solution, by means of the carbonate of acid which is common in spring waters; by exposure to air the carbonic acid escapes, and the carbonate of lime is deposited: such springs abound in many parts of central Italy within the volcanic region. In some parts of Tuscany the slanting sides of hills are covered with travertino. Several instances are mentioned by Mr. Lyell (Principles of Geology, vol. i. ch. xii.) and many by Brocchi, in his work on the geology of the lake of Bolsena. At the foot of Monte St.utenberg, a spring has deposited a series of strata to the depth of 300 feet, and the stone is so compact as to form an excellent material for architectural purposes. At San Filippo, there is a hard stratum of stone, a foot in thickness, is obtained in four months, and there is a deposit of it a mile and a quarter in length, in a mile in breadth, and 250 feet thick in some places on the banks of the Tiber. Travertino, i.e. travertine, is found near Ponte Leoncino in the neighborhood, which have supplied the materials for some of the most splendid edifices of ancient and modern Rome.

These fresh-water deposits appear in several places, and have spread over the whole country round Rome. Travertino, containing fresh-water and land shells, some of which are identical with the annals now common in the gardens of Rome, forms thick solid beds on the surface. At length, when the streams have dried, and fresh-water deposits are found at the height of 150 feet above the level of the Esquiline Hill. In many places they contain the bones of elephants, and other land animals, as in the celebrated Mons Soract near Rome, where elephants' bones, incrustated with calcareous spar, were dug out of a gravel pit, at a depth of thirty feet below the surface, and now sur
of which name it is comprised. It has sea-baths, a towns-
men's and charity school, cotton-print works, and three
poor-houses, and is defended by a castle, in which the
bailliff of the place resides. The trade and navigation of the
town support a population of about 3000. The harbour is
shallow, and the shipping, therefore, are moored about a
hundred yards below the bridge. Its open roadstead is un-
safe in winter time. Long. 9° 38' E. lat. 55° 8' N.

APRIMENTS, in medicine. [See CATHARTICS.]

APETALOUS plants constitute one of the divisions in
Jussieu's Natural System. They comprehend all genera
which are dicotyledonous or exogenous, and which have a
calyx without corolla; by some they are called monochyl-
ous. The character by which these plants are defined
is as constant as any of those which botanists employ for
subordinate divisions, but it must not be considered absolute;
for not all of any of the consequences, are not their
natural affinities, are included among apetalous plants
provided with rudimentary petals, but it occasionally happens
in orders otherwise constantly furnished with a corolla,
p particular genera occur in which no petals are.
A very remarkable instance of which is to be met with in
the pretty little shore-plant found on most of the sandy
beaches of this country, and called Glaux maritima. This
species is very nearly related to the primrose, and certainly
belong to the same natural class as that plant, but it has no
corolla, in place of which the border of the calyx becomes
coloured, and it therefore apparently belongs to the apetalous
division, although, in reality, it forms an exception to the character
of monochylous plants, and is not in this respect to be
considered as an exception to the natural system, but it is a very
great mistake to suppose that such cases are numerous enough to
prove a serious obstacle to the student.

APHELION, from the Greek ἀπήλιον, from, and ἀπὸ, near to, and ἀπὸ, the
sun, means that point of a planet's orbit which is farthest
from the sun. Its opposite point is the perihelion, from
περι, near to, and ἄποικος, the sun, which is the nearest point
to the sun.

Let S represent the sun, SAB the earth's orbit, or plane
of the ecliptic, and SA parallel to the line in which the
earth's equator cuts the ecliptic, from which line all helio-
centric longitudes (that is, measured round the sun) are
measured in the direction of the earth's north pole, as
represented by the arrow. Let D E be a part of the orbit of a
planet, SE the longest line which can be drawn through S, then
E is the aphelein of the planet. If a plane SE B drawn perpendicular
to the ecliptic, the angle ASG is the heliocentric longitude of the
aphelion E. This term is usually applied to satellites, though they too have their
aphelion.

The position of the planets moving in elliptic orbits
round the sun is true, unless the ellipses themselves
be supposed slowly to change their positions and figures.
In all the planets, except Venus, a very little more than
a complete revolution must be made between two apheresa;
in Venus, on the contrary, a little less. This inequality is
represented by saying, that the apheresa of all the planets,
except Venus, slowly increase in longitude, while that of
Venus decreases. The apparent motion of the
aphelion of the aphelion is greater than the real, since the line SA moves
slowly backwards. [See PARAXEON.] The apparent
annual motion of the aphelion is the annual precession of the
equinoxes, together with the real annual motion, except
in the case of Venus, in which the apparent motion is the
precession of the equinoxes diminished by the real motion.
The apparent motion of the aphelion of Venus is like that of
all the others, in the direction of the earth's motion, for
though the aphelion of Venus moves backwards, the line SA
does the same at a greater rate. The following table
gives the heliocentric longitudes of the aphelion of the
bodies of the solar system at the dates specified, together with the
apparent annual increase of longitude, made up of real
increase and precession, as above described. Those of the
new planets and comets cannot yet be considered as ascer-
tained with the same degree of accuracy as those of the old
planets. All but the comets are taken from Baily's
Astronomical Tables and Formulars.

Old Planets, January 1, 1801—

<table>
<thead>
<tr>
<th>Planet</th>
<th>Absolute Long. of Aphelion.</th>
<th>Yearly apparent Increase of Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>254° 21'</td>
<td>47°</td>
</tr>
<tr>
<td>Venus</td>
<td>368° 43'</td>
<td>52°</td>
</tr>
<tr>
<td>Earth</td>
<td>279° 30'</td>
<td>5°</td>
</tr>
<tr>
<td>Mars</td>
<td>152° 57'</td>
<td>35°</td>
</tr>
<tr>
<td>Jupiter</td>
<td>191° 8'</td>
<td>35°</td>
</tr>
<tr>
<td>Saturn</td>
<td>269°</td>
<td>39°</td>
</tr>
<tr>
<td>Herschel</td>
<td>347° 31'</td>
<td>16°</td>
</tr>
</tbody>
</table>

New Planets, January 1, 1829—

<table>
<thead>
<tr>
<th>Planet</th>
<th>Name of Discoverer</th>
<th>Long. of Aphelion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vesta</td>
<td>69° 33'</td>
<td>24°</td>
</tr>
<tr>
<td>Juno</td>
<td>233° 33'</td>
<td>46</td>
</tr>
<tr>
<td>Ceres</td>
<td>327° 7'</td>
<td>32</td>
</tr>
<tr>
<td>Pallas</td>
<td>301° 7'</td>
<td>4</td>
</tr>
</tbody>
</table>

Comet, January 1, 1832—

<table>
<thead>
<tr>
<th>Date</th>
<th>Name of Discoverer</th>
<th>Long. of Aphelion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1835</td>
<td>Halley</td>
<td>126°</td>
</tr>
<tr>
<td>1832</td>
<td>Encke</td>
<td>337</td>
</tr>
<tr>
<td>1832</td>
<td>Biela</td>
<td>288</td>
</tr>
</tbody>
</table>

The longitude of the aphelion of Halley's comet is that
which precedes the effect of perihelion for one revolution.

APHIS, the plant-louse, or pucerion, an extensive genus
of insects, interesting to naturalists on account of their
very peculiar economy, and no less so to gardeners and
farmers for its crops-destroying qualities. It has come
comit most destructive de-

predations. As instances of the latter we may refer to the
hop-fly (A. humulus) and the bean-dolphin (A. fabae);
flowers, such as the rose, the China aster, and the various
chrysanthemums, suffer from other species. During the
summer of 1833, the cabbage and swede crops in the
Kent were much injured and often destroyed by countless swarms of
A. brassicae.

These insects are characterized by a soft oval body, a
small head, a complete and semi-circular eye, antennae of seven
joints longer than the body, often setose, sometimes
thickened towards the top, the two joints at the base very
short, the next very long and cylindrical. The beak (haustel-
llum) arises from the under part of the head between the
fore-legs, and extends almost perpendicularly. The
wings, when developed, are four in number, but some natu-
ralists represent the upper wings rather as wing cases (elytra),
from their difference of texture. The legs are very long and
slender, in consequence of which they walk awkwardly.
In sketching the history of these singular insects, it will be
most convenient to begin it at the close of autumn, when
many of the species, such as A. quercus, A. roseae, &c.,
seems to be of opinion that the aphides are always vivipar-
ous and never lay eggs, what are commonly called eggs
produced in autumn being a sort of cocoon, consisting of
the young aphides enclosed in an envelope. From our own
observation on those of the case, we are convinced that this
is the fact; but we cannot affirm, upon positive evidence,
that none of the species lay real eggs.

The cocoons or eggs, whichever they may be, remain topiad
during the winter (the parents having died after producing
them,) and are called into life with the return of favourable
weather in the spring. The number of insects produced must
correspond to course of correspond to the number of cocoons or eggs laid
the preceding autumn, but being all ushered into active
life at the same time, those of its appearance has led to
the popular, but erroneous notion, that they are generated
by the air. Blighting weather, as it is termed, is also ac-
cused of spreading the destructive swarms over hot-grounds
and bear-forests. Their movements of a direction is wholly caused by
their wonderful powers of multiplying.

All the aphides, it has been well ascertained, which ap-
ppear in spring are exclusively females, no males being found
fall the autumn; and these females are endowed with a
feudicity almost incredible. M. Latreille says, one female during the summer months will produce about twenty-five a-day, and M. Réaumur calculated that one aphis may be the mother of nearly 5,940,000,000 descendants. It is often said that the young female aphides produced during summer to pair with a male, which indeed would be impossible, as no males are then to be found; yet these females go on producing each two or five a-day by living young ones, all of which become in a short time as fertile as their parent.

This is a circumstance so different from anything known amongst other animals, and altogether so extraordinary, that it could not but be subjected to the contradiction by the careful experiments, suggested by Réaumur, of the French academicians, which may be seen at length in Insect Miscellanea, chap. x. The result was, that nine generations were obtained without pairing in the course of the month.

At the extremity of the abdomen most species are furnished with a pair of projecting tubes, through which they eject a sweet viscid fluid, well known under the name of honey-dew, erroneously supposed to be an exudation from the leaves on which it is found. It is also said that the aphides feed on this, which is impossible from the structure of their mouths. Ants, however, and bees, are very fond of it.

APHORISM (ἀφορισμός), literally 'a limitation', or 'a fixing of limits,' and hence used by the Greek writers to express a short sentence, containing a moral precept, or a rule of practice, briefly and forcibly expressed. The tenets of Hippocrates, and Hippocrates himself, were successively and fully expounded by Hippocrates and Boerhaave have written books entitled Aphorisms, containing medical maxims, not treated argumentatively, but laid down as certain truths. For example, 'Neither reflection nor hunger, for anything which exceeds natural limits, is good.' The word is similarly used in the civil law. We give the following as specimens of moral aphorisms.

It is far safer to learn from our enemies; seldom safe to instruct, even our friends.'—Lacor. 'He will easily discern how little of truth there is in the multitude; and though they are sometimes flattered with that aphorism, will hardly believe the voice of the people to be the voice of God.'—Brown's Fuglar Errors, book i. 3.

Sayings of this description are well adapted to make an impression on the memory; but they tend to substitute authority instead of judgment, as the motive of action, and may therefore be as well applied to maintain prejudices as to assert truths; to impose conventional and needless restraints, as to furnish safe rules of conduct to the inexperienced. It is with reference to this that Milton uses the word. 'There is no art that hath been more cankered in her principles, more sold and stubbered with aphorising pedantry, than the art of policy.'

APHRODITE, the goddess of love and beauty. According to Homer, she was the daughter of Zeus and Dione, and was the most beautiful of all the gods. The earliest general account of her, according to Hesiod (Theog. 188), relates that she sprung from the foam of the sea, produced when Kronos threw into it the amputated members of his father Uranos. There was a celebrated picture of her rising from the sea (αὐϑαιρεία), esteemed the master-piece of Apelles. (See Apelles.) She first came to land at the island of Cythere, and thence proceeded to Cyprus. These islands were her favourite resorts of pleasure, and many of her epithets are derived from these. (Cythera, Cypria, &c.) It is said she was accused in marriage to Hephaestus (Vulcan) the god of metalurgy, and there is a well-known tale of her detection in an amour with Ares (Mars) (See Odys. viii. 266). Hermes and Poseidon (Mercury and Neptune) were also among her favoured suitors. Her amours, however, were not confined to the gods. For her adventures with Adonis, see that article: She also bore Αἴανες to Anchises, a youth of the blood of Troy, and was the mother of the great Greek hero, Αἴας, sent by Homer. In the Trojan war she was ranged with Apollo and Ares on the side of the Trojans, and in attempting to protect her son Αἴας, was wounded by Diomed. According to the fictions of the Αἴας, she continued to extend her paternal care over her brothers, and to care about his establishment in Italy, and through him the Julian family derived their descent from her. To the Italians she is known by the name of Venus; a goddess, probably, of indigenous origin, but so confounded in the

fictions of poets and mythologists with the Greek Aphrodite, that her or gual attributes have nearly disappeared.

The goddess is usually represented, or with very scanty drapery; her peculiar attribute is the κατάλιθος (crystal rock). In the birth of Eros, which represents her power of inspiring love for the person who wore it. Her favourite animals were the swan, the sparrow, and the dove; her favourite plants, the rose and myrtle. The bird called a sparrow, which was sacred to her. It is a general opinion that her worship was introduced from Phonicia, and that she is identical with Astarte, the Phoenician goddess of the moon. In the ancient temples of Cyprus she was adored in the form of a conical stone, which was probably an ærolite. The Greeks certainly portrayed her as the perfection of female beauty. One picture of Apollo which we have mentioned; another, which he left imperfect, was esteemed so much that no artist dared to complete in rivalry of Venus de’ Medici, is that with which we are most familiar.

APHTHONIUS, a Greek rhetorician of Antioch, whose epoch seems rather difficult to fix; some place him about the end of the second century A.D.: others, as Fabricius, in the third, and others critics still later. We know with certainty that he lived in the first half of the second century. He quotes this rhetorician, and, in fact, worked up the Programmata of Hermogenes into a new shape, also entitled Programmata. There is a curious passage in Aphantionus about Alexandria. (See De Stacq’s Abū-Alkhāfī, p. 182.)

The work of Aphthonion is an elementary treatise on rhetoric; and in the sixteenth and seventeenth centuries it was much used in use, and there were numerous editions of it. Since the end of the seventeenth century, Aphthonius has had no editor, and we believe very few readers.

Aphantion was first printed by the elder Aldus with the other rhetoricians: Rhetores Graeci. Venice, 1508, fol. The latest edition is by H. Schelkle, c. 1670 and 1680, v. 8vo. with the Programmata of Theon.

APIAN, or APPIAN (PETER), an astronomer, and, we may add, astrologer, born at Leipzig, died at Ingolstadt, where he was professor of mathematics, in 1529, aged fifty-seven. His real name was Binswenger, sometimes misspelt Binewilt. Biene in German signifies a bee, whence the Latin Apianus. He was in favour with Charles V., who gave him an order of 'knighthood and the title of Count, as well as more substantial rewards. He is principally remarkable for his observations of comets, and is said to have been the first who observed that their tails are generally turned from the sun. He also attempted the solution of astronomical problems in his Cosmographic, and in his Opus Cessareum, and is said moreover to have pointed out the place which might be made of lunar observations in navigation. For a list of his works (which are now uninteresting), see Vossius de Scientiis Mathematica; Montucla, Histoire des Mathématiens, vol. iv. p. 267. His works are in the public domain, and are included in the Dictionary, article 'Apiam,' but more particularly Kastner, Geschichte der Mathematik, vol. ii. p. 548, where more detail is given; or Teissier, Éloges des Hommes Savans, Leyden, 1713. His son Philip succeeded him at Ingolstadt, which place he was obliged to quit in 1658, on account of his embracing the Protestant religion. He enjoyed some celebrity as an astronomer and mathematician, and died professor at Danzig, in 1695. He is not correctly stated in the accounts of which Montucla is apparently the source, that the only work of his which has been preserved is a letter to the Landgrave of Hesse Cassel. (See Biographie Universelle, and the works of Kastner about Apollo and Ares on the side of the Trojans, and in attempting to protect her son Αἴας, was wounded by Diomed. According to the fictions of the Αἴας, she continued to extend her paternal care over her brothers, and to care about his establishment in Italy, and through him the Julian family derived their descent from her. To the Italians she is known by the name of Venus; a goddess, probably, of indigenous origin, but so confounded in the

To guard of wind impervious.'—Cicero iv.

Milton alleges that 'it is not material in what aspect the stock stands, provided the sun shines on the hive once in the course of the day, for well-peopled hives, kept dry, will thrive in most situations.'—Wildman, again tells
us, that the apiary should face south and west, in a place neither too hot nor too much exposed to the cold.

I came, then, to the mouth of the hive in the west, spring, care being taken that they enjoy the afternoon sun; the morning sun is extremely dangerous during the colder months, when its glare often tempts these industrious insects to come forth and fill the interior with the sound of their buzzing; whereas, when they are not enjoying the south, the bees remain at home, and as clouds generally obscure the afternoon's sun at that season, the bees escape the temptation of going out. When food is to be obtained, the warmth of the air round about keeps the bees at home, which strengthens the bees, and enables them to pursue their labours. Dr. Evans, in his pretty poem, gives very similar directions—

"Spring's from the east, where no delightful dawn,
Chase them or the dew and rain;
But as on land wind the labours over,
Light them to their homes."—The Bee.

Bonner stands alone in recommending an easterly aspect, which we frequently observed to be chosen in the numerous apiaries in Germany; we found those in Switzerland and Savoy more commonly placed towards the south.

Wildman prefers a situation in which bees 'returning home from their labours may descend,' and Keys says, 'a valley is preferable to high grounds to favour their increase; but this is of less importance, perhaps, than having free Essay lines for the framing of the apiary.

As to the adjuncts of the apiary, the old recommendations of Virgil are as excellent as any in modern works. He says—

"Let fresh springs and ponds,
Vertumn with moss, be near; and shallow brooks.
Their sweet streams down the meandering hill,
The neighbouring banks may tempt them to avoid
The water bearers, who embroil them with sand.
Diverse then details. Whether dull in ponds
The water stand, or how in living fountains,
Into the midst throw willow, and peach, and hawthorn.
And planks: stones, where is on bridges raised.
They may reflect, feed to the eater,
Expand their wings; if assurance the eastern blast.
Or phleg'd them, blown aside, into the waves."—Travay.

Dr. Bevan thinks an apiary would not well situated near a great river, nor in the neighbourhood of the sea, as with the mouth of the bee near the sea, the waves destroy them; yet we have seen very thriving apiaries all along the Rhine, and on the borders of the Swiss lakes. Others have recommended the neighbourhood of the seacoast as very eligible, from a notion that the bees are fond of sea water, which, however, Keys denies from personal observation, his own bees having been kept near the sea.

Heaths, or places abounding in wild flowers, are the best sites for an apiary, which, in default of this, pasture must be searched out, or gardens where flowers are cultivated, and fields in which are sown buck-wheat, clover, or rye. The expedient of transporting apiaries to distant places, so as to take advantage of the seasons when different flowers are in blossom, has thrown a great part of the profitable business, particularly in Egypt, and along the great rivers of Europe.

M. Mailet, who was French consul in Egypt in 1832, informs us that, about the end of October, all such inhabitants of Lower Egypt as possess hives, embark them on the Nile, and convey them upon that river to Upper Egypt; calculating to arrive there at the time when the inundation is subsiding, and the lands having been sown, the flowers begin to bud. The hives being come to this part of Egypt, are there placed pyramidal in boats prepared for that purpose, after being marked and numbered by the several owners. Here the bees feed in the fields during some days, and we have seen that they have robbed all the honey and wax that can be met with within two or three leagues round, their conductors convey them in the same boats two or three leagues lower, and remain there as long as is necessary to enable them to collect all the riches of the new places; and early forwards its production to maturity, and the plants come into bloom in proportion as they come nearer to their place of abode. In fine, about the beginning of February, after having travelled through the whole length of Egypt, they are conveyed to the spot they had set out, and return to their respective habitations: for care is taken to set down exactly, in a roll or register, every district whence the hives set out in the beginning of the season, the names of the master persons who sent them, as likewise the mark or number of the boats, in which they were placed according to their several habitations. Niebuhr saw upon the Nile, between Cairo and Danemita, a convey of 4000 hives in their transit from Upper Egypt to the Delta.

Goldsmith describes the honey he obtained by his own observation, a kind of floating apiary in some parts of France and Piedmont.

'They have on board of one barge,' he says, 'three-score or a hundred bee-hives, well defended from the intemperance of the weather, and the cattle which follow the corns; the currents float gently down the stream; one bee-hive yields the proprietor a considerable income. Why,' he adds, 'a method similar to this has never been adopted in England, where we have more gentle rivers, and more flowery banks, than in any other part of the world; nor can I see any difficulty in its being advantageous, and yield the possessor a secure, though perhaps a moderate income.

Dr. Bevan strongly recommends the apiary to be roofed in by erecting a frame-house, or converting to that use some building already constructed, as much preferable to an apiary out of doors, both so as to involve and security, as well as ultimate profit. He thus describes his own:—The whole building, besides answering the purpose of an apiary, may be made subservient to other uses: my own serves for storing potatoes. The potto-cellar is sunk two thirds of its depth in the earth, and the bee-house is raised up on it, having a couple of steps up to the door. The dimensions of both are seven feet six inches by eight feet six clear within, which affords room for five colonies.

The pales or stories of bee-boxes are placed in the bee-house at somewhat less than two feet apart, so as to make the external pales convenient for a snow-shovel.—(See the plate which forms the frontispiece of Dr. Bevan's work.)

On the inside of the bee-house, the boxes in the upper story stand at a height, through which the air lower about six inches above the floor. On the outside, the entrances to the upper story are about five feet, to the lower about three feet from the ground. The entrances through the wall may be cut in stone, bricks, or wood, and should be chamfered away on one side, leaving the surface as practicable, and letting the opening correspond in size with the outlets that are sunk in the floor-boards hereafter described. The potto-cellar is built with bricks, the bee-house of plaster, lathed and plastered within, and thatched on the outside.

Where the bees enter the boxes, two wooden shelves or resting-boards are fixed, two or three inches thick, to prevent warping; they extend the whole length of the building, are about a foot wide, and rest on cross pieces nailed fast to the uprights with which the bee-house is built; these cross pieces extend also, about fifteen inches into the bee-house, where they serve as supports for the shelves on which the bee-boxes are placed. The rest of the building is divided, by bricks on the edge, into several compartments, as shown in the frontispiece; the bricks extend the full width of the resting-board, and all the compartments are covered over, and the entrances are kept closed, and accommodation is afforded for the bees when they are at any time driven home by stress of weather in greater numbers than can readily pass through the entrances into the boxes.

The building is not only thatched on the top, but down the sides and ends, as low as the potto-cellar. On that side where the bees enter the boxes, the thatch, of course, terminates at the top of the compartments, over which it is spread out so as to conceal the plate coverings. The floor of the bee-house is boarded, and the potto-cellar is ceiled, the space between the ceiling and the floor above being filled up with dry saw-dust. It is but right, however, that Keys is altogether against planting hives on benches, and he thinks it a great deal worse to have them under toots or sheds with shelves therein one above another, on the principle recommended by Dr. Bevan, insomuch as these afford hovels for enemies, and are inconvenient. He, however, recommends for each hive separate stands made by driving four strong stakes into the ground three or four feet apart, in the form of a square. Eight or ten of these in one place, he thinks will be the best, and in the corners of the house to be disposed of, he thinks it better to have them in separate gardens to prevent quarrels, which often happen when the swarms are numerous.

The various forms of hives will be noticed under the article Hives.

APICIUS. There were three Romans of this name, all of them celebrated for their love of good eating. The first
was contemporary with Sylla; the second with Augustus and Tiberius; the third with Trajan. Of these the second is the most famous, being celebrated by Seneca, Pliny, Juvenal, Martial, &c. Athenaeus (p. 7, Caesa,b.) places him under Tiberius; Suetonius, however, gives him to Trajan, thus, to add further confusion to the whole, refers him to a period before the death of Tiberius, and infected the age by establishing a regular school of professors and pupils in the science of good eating in Rome, from which, in the days of simplicity and severity, even philosophers had been expelled as the corruptors of youth. The sight, therefore, of a lover of food and drink, who had spent his fortune and involved him in debt; he therefore found himself obliged to look into his affairs, and regulate his expenditure. He found that when his incumbrances were cleared off, he should have left a pitance utterly inadequate to keep such a body and soul together; wherefore, he took poison in preference to pining after unattainable luxuries. Pliny calls him the greatest gourmandizer that ever appeared in the world, and mentions various ragouts invented by him: in short, he was the Cook's Oracle of imperial Rome. The third Apicius is to be honoured as the inventor of the art of picking oysters (Athen. 7); several jars of which he sent to the Emperor Trajan when in Parthia. Distant as was the empire, yet did they reach it in high preservation and tempting savour.

The name of Apicius, long after the time even of the last of these three philosophers, was familiar as a house- hold word. Their fame was perpetuated by the spirit of party: and the cooks of ages after were divided into Apicians and anti-Apicians. A treatise De re Culinaris is extant under the name of Caelius Apicius. It is considered by critics as antithetical, although not written by any of the three whom we have mentioned. Martin Lister published it in London in 1705, with the title De Obserbati et Conditamenti, sive de Arte Coquinaria. The humorous Dr. King ridiculed it in a poem, entitled The Art of Cookery. He was a man of the world, and was altogether a man of good understanding.

AP'ION, son of Poseidonius, was born in Oasis, a town in Libya, seven days' journey from Thebes, probably the modern Oasis, cailed El Wah. Apion was educated at Alexandria, and wished to pass for a Greek native of that city, although he was of Egyptian extraction. Some have thought that the name of Apion is derived from Apis. Apion was a disciple of Apollonius, the son of Archibius, and of Dositheus, from whom he imbibed his fondness for the poetry of Homer. Under the emperor Claudius, who reigned A. D. 41—54, he succeeded the Grammairian Theon at Rome. When the Greek inhabitants of Alexandria endeavoured to deprive the Jews who resided there of the possession of their Temple, at the foundation of the city, and confirmed by the Ptolemies and the Cæsars, Apion was appointed to advocate their cause against the Jews. On this occasion he endeavoured to impress the reader with the number of the cows. He pointed out that the Jews would never erect statues to the emperor, nor swear by his name, whilst they preferred to worship the head of an ass made of solid gold, which was of immense value, and was stated to have been first discovered when Antiochus Epiphanes entered the temple at Jerusalem. Antiochus Epiphanes was reported to have taken this idol away, and to have set a Greek captive at liberty, whom he found confined within the sanctuary, all the slaughterers of the animals, and the fattening of the most delicious animal food. It was stated that the Jews were in the habit of preparing every year such a human sacrifice, in the intestines of which they discovered the events of futurity, and that all Jews tasted annually these human entrails, in order to pledge themselves aforesight to hate the Greeks.

Apion, with these monstrous fables, did not fully succeed against Philo, who was sent to Alexandria, in 46 B.C., by Philo, who was at the head of the embassy of the Alexandrian Jews, commenced his reply to Apion's accusation, but the Emperor Cæsars insultingly commanded him to leave the imperial presence. All expedients were tried, but without success. Philo said to the bystanding Jews: Be of good cheer, for Cæsars attacks us with words, but really he has begun to fight against God. The Emperor sent Petronius, the successor at Velleius, as legate to Syria, with orders to place a

status of his imperial, or rather divine majesty, in the temple at Jerusalem. Petronius marched an army into Judaea, but was so much touched with the intreated of the Jews not to profane their sanctuary, and with their readiness rather to yield, that he delayed the commencement of the war, and requested the emperor to revoke his orders: Cæsars granted this revocation to his favourite Herodes Agrippa, but commanded Petronius to be continued in his prescribed capacity. The news of Caligula's death arrived in Syria before the legate, and Petronius was ordered to kill himself, if he would avoid the tortures prepared for him. Thus, Apion's plan to hurt the Jews was providentially foiled. (See Joseph. Antiq. J. xvii. cap. s.)

PAU.SIV. Apsist, the Emperor to the Emperor Cæsars, is still in part existent. Apion was esteemed for his learning, but already, before his contest with Philo, he was known at Rome as a man of osten
diosa character. Tiberius named him Cymbalus mundus, Cymbal of the universe, on account of his vain boasting; but Philo, Apion's disciple, calls him rather publica fame sympanum, or the kettledrum of fame. The following writings of Apion we find quoted: Agamemnon, in five books: this work contained a description of the curiosities of Egypt: A History according to Nations; On the Merits of Alexander the Great; Against the Jews; On the Luxury of Apicius; On the Language of Rome; De Disciplina Metallae; &c. These works of Apion were translated into Greek, and it is believed that the story of Androcles and the Lion (Gel
lus, v. 14); and the Dolphin at Dicaearchus (Gellius, vii. 8); with fragments from the work against the Jews, preserved by Josephus in Antiquities.

Flavius Josephus wrote two books on the antiquity of the Jews against Apion after his death. In the first book Josephus refutes the gross mistakes and misrepresentations of Manetho, and many other Gentiles who had written without accurate information on the affairs of the Jews. Most of the works against which Josephus wrote are now lost, and only known from his quotations. In the begin
ning of the second book, Josephus refutes especially the misrepresentations on his opinion and his authority. The publication of these two books to Eppodruthus, bears some resemblance to the dedications prefixed to the Gospel according to St. Luke, and the Acts, to Theophilus. (See Suda, s. v. Paus.)

API. A sacred bull, whose station and temple were in Memphis in Egypt. He must be distinguished from Mneusa, the sacred bull of Heliopolis. The real or true Aps was known from among all other bulls by certain marks, which are mentioned by Herodotus and Pliny (iii. 28; viii. 48). One of these marks was that the bull was bred from a cow, his conception was caused by the decent of lightning, or the influence of the moon's beams. When the bull Aps died, or had been put to death after living the determined time, a successor was diligently sought for, and, when found, was installed in his temple in Memphis with all due solemnity. The cow was not eaten in Egypt, but the bull was used as food; yet no bull could be slaughtered till it had been first ascertainment that it had none of the marks which charac
terized a sacred bull. When this was ascertained satisfactorily, the priests put a seal or mark on the animal, to signify that it might be slaughtered: no unmarked bull could be sacrificed. The bull had a staple regulation, which was probably the raising an income by a tax on slaughtered animals. There might possibly be other reasons also. (Herod. ii. 36.) The worship of Aps existed at least as late as the reign of Septimius Severus. We hear of Greeks and Romans of rank paying their respects to the bull of Memphis, in which curiosity and superstition appear to have been blended. Alexander the Great, the same Mneusa, sacrificed to all the Gods, and Aps among the rest, in which appeared that no more political wisdom than the Persian madman Cambyses, who, 200 years before, bad insulted the Egyptians by stab
ing their deity. Germanicus Cæsar, when he visited Egypt in the reign of Tiberius, visited the temple of Aps. It was a favourable sign when the animal would take food from the hand of his visitor, and the reverse was looked upon as presaging misfortune. The bull refused what the hand of Germanicus offered, and the Roman general died
shortly after at Antioch. Strabo describes the Apis and his temple in the following terms, at the time of his visit to Egypt (xvii. p. 907):—Memphis contains a temple of Apis, who is the same as Osiris. The bull Apis is kept in an apartment, which is regarded as sacred, that is to say, white on the forehead and some other parts of the body, but in every other part black. By these marks they always de- cide which bull is to be the successor of Apis when he dies. In front of the apartment is an enclosure, in which there is another apartment for the bull’s mother. They allow the sacred bull to come into this court or enclosure at certain times, and chiefly for the purpose of being shown to strangers. ‘The bull Apis, it is presumed (Herod. iii. 29.), was embalmed when he died. Lucas says (vol. i. p. 155, Voyage fait en 1714) that he observed bulls’ heads in several niches of the catacombs of Aboukir: he also found a bull embalmed, and in a great chest, on which the head of the animal was the case, has been gilded and painted. (See also Abd-Allatif, De Sacy, p. 291.)

The deity Apis was probably a symbol of the Nile (see Jbelonsky, Pantheon, Apis), or of the earth and fertility, as the cow also was in the Egyptian, and still is in the Hindu mythology. The god Siva, in the Indian mythology, has his sacred bulls, which are characterized by certain marks, and a colossal bull of stone is often an ornament of his temples. The bull (but not the cow) is an object of worship. (See Cahen, Tribus et Dieux, pp. 56 and 72.) The sacred bulls of Benares still walk about the streets of the holy city, or stop up the road, and cannot be disturbed without all due respect.

These sacred bulls and sacred calves to the idolatrous worship of the bull or cow is seen from the history in Exodus, xxxiii.; and at a later period, Jerobom, who had spent some time in Egypt, set up two calves, one at Dan and the other at Bethel, and established temples and priests, prophecies in the Old Testament and Apocrypha respectively. (See 1 Kings xii.; compare Hosea, chap. x.; Bohlen’s Altes Indien, p. 329, &c.; Jabelonsky’s Pantheon.)

APOEM is the botanical name of a genus of umbelliferous plants. Aloe is the only species of Aloe on the Lord’s table, and the common celery, Apium graveolens. This valuable vegetable is found naturally in the ditches of almost every part of Europe; it is even met with in the Falkland Islands, where, if it has not originally been carried thither, it has naturalized itself in this country it is very common in many places, as, for instance, in the ditches near Sandwich.

It is a remarkable fact that this plant, which is so sweet and wholesome when cultivated, is altogether acrid and unfit for food when wild. It is by some supposed that the difference between the quality of the two states is owing to so large a part of the stem and the leaves of the cultivated species being hidden from the action of light by which it is brought about. This being the case, they generate in much abundance the peculiar principle on which the acridity depends. Whatever may be the value of this explanation, it evidently does not apply to the variety called celery, the freshness and character of cultivated celery are maintained, although no part of the leaves are deprived of the full influence of light.

For the culture of celery and its varieties, see CELERY.

Pamphlet, which was formerly considered a species of apium, will be noticed under PETROGELUM.

APLOME. [See GARNET.]

APOCALYPSE. The word apocalypse (ἁπαχλος) signifies, originally uncovering, unveling, and is used in the New Testament and Apocrypha, and it is the revelation of the will of God. In this sense the apostle Paul speaks of his ‘preaching Christ according to the revelation (ἑα απαχλος μυθη) of the mystery, which was kept secret since the world began, but now is made manifest, by the commandment of the everlasting God made known to all nations for the obedience of faith.”—Rom. xvi. 25, 26. Compare also 1 Cor. iv. 6, where we find that when the Christians assembled every one had a psalm, a doctrine, a tongue, a revelation of the apocalypse of the council of God to the spirit of the prophet.

But the word apocalypse is used in a still more confined sense, to express especially the prophetic revelation of the future development of the Messiah’s kingdom. Works which describe future conflicts between the power of the Messiah and the opposing powers of Satan, unbelieving and superstition, form the apocalyptic literature. The revelations in these works communicate visions in symbolic language. The apocalyptic is a branch of the prophetic literature, and is not regarded as purely prophetic, but every prophetic book is not apocalyptic.

Apocalyptic writings develop that future kingdom of the Messiah which constitutes an essential part of the Biblical doctrine in the Old as well as in the New Testament. Apocalyptic, as well as profane, literature has epochs and periods of flourishing and of decay; and it is divided into canonical and apocryphal branches.

The first epoch is the Jewish. The book of Daniel is the prototype of the genre. The idea of Jewish apocalypses is the first advent of the Messiah in order to lay the foundation of his kingdom. In the Jewish apocalypses, everything concerning the Messiah is future.

The second, or the Christian, epoch, of apocalyptic literature begins after the development of Christ’s kingdom; consequently, the Christian apocalypses are clearer than the Jewish. The Jewish apocalypses still continued after the first advent, as long as the ideas about the Messiah retained great vigour among the Jews; but they degenerated into apocryphal imitations of earlier apocalypses.

These apocryphal apocalypses of later Jews were often used by the early Christians as interpolations to their own apocalypses. The Christian use of Jewish apocalypses after the first advent was necessary; because Christianity is the only true continuation of Biblical Judaism. The stream of Jewish apocalypses is lost in the sands of the Talmud. A Jewish account of Jewish apocalyptic apocalypses will be given under the articles HEBREW, ERA, PATRIARCHS, ISRAEL.

In the history of the Apocalypse, we have to consider who was the author of the work who calls himself at the commencement of the first chapter:—‘John, the servant of the Lord.’ Some critics have asserted that this description which the author gives of himself is a proof that the Apocalypse was not written by the apostle St. John, but by another successor of St. John, and that the work is a work of apostolic dignity; and, further, that in the usual title of the book (Ἀποκάλυψις Ἰωάννου τοῦ Θεολόγου) he is not called St. John the apostle, but only John the divine, or the theologian.

But most critics suppose that the present title to the Revelations can only refer to that apostle who wrote more explicitly about the divine logos (θεολόγος) than any other of the evangelists. Those who entertain any doubt on this head will find in Suicer’s Thesaurus that the Greek words from which our terms theology and theologian are derived, mean respectively in the antient fathers, especially the doctrine of the incarnation of the logos and teachers of the logos. Whoever compares the phraseology, imagery, symbolism, and doctrine of the Apocalypse, with the epistles of St. John, will, indeed, find a great difference.

The Greek style of the Apocalypse is strongly tinted with Hebraisms, and its imagery is bold. The style of the gospel and the epistles approaches more nearly to the classic Greek, and is without imagery.

Polycarp, bishop of Smyrna, a successor of one of those pasto whom the seven apocalyptic letters in chap. ii., and iii. were addressed, was a disciple of St. John the apostle; and Papae, bishop of Hierapolis near Laodicea, was, according to the statement of Irenæus (Adv. Haer. v. 33.), a ‘hearer of John and a friend of Polycarp.’

Polycarp and Papae were highly esteemed authors. Polycarp’s letters are extraordinary; and the writings of Papae some fragments only have been preserved. In Polycarp’s letter to the Philippian the Apocalypse is not mentioned; but his disciple Irenæus acknowledges its authenticity, and he adduces the testimony of those who had seen the face of St. John.

We have the testimony of the two Cappadocian bishops, Andreas and Arethas of Caesarea, who lived in the last quarter of the fifth century, that Papae recognised the inspiration of the seven books of the Apocalypse. Arethas says, at the conclusion of his introduction to his commentary on the Apocalypse, ‘It is unnecessary to make many words about the inspiration of the Apocalypse, since those blessed authors, of whom I mean Gregory the theologian, and Cyril, and besides these the more antient also, Papae, Irenæus, Methodius, and Hippolytus, testify to its credibility.’ Arethas being later, repeats nearly the same statement in the preface to his own commentary. Papae died, according to the
Alexandrine Chronicle, a.d. 163; therefore he must have been very young when he heard St. John, who died about a.d. 98.

Justinus Martyr, who lived between a.d. 140-166, and was nearly contemporary with Polycarp and Papias, was born in Palestine, and acquainted with Alexandria, Rome, and Asia Minor. At Ephesus he held his famous dialogue with Trypho the Jew, which is still extant. Justinus Martyr were Christians who were in question for doubing the apostolical authority of the Apocalypse.

Melito, bishop of Sardes, to which town one of the apocalyptic letters is directed, belonged to the biblical critics of the second century, and wrote, according to Eusebius, 'on the Second and the Apocalypse of John.' Jerome says, in effect, the same.

Probably at the conclusion of the second century, Theophilus, bishop of Antioch, wrote against the heresy of Hermogenes. This work is lost, but Eusebius, who read it, testifies that Theophilus took some proofs (μαρτυρίας) from the Apocalypse. Theophillus seems also to use apocalyptic language in his work (Ad Autolycum, ii. 28): 'the demon (δίας) is also called dragon (Skrion). Hence we infer that the Apocalypse was known in the second century and influenced the language of the Christians.

Eusebius mentions likewise that Apollonius (who was, according to the book Prodestinatns, which was written in the second century), calls John, the author of the Apocalypse (Slavonian, Pseudo-Constantinian), the Apocalypse against the Montanists themselves, although these heretics derived their errors especially from this part of the New Testament.

The most important testimony in favour of the Apocalypse is that of Irenæus, who died bishop of Lyons A.D. 202. Irenæus, in his work against heresies, quotes long passages from the Apocalypse of John, whom he calls expressly 'the disciple of Jesus' and 'the recipient of the revelation.' This presupposes that its apocalyptic character was then generally recognized. Irenæus defends the apocalyptic number 666 against the spurious 616, by stating that all warranted old manuscripts contained 666, which number was also supported by the testimony of those who saw the face of John. Irenæus modestly confines his own inability to explain this number, and says: 'If the name of Antichrist were to have been openly proclaimed in our days, it would have been declared by him, who saw the revelation, for it was seen not a very long time ago, but almost in our own age, namely, at the conclusion of Domitian's reign.' This testimony is important, because Irenæus was born in Asia Minor where the Apocalypse was published; and he grew up in following and learning the Montanist heresies, and knew the friendly circle of St. John, and the accounts which were in vogue among his disciples. Irenæus had a very extensive acquaintance with the most distinguished Christians of this time; and is in the best position to judge of religious differences and theological debates of the second century; consequently, we have reason to say, that Irenæus was a qualified witness. There can be no doubt that he believed the Apocalypse was written by John. Irenæus mentions that the authenticity of St. John's Gospel was attacked by some, but he mentions no opposition to the Apocalypse.

The letter by which the Christian congregations at Vienne and Lyons addressed St. John, and the persecutions suffered under Marcus Aurelius, A.D. 177, proves likewise that the Apocalypse was then much read and generally recognized in Gaul and Asia. Irenæus was presbyter at Lyons when this letter (see Eusebius Hist. Eccles. v. 1-3) was written, and, perhaps, it was drawn up by him or under his direction. The numerous Greeks who migrated from Asia Minor into Gaul probably took with them the Apocalypse.

The third century is the most interesting in the history of the Apocalypse. In the Montanist and Ctheonist sects, it is among other theological questions, that concerning the authenticity of the Apocalypse. (See Montanist.) Tertullian, in his Montanistian writings, constantly appeals to the Apocalypse as an authentic writing. (De Baptismo, t. 4.)

It is very important that the spiritualizing Origen not only mentions the Apocalypse as being written by John, (Comment. in Ev. Joannis ed. Lommatzsch, tom. i. l. 6) but says very decidedly in his Commentary that John, who re-

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elined on the breast of Jesus, wrote the Apocalypse. Origen classified the books then used by Christians into genuine, spurious, and of uncertain authority, and numbers the Apocalypse among the genuine canonical books.

Origen was the first to apply the title of second century; and it is an important fact that, in investigating the canonical limits of the New Testament, he did not meet, either in the schools of Alexandria, or in his numerous theological disputations, the occasion for doubing the apostolical authority of the Apocalypse.

This testimony from a sect called the Alogi, who asserted that the Apocalypse was an unintelligible and irrational fabrication of Cerinthus, it maintained its authority to the middle of the third century, rejects the far distant age from the traditional; it was used in theological researches and ecclesiastical transactions as a holy writing of the apostle St. John. But the Syrian national church, which was established either at the conclusion of the second century, or in the first years of the third century, omitted in the Peshti the second and third epistles of John, the second of Peter, the epistle of Jude, and the Apocalypse. These parts were added to the Syrian New Testament in or after the sixth century. But Theophilus of Antioch in the second, and Ephearem Syrius in the fourth century, quote the Apocalypse, and ascribe it to John. Hence we perceive that the Apocalypse, although wanting in the Peshti, was recognized among the theologians of the Syrian church. (See the Syriac Lcngere de Ephraem Syri Arte Hennemutica, p. 5-6.)

During the fourth century the Apocalypse was used in the oriental church by Athanasius, Basilius Magnus, Gradiva, and Gregory of Nyssa; it is called the Second Epistle of John. But Cyrilis of Jerusalem, who died a.d. 386, in his fourth Catechesis, advises his catechumens to read only those writings of both Testaments which were received by the church, and to neglect the apocalyptic books. Cyrilis gives a list of these canonical writings in which the Apocalypse is omitted. But his fifteenth catechesis seems to contain allusions to the apocalyptic phraseology.

The canon of the synod of Laodicea, which was held about a.d. 343, did not number the Apocalypse in the New Testament, and so likewise the eighty-fifth of the apocalyptic canons, which belong, perhaps, to the fourth century.

Gregorius Nazianzenus says, in his verses on the genuine books of the inspired Scripture, after having mentioned all the other books of the New Testament except the Apocalypse, 'Thou hast them all. If there is another besides these, it belongs not to the genuine.' But the same Gregorius, in his other writings, the Apocalypse as if he considered it genuine, and he is mentioned by Andreas and Arethas among those who recognized its inspiration and canonical character. Therefore, it is probable that the Apocalypse was reserved to the use of the clergy, who, remembering the consent among the Oriental fathers, included the Apocalypse out of the hands of the laity without denying its genuineness. By this conjecture an apparent contradiction is solved.

The general ecclesiastical tradition as to the apostolical origin of the Apocalypse continued uninterrupted to the middle of the third century, except by the opposition of the Alogi. But Donysius, a disciple of Origen, and bishop of Alexandria, who died a.d. 365, though he admitted the Apocalypse to be above his comprehension and the work of an inspired man, gave various reasons for supposing it not to be written by the apostle John. These reasons were subsequently reproduced in substance by Eunomus, as we shall afterwards see; indeed, every later opponent has repeated the same arguments.

The synod of Toledo, a.d. 335, speaks of 'many who do not receive the authority of the Apocalypse, and despise it so much, that they do not preach it in the church of God; but with these despisers the synod makes short work, saying, 'the authority of many councils, and the decrees of the Roman bishops, prerscribe that it is of John the Evangelist, and appoint that it is to be received among the Divine Scriptures.' 'If, therefore, someone, according to the synod, does not preach from it, between Easter and Pentecost, at the time of mass, he shall have the sentence of excommunication.' (Harduin, Act. Con. tom. iii. l. 54.)

The synod of Florentia, 539, was of the same opinion which continued undisturbed during the middle ages. Isidorus of Seville, who died 636, described in his work, De Officis Ecclesiasticis, the New Testament canon exactly as the church considered it henceforth to be established and closed.
According to Isidorus, the Apocalypse concludes, as being truly apostolical, the whole canon. But it is remarkable, that the Decretum Aquinasianum by Charlemagne, a.d. 789, cap. 90, decrees, that according to the synod of Lado- dicensis, although he says that it was written in the earlier part of the life of St. John, the canons of Lacedaemon are added, in which the Apocalypse is omitted. Corpus Juris Germ. ed. Walter, tom. ii. p. 1, p. 11, seq. But it appears from Augustus' Denkwürdig- heiten aus der Christlichen Archäologie, b. ii. p. 115, seq. that the Apocalypse continued publicly to be read in the Western church.

During the middle ages, the antichristian sects, as well as orthodox divines, appealed to the canonical authority of the Apocalypse, although they differed widely in its interpretation; but with the Reformation began another period in the history of the Apocalypse.

Erasmus (In Amnotobius in Novum Testamentum, 1546) mulcted his contemporaries of the former doubts, and repeated them more fully in the edition of 1527. He states that from the title Johannes Thelagoras, the fre- quent repetition of John's name, the difference of style, and the manner in which the author speaks of his own visions less modestly than Paul, (2 Cor. xii. 1, seq.) who relates them as if they happened to another, we might feel inclined to sacrience the Revelations not to John the Evan- gelist, if the general consent, and especially the authority of the Church, which has received them, were not sufficient. Nevertheless, he relates, apparently with predilection, the opinions of Diodorus, and the uncertainty of Eusebius whether it belonged to the Homologomena (the admitted), or to the Sacred Collection.

What Erasmus had cautiously whispered into the ears of the learned, Caristid and Luther proclaimed boldly to the people. Caristid, in his book Welche Bücher Bibliche Sain, 1520, p. 4, divides the New Testament into three classes, the last containing the Epistles to the Hebrews, the two Epistles of Peter, the three Epistles of John, the Epistle of Jude, and the Apocalypse; and he adds, that, among all books of the third order, the Apocalypse is the least valuable. He says, that it was not received in the church of Hieronymus by all Christians; secondly, the title is not Apocalypsis of John the Apostle, but of John the Theolog- ian. Thirdly, its style and manner differ from those of John the Apostle. 'But,' says Caristid, 'I will wish this and the other books of the third order not reject, but only point out the difference.' In the Preface to the Apocalypse in the first edition of his German Testament, a.d. 1529, Luther writes: 'In this book of the Revelation I leave every one to his own opinion. I will not come to a conclusion. I say only what I feel. In this book more than one thing is wanting, so that I consider it to be neither apostolical nor prophetic. First, the Apocalypse deals not in riddles, ambiguity, clear and distinct words, as do Peter, Paul, and Christ himself in the Gospel. It befits a aposto- lical office to speak clearly, without imagery, about Christ and his doing. But there is no prophet in the Old Testa- ment who deals in riddles, or who speaks by clear and distinct words, as do Ezekiel, Ezra, and Judges, and imagery; so that I deem it only equal to the fourth book of Ezra, and indeed cannot perceive that it was dictated by the Holy Ghost.'

It appears too much that the author should recommend his own preference to other holy books, which are much more important, and that he commands and threateneth God would take from him who would take anything from the Apocalypse; and again, that they should be blessed who read it, and that nobody knows what it is, much less can he keep it, and it is just as much as if we had it not. There are also many nobler books which we have to keep. Many of the fathers have in former days rejected this; and although St. Hieronymus, with high- sounding words, asserts that it is beyond all praise, and contains as many secrets as words; he cannot prove it, and various passages of his praise are too mild (namely, towards this third book). Generally, everybody may think of it what his own spirit lets him, and whether he can accommodate itself to this book, and it is sufficient cause for me not too hastily to esteem it, that Christ is neither taught nor known in it, which, before all things, an apostle ought to do, because he says (Acts i.), 'Ye shall be my witnesses.' Therefore I adhere to those books which give me Christ clearly and purely.' This prejudice of Luther was repeated in all editions until a.d. 1684.

The opinions of the reformer influenced the Lutheran theology during the sixteenth century so much, that it became habitual to divide the New Testament into canonical and apocryphal books. To the canonical books only was ascribed an absolute authority in matters of faith; and the Apocrypha, although they were held in the esteem of the church, were not considered as subsidiary sources of information. (Compare Order, Christlich Freie Untersuchung, p. 51, 313; Hart- wig's Apologie der Apokalypsen, 1i. iii. p. 33, 48; Storr's Neues Apokalypsesbuch, and especially his Volk's Einleitung in den Brief an die Hebräer, p. 449, 8c.)

In the dispute at Bern, a.d. 1528, one of the Roman Catholic interlocutors declared that the Apocalypse was written by St. John, and that wherever the Christian church ceased to look to it, the Apoca- lypse was among them; but Zwingley replied, it could not be proved historically that the Apocalypse was written by the Evangelist. Another Roman Catholic interlocutor complained that the Protestants would not admit the testi- monies from the books of Tobit, Baruch, Macocceus, and of the Apocalypse; to whom Oecolampadis and Zwingley re- plied, that the Protestants did not absolutely reject the Apocalypse, but they could not admit their authority in the important matter of faith, and they had not been generally received by the old church. (See Zwingley's Werke von Schuler und Schülern, 2 b. i. Abth. p. 87, 169, 8c.) Thus it appears that Zwingley, Oecolampadis, and Bucer, who was present at the debate, distinguished the Book of Enoch, Father and his followers in their estimate of the Apocalypse.

The reformers of Geneva, Calvin and Besa, seem to be more favourable to the Apocalypse. They quote it often without mention of the Luthern view about the canonical and apocryphal books of the New Testament. Calvin uses, in his Institutio Religionis Christianae, the Apocalypse as canonical and apostolical, but does not interpret it in his Comment- tarii, and thus obtained the often-echoed praise of Scaliger: 'Calvin was wise not to write on the Apocalypse.' Bsera defends, in his Prolegomena to the New Testament, its au- thenticity against Erasmus, but adds, that if it were not of St. John, he would ascribe it to St. Mark, on account of the similarity between the author of these reformers the Apocalypse was sanctioned as genuine in the Confessio Helvetica Posterius, the Thirty-nine Articles of the Church of England, the Confessio Gallicana, and Conf. Belgica, and zealously expounded by Theodori Bibliandri (Expositoris Apocalypsis, Basle, 1540, 8. p.) and by Artesonus, (Fran- furt, 1549,) and Heinrich Bullinger, who defends it against Erasmus and Luther (Cent Sermones sur Apocalypsis, Genève, 1565). Hyperius (in his Methodus theologicae, Basle, 1523, 8. p.) of which the authority of these reformers had been doubted by some, but declares it to be canoni- cal on the authority of the most ancient fathers. So the theory and practice of the so-called reformed (Calvinistic) church was throughout the sixteenth century, decidedly opposed to those of the Lutheran.

The Socinians leaned more towards the reformed than to the Lutheran view. Faustus Socinus (De Autoritate Scireptorum Sacrarum, Basle, 1562) says of the book of Ezra: 'The whole book is not the product of the Prophet himself, but of the church in the last century, decidedly opposed to those of the Lutheran.'

Towards the middle of the eighteenth century, the doubts about the authenticity of the Apocalypse were revived first in England by a Deist, namely, the unknown translator of The New Testament in Greek and English, containing the Original Text, &c. dedicated to the Lord Chancellor Peter King, London, 1729; and with more penetration by the anonymous author of the Discourse, Historical and Cri- tical, on the Revelation ascribed to St. John. It is now well known that the English Deists, in their zeal for the famous librarian at Geneva, a friend of Bayle and New- ton, at the request of W. Burnet. It was originally written in French, under the title Discours sur l'Apocalypse. The original was printed, contrary to the wish of Abaaria (who died in 1678), in the edition of his (Buisses Diversions, London, 1770). Abaaria's essay gave a new impulse to these critical investigations; and it induced Dr. Leonhard Twells to write his defense of the Apocalypse. Critical Essay on the Late Text and Version of the New Testament in Greek and English, 1732; which contains the first essay of a solid defence of the Apocalypse by internal and external arguments. T. C. Wolf inserted an abridgment of this work in the Curi, vol. v., p. 387. The excellent work of Twells, which silenced the adversaries of the Apocalypse in England, became known in Germany, where, after thirty years, the combat was renewed.
There was a time when the philologists of Germany generally did not recognize the esthetic value of the Apocrypha, being influenced by the opinions of Oeder, Schott, and Herder. Before these, Naumann, Lachmann, and others, without any predilection for orthodoxy, but with more tact than Semler and his school, showed that the despisers of the Apocrypha had only manifested their own blindness, when they denied the esthetic value of the Apocrypha; and thus, without being orthodox, Eichhorn facilitated a decision favourable to orthodoxy. Herder observed, that every Christian poet who had a spark of real poetry enjoyed the Apocrypha; that the best hymns of the middle ages, of Mary, the church, and the kingdom of God, are crowned with apocalyptic flowers; that Dante, Petrarch, and Milton were imitators of the Apocrypha.

There is in the Apocrypha neither the plastic beauty of the antique, nor the picturesque beauty of our western modern poetry; the oriental poetry loves immensity. The apocalyptic imagination opens heaven and hell, and, rising high above human and terrestrial forms, breaks through the limits of humanity and temporal existence. It calls down the heavenly Jerusalem, dimly shadowed forth by the things temporal. The poetry of the Apocrypha is that of infinity, of destruction, and of endless power.

The tradition of the books, in the Septuagint, in the Syriac, in the Latin, in the Church, and in the monasticism of Syria, is a living divinity who have written against the authenticity of the Apocrypha. Their works contain further developments of the old arguments of Dymysius, Eusebius, and others. The Sabatai, Hug, Eichhorn, Feilmoser, Lange, Bertholdt, Guericke, Olearius, and Schott, who were modern defenders of the authenticity of the Apocrypha; to whom we may add among the English, Lardner and his epimitomizers, Dean Woodhouse, the Rev. Hartwell Hume, and others.

The most recent German opposition to the Apocrypha, so greatly, that the external testimonies are decidedly in favour of the authenticity, but they assert that these testimonies are overcome by the internal philological character of the work.

The Apocrypha has been attacked and defended with greater zeal than any part of the New Testament, because its contents excite a very strong interest either in favour or against this conclusion of the whole Bible. The fundamental idea of the Apocrypha, which Luther and other opponents of the Revelations did not understand, is the following: As Plato, in his books Προτασθείσας, considers the state to be an exact transcript of individual man, so St. John, taking yet a higher step, tells us in the Apocalypse that similar events, which happen in the life of individuals, shall also take place in the infinity of the whole universe.

As the redemption of Christ saves the whole man, spirit, soul, and body,—so Jesus Christ saves also the universe from sin and consequent perdition. The Apocrypha teaches that there shall be finally a vast catastrophe of the universe, in which the writings more obscurely indicate, namely, that there shall be a period in which the spirit of the Lord shall not only operate in secret by governing the hearts of believers, but a period in which it shall rule openly by a visible power, prevailing against all opposition, and shall finally establish a kingdom of universal peace and justice here on earth.

The leading idea, then, of the Apocrypha consists in the complete victory of what is good, and of Paradise regained, or re-established on earth.

APOCALYPTIC KNIGHTS (Cavalieri dell' Apocalisse) were a secret society, formed a.d. 1695, professedly for the defence of the Roman Catholic church against Anti-christ. Two of the society were arrested by Gabrino, the son of a merchant at Brescia. When, on Palm Sunday, 1693, in the church of St. Peter at Rome, the antiphony of Ps. xxvi was sung: 'Qua est iste rex glorios? 'Who is that king of glory? ' Agostino Gabrino stepped forward with a drawn sword among the ecclesiastics, crying out, 'Ego sum rex glorios; 'I am king of glory.' In a similar manner he disturbed public worship in the church of St. Peter, and was, therefore, confined in the Castel Sant'Angelo. A wooden box containing letters to the Apocryphal knights laid information before the Inquisition against his order; by this tribunal the order was suppressed in 1694, and the knights confined in prison. About eighty knights, most of whom are convicts and persons of small station, were commanded to wear a sword at their side, even during menial occupations, and a star upon their breast. This star had seven corners and a tail, and was surrounded by a golden thread, which circle represented the terraqueous globe. The tail of the star represented the sword given by St. John in the Apocalypse. This order has been accused of an intended rebellion against the papal government and the higher ranks. Agostino Gabrino and his adherents, the Holy Trinity, intended to introduce polytheism. His knights wore a ring with the word virgin only. The history even of such a set of madmen is not without its uses: ignorance and fanaticism will, in all ages, produce the same fruits. (See Tenney's Monatliche Unterredungen, 1687, p. 677, and of 1697, p. 883, &c.; Enrich and Gruber's Encyc.)

APOCRYPHA (ἀπόκρυφα βιβλία) are such books as contain secrets and are kept in secret, from ἀπόκρυπτος, concealed; considered as additions to those writings of the Gnostics and other sects which contained the knowledge of those mysteries which were communicated to their partizans only. These books are now known under the name of apocryphal, (that is, 'books with false titles,' as the books of Adam, Enoch, the three patriarchs, &c. These volumes formed a kind of heretical canon in opposition to the orthodox canon, and hence arose the signification of the name Apocrypha, which now means not canonical, or not belonging to those writings which form the canon of the Holy Scriptures. [See Canon.]

The name Apocrypha is especially given to those additions which were introduced into the Septuagint translation of the Old Testament, and in this form they were transferred into the Vulgate and many subsequent translations. The reformers separated the Apocrypha from the Old Testament, and Luther placed them between the Old and the New Covenants, under the title of Apocrypha, although his version of these books which were to be esteemed in the Holy Scriptures, but are still profitable to the reader. In opposition to the reformers, the Apocrypha were declared to be canonical by the Council of Trent. Hence all translations which now have the Vulgate have the Apocrypha interspersed with the other writings which are admitted by all Christians to be canonical. The Bible published by Protestants on the Continent place separately—additions to the Old Testament; the book of Tobit; Judith; rest of Esther; Wisdom of Solomon; Second Esdras, etc.; and the books of the New Testament, the Apocalypse and the seven epistles of St. John, are also printed in separate articles. About the year 1621, a debate arose in the British and Foreign Bible Society about the propriety of printing the Apocrypha together with the Holy Scriptures. About 1826, it was decided that the Apocrypha should not be circumscribed by the British and Foreign Bible Society. Nevertheless the disputes of the two opposite parties were continued for several succeeding years, and many pamphlets were published by both parties, until the apocryphalists were for the most part silenced. The following is a list of the books of the Apocrypha, which form a kind of appendix to the Old Testament and belong to the literature of the later Jews, there are a number of other apocryphal writings of the Old and New Testament which have been included in the Codex Pseudepigraphus Vetus Testamenti, and the Codex Apocryphi Novi Testamenti, and more completely by Thilo in the Codex Apocryphi Novi Testamenti, Lipsae, 1832. Most of the apocryphal additions to the New Testament have been collected and published in an English translation by Hone.

APOCYNUM, a natural order of plants, belonging to the monopetalous subdivision of the dicotyledonous class. The flowers of these plants are all alike symmetrical, and the segments of the corolla all twisted one way, like a Catherine-wheel, five distinct stamens, a superior ovarium which, when ripening, divides into two parts, which diverge from each other at right angles, and by these stems yielding, when wounded, a copious milk. The latter is generally poisonous, and that character is to be taken as general in the order, which abounds in plants the action of which is deleterious to the human body. Among these, the Tangan poison of Madagascar (see TANGHIMA) and the Nux vomicae (see STRYCHNOIDES) are remarkable instances. Notwithstanding this, some of the species are not unwholesome; as the hya-lya, or milk-tree (APOCYNUM NEMERI); and the Tangan, or Tangan flower, which is yielded in abundance by Iahe and Urcoela elastics; and the bark of several species is a powerful fibricide. Considering, however, the great prevalence of poisonous qualities in the order, drugs obtained from any species of APOCYNUM should be used with caution.
should be administered with very great caution, until it has been satisfactorily ascertained that they may be employed without danger. The order Apoeneus is only distinguishable from Aesclapiades by the stones being distinct from the shell, and by the pollen not being contained in little waxy bags.

APODES, in zoology, an order of fishes, including, according to the Linnaean system, all those which want the central fins, but which are provided, besides possessing this character, are likewise malecogentious. In the latter sense, the apodal fishes compose a small natural family, almost restricted to the great genus Muraena, and of which the common eel offers a good and familiar example.

APOGE'ET, from αυς, from, and ς, the earth, an astronomical term applied to the apparent orbits of the sun and moon, signifying the points of those orbits which are at the greatest distance from the earth. It is opposed to perigeus, which means the point nearest to the earth. For general considerations connected with this term, see APHELION, substituting the earth in place of the sun.

The sun is in its apogee when the earth is in its aphelion, and the motion of the solar apogee is the same as that of the earth's aphelion. The motion of the lunar apogee is more complicated. At new or full moon, its longitude is increasing; but at its first and last quarter is decreasing. But the increase of the general increase is nearly equated by the decrease, and so, on the average, the apogee increases its longitude daily by 6° 41′, or describes a whole revolution in about nine years. In the Nautical Almanac will be found the time when the moon is in its apogee, and how far from it. For example, we find that in January, 1834, the moon is in apogee at fourteen days eighteen hours (measuring eighteen hours after noon on the 14th, or six in the morning on the 15th, civil reckoning). On referring to the moon's right ascension for that time, we find it twenty-three hours forty-four minutes. For further details, see LUNAR THEORY.

APOLDA, a town in the grand duchy of Saxe-Weimar-Eisenach, about eight miles north of the University of Jena, and four miles south-west of Leipzig, lying upon the Ilm. It has a manufactury of woollens and kerseymers, and a very large number of stockings, of which it produces about 30,000 dozen pairs a-year; linens, brandy, and spirits, are also made in the town. It has two foundries for bells. Population: 3360.

APOLLINARI'S, C. SULPI'CIUS, a grammarian who taught under the reign of the Antonines in the second century, at Rome. Helvius Pertinax was his most famous discipule; he first taught grammar, and young Pertinax began to study literature under his tuition. He commenced a career that led him to the throne of the Caesars. (J. Capitol. Vit. Pertinacis, c. 1; Script. Hist. Aug. Aulus Gellius, another distinguished disciple, mentions him in several places; Plutarch praises his style and manner of writing, his wonderful erudition, and his urbane fidelity in teaching. (Nott. Att. I. iii. 6; xiii. 17, 19; xviii. 4; xx. 6.) The short metrical arguments of the Comedies of Terence are attributed to Apollinaris. Denys of Gaza, in his Life of Virgil, an epigram of six lines on the Aeneid, under the name of Sulpicius of Carthage, who is considered to be the same person as C. Sulpicius Apollinaris.

APOLLINARIS, or APOLLINARIUS (Ἀπολλιαριψ), a native of Alexandria, taught grammar at Berutia, a town on the coast of Phoenicia, and afterwards at Laodicea of the same country. Apollinaris married and became presbyter of Laodicea. His son, likewise called Apollinaris, was one of the best Latin poets of his age. Apollinaris, the younger, became professor of eloquence at Laodicea before A.D. 335, and afterwards lecturer of the Christian congregation. Both father and son continued their intercourse with learned heathens after their ordination.

They were friends of Libanius, and attended the lectures of Ephippius the sophist, who taught at Laodicea, and afterwards in Athens. On this account, and especially because they were present when Ephippius recited a poem in which he extolled the Eastern emperors, he commenced his labours at Antiochus, bishop of Laodicea; but again, on doing penance, admitted into church-fellowship. Georgius, the successor of Theodotus, A.D. 330, being an Arian, banished them, either on account of some speeches of Libanius, or on account of their adherence to the Nicene Creed and the friendship of the younger Apollinaris for Athanasius. This friendship had commenced A.D. 349, at the time that Athanasius passed through Laodicea. When Julian forbade the Christians to interpret the Greek classics, the Apolllinari, father and son, composed imitations for the use of schools. The father wrote a grammar for Christians. Socrates (Chron. Eph. iii. 16) and other fathers, in some eclogues and tragedies, founded on the history of the Old Testament; but Sozomenus (Hist. Ecl. Ecl. v. 18) ascribes these productions to the son, who transformed also the New Testament into the manner and style of Platonic dialogues. After the censures of the emperor, he was read again, and the imitations of Apollinaris forgotten.

The younger Apollinaris is mentioned (in Athanas. Ep. ad Antiochenos, tom. i.; Opp. ed. Montfaucon, vol. ii., p. 776) as a Latin bishop of Laodicea. Boniface of Polobirius was bishop of the Arians in that city. He was esteemed, and had some episcopal correspondence with Athanasius, Basilus Magnus, and other great men of that age, who continued to speak respectfully of his merits, even after he was suspected of heresy. Apollinaris distinguished himself especially by polemical and exegetical writings; for instance, by his work on Truth, against the Emperor Julian and the heathen philosophers. Apollinaris thirty books against Porphyrius, against Libanius, Marcellus, and others, were highly esteemed. Hieronymus himself, during his residence at Antiochis, A.D. 373 and 374, enjoyed the exegetical instructions of Apollinaris, then bishop of Antioch and the surrounding land. The interpretations of Apollinaris, quoted in the commentary of Theodoret, were peculiarly valuable in those days on account of his knowledge of the Hebrew tongue. Basilus Magnus mentions a work of Apollinaris on the Holy Ghost; and from the works of Theodoret we learn that his hymns and psalms were often sung in Christian congregations, and much admired. In the year 1552 was published at Paris, a Metaphrasis Psalmorum of Apollinaris; and re-edited by Sylburg at Heidelberg, in 1566; this tragedy on the suffering of Christ, in the Works of Gregorius Nazianzenus, was ascribed to Apollinaris, but appears to some critics to be unworthy of his talents.

In the latter part of his life, Apollinaris, who had strenuously and closely defended the orthodox doctrine of the Trinity, himself incurred the reproach of heresy, because he taught that the divine logos occupied in the person of Christ the place of the human soul. According to him, Christ was (τωναπαντος) incarnatus, but not (ὑποκειμένος) insulis. His disciples, who were very numerous, were called Apollinarists. His heresy became generally known A.D. 371. The accusation of Socrates, Sozomenus, and Theodoret, against the character of Apollinaris, and the low notions which are said to have been held by the orthodox doctors of the Trinity, was consistently both with the chronology and circumstances of his life. Apollinarism was first condemned at the synod held at Rome, A.D. 375, in which the Roman bishop Damasus was present. The orthodox doctors opposed Apollinarists, and this condemnation continued. Denyus of Gaza, in his Life of Virgil, an epigram of six lines on the Aeneid, under the name of Sulpicius of Carthage, who is considered to be the same person as C. Sulpicius Apollinaris. Among the most celebrated of the Apollinarists were Orms and Eutyches of Epiphanius. The Arian bishops of Egypt were also called Dimeritiers, because they were accused of dividing the nature of Christ into two parts.

Before the death of Apollinaris, which happened between A.D. 383—391, the Apollinarists formed in Syria and the adjacent countries several separate congregations, having each their own bishops. After his death, the Apollinarists were divided into two parties, one of which, under Polemo, or Polinemi, and Timotho, pretended that the divinity and the body of Christ were united in the person of the Logos; consequently, that the flesh was to be worshipped as well as the Logos; these were called Polemians and Synoaiists, and also eucharistians (ἐκορσικτοι, flesh-shippers); in retaliation, they called the orthodox eunucharians, or common worshippers. The other party, which adhered to the original doctrine of Apollinaris, were called Valentinians.

By imperial command, the public worship of the Apollinarists was impeded A.D. 388 and 397, and A.D. 426 in all their cities; and this persecution was continued by the Theodosian emperors, assimilated in the fifth century, partly to the orthodox, and partly to the Monophysites. [See MONOPHYSITES.] APOLLO, one of the principal gods of the Grecian heavens, also called Phoebus, or Phoebus Apollo. He was the presiding deity of archery, prophecy, and music, and in later times of the sun; but in the early poets above-mentioned, the sun (Helius) is a different personage.
of different extraction, the son of Hyperion and Theia. (Theog. xvii. 371: see also the adventures of Ulysses in the island of Thrinakia, where the exun of the sun, not of Apollo, are always spoken of.) According to Herodotus, (ii. 56) Apollo was the son of Zeus and Leto (Jupiter and Latona). His mother, when the time of travail drew nigh, wandered through the earth, seeking a place where she might rest; she found none, but the earth, fearing too much the wrath of Hera (Juno), the jealous queen of heaven, to receive her. At last Delos, which was then a floating island drifting about the Aegean sea, and called Asteria, afforded her a place. Here she gave birth, and indeed, it is generally acknowledged, according to his opinion on the grounds was fixed. Leto promised, in return for the shelter afforded, that her son should honour that humble island above all other places; and it was always held especially sacred to him, and the principal seat of his worship. This story is beautifully related in the Homeric hymn above quoted, and in the Hymn to Delos by Callimachus. Apollo is a leading personage in mythological fiction, and a favourite with the poets, who have engaged him in a great variety of adventures, and who have made him the muse of the Muses. He is usually represented in the prime of youth, and manly beauty, with long hair, his brows bound with the sacred bay-tree, (Daphne,) bearing either the lyre, or his peculiar weapon the bow. Sometimes he presided the supremacy of the healing art from its earliest times; hence Asclepius was said to be the son of Apollo. The hawk, the raven, the swan, the grasshopper, (cicada,) were his favourite animals. His principal temples were at Delos, Delphi, Tenedos, Patara, Claros, &c.; and from these he derives a great variety of distinctive epithets. He has many others peculiar to himself, which principally refer to his skill in archery, or may be interpreted to contain some allusion to the sun: as, arrowed, bow-bowed, golden-haired, golden-armed, light-producer, &c.

The word Phoebus is apparently connected with a Greek root, signifying light; but the origin and meaning of the word Apollo are entirely unknown. In later writers, and by the Latins, who do not appear to have had an antient sun-god of their own, Apollo and the sun are confounded. It is observable, however, that Ovid, in the stories of Phaeton, and Clytie, which have especial reference to him in his character of the sun-god, calls him Phoebus or Apollo, except once (ii. 399.) at the conclusion of the former (Met. ii. 1. iv. 190.) In Homer and Hesiod, as we have said, the two are clearly distinct. It is maintained, however, by some mythologists, and among them especially by the Ncopolitan, that Phoebus and Apollo are but two names for the same god; that the sun-god and moon-god were the same deity, and that those later writers who assigned to those deities the presidency over the two great luminaries, only revived the original belief which had fallen into disuse. But it is supposed, on his opinion on the grounds that, leaving out Apollo and Artemis, there are two places vacant in the list of deities necessary to be found with a people in the state of culture in which the early Greeks were (for Hermon and Jelonek he regards as deities of a later age); that the attributes of Artemis are those of a later age; that the bow was unknown to the ancients, and the nedd of arrows, flowing locks, and the epithets given to him, all apply to the sun, as do those of Artemis to the moon; that they are brother and sister, and the children of Leto, (i.e. Night); that the moon-gods and their world would naturally be given to the sun-god, whose eye surveys every thing, and whose beams penetrate every where; and no more suitable patroness could be chosen by the hunter, who lay helpless, subjected, than the moon-goddess, whose mild radiance guided him through the woods and lawns. (Keightley's Mythology.)

APOLLO BELVEDERE, a celebrated statue of Apollo, found at Cape d'Anvo, in the ruins of ancient Antium, about two miles from the sea, towards the end of the sixteenth century. It was purchased by Pope Julius II, before his elevation to the pontificate; and was placed by him in the Belvédère of the Vatican, whence it derives its present name. It has been generally considered, thmenn the moon-god, by means of his opinion on the grounds of the emperor, and probably by the order of Nero himself. (See

Thiersch, Uber die Epochen der bildenden Kunst, &c., p. 312, &c., second edition, 1829, p. 459.)

This statue, one of the finest specimens of sculpture extant, is a standing figure, more than seven feet high. It represents Apollo in the act of steering a ship, which is fastened round his neck, and hangs over the extended left arm. The left hand and the right fore-arm were lost, and were restored by Giovanni Angelo da Montorsolo, a pupil of Michael Angelo; so that the original action of the figure can only be conjectured. It was supposed, however, to represent the god at the moment of having discharged an arrow at the serpent Python, watching the effect of his weapon; and accordingly, in the restoration, part of a bow was placed beside the statue. The head of the god, and most of the healing art, is fixed on the stump of a tree, which gives stability to the figure. We quote Lord Byron's fine description of it.

'The lord of the unerring bow,
The god of life, and poets, and light.
The sun in human limbs arrayed, and bow
Whose arrows men of woe and health,
The shaft has just been shot—the arrow bright
With an impious vengeance sent, the wound;
And nostrill beautiful distress, and might;
And majesty, such their full lightnings by;
In developing in that one glance the Deity—'

Childe Harold, iv. 161.

(See also the Homeric Hymn to Apollo, v. 337, &c.; and Pen. Mag., vol. ii. p. 362.)

APOLLODORUS, a celebrated grammarian of Athens, of whom an account is given by Suidas. He was a pupil of Aristarchus. Of his voluminous writings, only three books of his Bibliotheca, or Library, now exist, and these are to be found in the collection of Dropides. He wrote a chresto, or history in Iambic verse, extending from the destruction of Troy (b.c. 1184) to his own times (about b.c. 144). (See Scymnus Chiusa, v. 19-49.) Among his other writings was a treatise on the Gods, on the Minori of Sophron, and on other subjects. Sevni Tetis, a Neapolitan, has written a treatise concerning the persons of different professions and various merit, who have borne this name. The first edition of Apollodorus was by B. Bertius of Spalato, in 1515, and the second by Fraheyne, 1782-1783, four volumes, and 1802, two volumes octavo; and that by Clavier, Paris, 1805, two volumes octavo, with a French translation. Dr. Thomas Gale published a bad edition in 1675.

APOLLODORUS, a celebrated architect in the reigns of Trajan and Hadrian, was born at Damascus. The magnificent stone bridge built over the Danube, A.D. 104, by order of Trajan, was executed under his direction. The remains of this bridge stand on the junction of the Alut or Alt and the Danube. He is also said to have been the architect of the Forum Traiani, in which the column of Trajan stands, and to have built a library, a music-hall (Odeum), baths, and aqueducts, 'and that Etruria was by no means false and frivolous pretence. Apollodorus is the author of a work on besieging towns (Πολλογραφία) printed in the collection of Theronetaw.

APOLLODORUS, an eminent Athenian painter, who lived about four centuries B.C. (See Pin. Nat. Hist. xxxv. 9.)

APOLLO'NIC, the name given to a chamber organ of vast power, supplied with both keys and barrels, built by Purcell, Flight and Robinson, of St. Martin's Lane, and first exhibited by them at their manufactory, in 1817. The word is formed from άπόλλων (Apollo), and a Greek term, ποιήσαμ, of common occurrence. The denomination does not appear to us the best that might have been suggested; but, as this organ was probably thought likely to captivate the multitude, who still entertain a lurking respect for whatever is conveyed through the medium of an antient, to them unknown, language.

The Apollonion is a pipe organ, by means of complicated, but very ingenious machinery, or may be played on the usual manner, by means of keys. The music, when the organ is worked by machinery, 'is printed on three cylinders or barrels, of about two feet eight inches long, each acting on a different division of the instrument; and these, in their revolution, not only admit air to the pipes, but actually regulate and work the stops, forming, by an instantaneous action, all the necessary combinations. The key-boards are three, the lowest, or bass, the central and largest comprising five octaves, and the smaller ones, of which two are placed on each side the larger, two octaves each. To the central key-board are attached a swell and some compound
pedals, enabling the performer to produce all the changes and variety of effect that the music may require. There is also a key-board, comprising two octaves of other pedals, operating on the largest pipes of the instrument. These six keys are situated in the body of the organ, so that the performers sit with their backs to the instrument, and consequently, with their faces to the audience. There are 1900 pipes, the largest twenty-four feet in length, and one foot eleven inches in aperture, sounding the G, two octaves below the first line of the basso, the highest being the A di piccissimo, two octaves above the second space in the treble. The number of stops is forty-five, and these in their combinations afford very good imitations of the various wind instruments known to the organ. Two drums are also enclosed in the case, and struck by a curious contrivance in the machinery. A tolerably correct estimate of the capabilities of this instrument may be made, when it is stated that it performs Mozart’s Overtures to the Zauberflöte, Figaro, and Idomeneo; Beethoven’s to Fidelio; Weber’s to Freischütz and Oberon; Cherubini’s to Anacreon, &c., without omitting a single note of the score, and with all the fortissimo and pianissimo, the crescendos and diminuendos, as directed by the composers, with an accuracy that no band can possibly exceed, and very few can reasonably hope to rival. The Apollonion was five years in building, and at an expense of about ten thousand pounds.

APOLLONIUS DYSCOLUS, &c. ALEXANDRINUS MINOR.

APOLLONIUS (or Apollonius) Dyscolus, who was sometimes called Alexander Minor, was a grammarian of Alexandria in the second century of the Christian era, and of whose private history we only know a few facts gleaned from Suidas and from a sketch of his life by an anonymous writer, prefixed to his work On the Musicians. He was a pupil of Syllogus, and has been called the teacher of Apollonius On Syntax. He was the son of Menethius and Ariadne, and is said to have been so poor that he was unable to afford money sufficient even to purchase a pen. It was probably this state of poverty which had an effect on his temper. He procured the name of Dyscolus, or the morose. This second appellation was intended to distinguish him from Apollonius Rhodius, who is sometimes called Alexander Major. He was the author of many works, including, according to Porson, On Grammar, or Grammarian, and addressed to that grammarians many hints for his Latin Grammar. Of his four remaining works the chief is a Treatise on Syntax, in four books, the first edition of which is by Althusius, 1495. An improved edition was made by Syllogusus, with a Latin translation of Am. Portus, 1590; the last is by Bekker, Berlin, 1817. At the end of the Treatise on Greek Dialects, by Maiettrius, Haugus, 1716, Lips, 1807, there are some extracts of the Grammar of Apollonius from a manuscript preserved by Vossius in the Royal Library of Paris. There is also a work attributed to him, Tropiai Bayianai, Wondrous Stories, the best edition of which is by Meursius, Lugd. Bat., 1626, but it is not certain that many have been written which could be justly considered the author. It has been published also by Teucer, Lips, 1792.

APOLLONIUS, PERGEBUS, after Archimedes, the most famous of all Greek mathematicians, was born at Perga in Pamphylia, while Ptolemy I, commonly called Euergetes, was king of Egypt. Ptolemy began his reign B.C. 247.

Apollonius was in the zenith of his fame about the end of the reign of Ptolemy IV., Philopator, who died B.C. 205. Apollonius and Hannibal were nearly contemporaries both as to birth and achievements in their different lines. Archimedes died B.C. 212, at which time Apollonius was living; it is not likely that he lived much longer. The life of Apollonius was passed at Alexandria, in the school of the successors of Euclid, under whom he studied. Of its details we know nothing, except that Pappus (who lived, however, as long after him as the fourth century) represented him, in his celebrated student: the Har tit Arab. He wrote the Life of Archimedes, asserts that he surreptitiously obtained the discoveries of the latter, and published them as his own; and that he had a son of the same name as himself. The four books on his commentator, (about A.D. 640), who cites the charge, answers it sufficiently by saying, that it was well known that neither Archimedes nor Apollonius pretended to be the first inventor of the method of solving problems. Bayle objects to this defence, and finds a better one in the silence of Pappus on the subject, who, though disposed, as we have seen, not to think too favourably of the merits of Apollonius, does not take notice of the charge. To this we would add that Vossius (though Bayle takes it differently) understands Pappus as saying, that Apollonius wrote commentaries upon the four books of some sections written by Euclid, and added little or nothing of the work which he hesitates of his own. Apollonius, as the author of that part of the work on which, as we shall see, his fame principally depends. We shall also, in the proper place, show grounds for doubting the assertion of Pappus with respect to the books of Euclid.

The most interesting part of an eminent man,—his opinions on disputed subjects,—we know but little in the case of Apollonius. Gussendi, in his life of Copernicus, mentions an opinion attributed by the latter to the Grecian astronomer, and which has been also attributed to Philolaus, that the sun and moon only moved round the earth, but all the other planets round the sun. This, so far as appearances only are concerned, is a sufficient explanation of all the phenomena; and, next to the system now received, is the soundest of hypotheses. We cannot find any other authority for attributing this opinion to Apollonius, except Weidler in his Historia Astronomica, where however cites Gussendi as his authority. But Apollonius certainly paid attention, at least, to the then received system, since known by the name of the Ptolemaic, for Ptolemy has preserved some theorems of his on the method of finding the stationary points of the planets, supposed to move in spheres. Proclus, in his commentary on Euclid, mentions that Apollonius attempted to extend the theory of the planets, and cites his investigation of the theorem, that things which are equal to the same are equal to one another, in which, as may be supposed, propositions are assumed, not more rigorous than those of Ptolemy in his works of Astronomy. He also mentions a definition of an angle which he attributes to Apollonius, but which we confess ourselves unable to understand. Vitrivius cites Apollonius as the inventor of a species of clock which he terms planaria.

The great work of Apollonius which now remains is seven books of his treatise on conic sections, of which we shall presently speak. But besides this, he is known to have written treatises, according to Pappus, De Ratione sectionum, De Rebus quae in Phoroneo et Thaumato, De Inclinationibus, De Planis Locis, and according to Proclus, De Coelis, and De perturbatis Rationibus. Most of these names would require circumlocution to make them more intelligible in English, and we therefore cite them as they are usually referred to. Of these, the first only is known to us, having been found in Arabic, and published in Latin by Halley in 1708, with an attempt to restore the second. But Moserion, cited by Vossius, says he read, in an Arabic author, Aben Jacim, an assertion that all the works of Apollonius, more in number than those mentioned by Pappus, were in Arabic at the beginning of the eleventh century. This point is even yet worth the attention of those who pursue the study of these manuscripts.

About the end of the sixteenth century, it was a very common exercise of mathematical ingenuity to endeavour to restore these and other lost treatises, that is, from the fullest account which could be given, to graze at the propertions by which they might have contained. Such attempts gave rise to the Apollonius Gallus of Viefia, the Apollonius Batavus of Neerlo, and other works of Maurello, Ghedtiali, Adrianus Romanus, Fermat, Schooten, Anderson, Halley, R. Wallis, and others.

The conic sections of Apollonius are in seven books, the first four of which are extant in Greek, with the commentary of Eutocius of Aspalon, above-mentioned. The three last, however, were not all lost, but were preserved in the eleventh century, when James Gallus, a celebrated oriental, professor of Leyden, returned from the East, with the whole seven books in Arabic. Some delay took place in their translation and publication, during which, in 1648, FLorelli published the Arabic manuscript of the Medici library at Florence, of the same seven books. It does not pay little to serve to illustrate the use made of public libraries, that while one author after another had for years expressed himself in ignorance of the Arabic manuscripts, Eutocius was lying in one of the most celebrated libraries in Europe, in the heart of a capital city, with an Italian title-page. Borelli, and Abraham Escellensiss, an oriental professor at Rome, knew it not, until the paraphrase of it published at Florence in 1661. At the time of the discovery, Viviani was engaged in restoring the lost books, and when it was made known, he prevailed on the Grand Duke of Tuscany to make
all his papers, and to order Borelli to keep the contents of the new books secret. The work of Viviani, well known as an acute and accomplished mathematician, was found (see Montucla, i. 250) to fall short of that of Apollonius on several important points, though, as might be expected, the views of Merton, as given by Arabes, in the book. But when the Oxford press, at the commencement of the last century, was employed upon the magnificent versions of the Greek geometrics, which are still the best in public use, Dr. Aldrich, observing that the whole of the three sections of the seventh book were asserted to belong to the eighth, and also that the latter appeared, from the words of Apollonius himself in his introduction, to be a continuation of the former, proposed to Halley that he should endeavour with these lights to re-establish the missing book. Halley was then employed in completing the edition of the work, which the death of Dr. Gregory had interrupted, and he acceded to the suggestion. The whole appeared at Oxford, in 1716, with the commentary of Eutocius, the Lemmata of Pappus, and in addition, the work of Serenus on the same subject. This is the only edition of the Greek text.

The contents of the work are thus briefly described by Apollonius himself, which is all we have a right to expect. The first four books are elementary: the first contains the generalities of the three sections of the cone, and of the sections which are strictly opposite, and their principal distinct properties, which have been treated of its previous writers, but not in the form of propositions. The second book contains the properties of the diameters, and axes, as well as of the asymptotes, and other matters of general utility: you will hence see what I call the several authors, and what axes. The third book contains many and wonderful theorems, which are useful in the composition of solid loci, of which the majority are both new and beautiful. The fourth book shows in what manner sections of a cone, or of opposite cones, may be made, and by means of a circle, on the whole of which nothing has been delivered by those who went before. The remaining four books treat of the higher part of the science: the fifth, on maxima and minima: the sixth, on usual and similar sections: the seventh, on doricistic theorems, or theorems useful in the solution of problems: and the eighth, on the problems thus solved.

Apollonius was the first who used the words ellipse and hyperbola, of which Archimedes does not take notice, though he uses the term parabola. He also, as we see above, first distinguishes the diameters of the section from the axes. It was, moreover, in his time, and perhaps first by him, that the power of the former in the management of his demonstrations, and though remarkable for the originality and beauty of the results which he produces, is even zealous in the 1st book of the edition of Merton, which once created considerable discussion, viz., that the fifth, sixth, and seventh books were the work of some Arab under the name of Apollonius, deservcs no attention. He must, however, have been an Arab, for the very mention of the word in the fourth section of the 1st book is so expressed that the Arab is willing to relinquish the credit of writing the fifth book.

The most remarkable book in the whole work is the fifth, which treats of maxima and minima. With a little licence it might be called a complete treatise on the curvature of the three sections, for in considering the number of maxima and minima which can be drawn to the section from any point in its plane, the space inside and outside of the curve has different properties. There is only wanting the addition of a name for the curve which separates the spaces within and without, which we now call the circle, in the 1st treatise of Archimedes, are the highest points of the Grecian geometry.

The work of Apollonius was lightly spoken of by Des- cartes, he is supposed to have seen only the first four books; but it was held in particular estimation by Newton, and Cardan places its author seventh among all the men who have ever lived: in his own age he was called the great Apollonius.

We now briefly mention some of the principal editions of the conics. The celebrated Hypatia, daughter of Theon, wrote a commentary upon them. We have already mentioned Pappus and Eutocius as commentators, Borelli and Halley as editors. Among the Arabs, it was first translated by Thebst-ben-Cora, under the Calif Al Mamun in the ninth century: by Aboulphat, in the tenth; and two editions, of little celebrity, appeared in Persian in the thirteenth. In Europe, it was first translated, but badly, by Memmius, a Venetian, in 1537; by Macaulay about the same time, but we cannot learn that this edition was ever published: also by Commandine in 1656, (mis-printed in Periplus, 1666, in Murner's translation), and at last, (1650, 1658) by Montucla, which is the first correct edition of Apollonius. It was published in 1716, with a translation of Eutocius' commentary, and is the only edition of the Greek text. It was published in 1716, with a translation of Eutocius' commentary, and is the only edition of the Greek text. In 1696, Revius published an edition of the Latin translation, in 1697, Barrow published the first four books. Apollonius is supposed by some, among others by Vossius, to be the author of a commentary, as well as an other work in his edition of that poet, takes no notice of the report, and as it is believed that Apollonius, the grammarian, also commented on Aratus, the two may have been confounded. Wallis, who held his life, and La Grange published a certain algebra which they discovered, and for that reason obtained the opinion upon a title-page which he discovered in the Savilian library (the rest being cut away). It was Liber de Arte Notitorii, secundum Apollonium, but he also suspects that the Arte Notoria may be magic, and that Apollonius may be Apollonius of Tyana. Algebra was called by many Latin aliens ars magica, or arte magisere. That Apollonius did improve the notion of arithmetic appears from the praise given to him by Eudoxus, in his sixth book, which he introduces of quadrature of Archimedes, for a work which he calls Ξένιος. The word is probably corrupt: Vossius reads ξενος, and Halley Xenos. In the edition princeps of Archimedes, in 1658, and in the Latin translation gives Moenstrop. Papali states that the improvement consisted in a simplification of the method proposed by Archimedes for representing very large numbers, which brought the system nearer to that of the moderns. (See Delambre, Hist. Ast. Anc. ii. 9.) Eutocius also says, that Apollonius extended the quadrature of the circle given by Archimedes.

APOLLONIUS RHODIUS. A Greek epic poet, respecting whose personal history only a few facts have come down to us, and even these are by no means well authenticated. Whether he was a native of Alexandria in Egypt, or of Naukratis, a small town on the Canopic branch of the Nile, is a point impossible to determine; but we know that he was a person of distinction, who obtained the dignity of a priestess of the deity from his long residence in the island of Rhodes. He was the son of Silesus, and spent his early years at Alexandria under the direction of the poet Callimachus. The exact periods of his birth and death are unknown; but it seems to be certain that he was able to fix some points in his history from other circumstances. Thus we know that Callimachus died about b.c. 230, so that he must have been acquainted with this poet at an early age. In an early age he seems to have been the keeper of the great library of the Ptolemy at Alexandria, b.c. 194. The cause of his quarrel with Callimachus can only be guessed at: it is said to have been respecting the arguments which Apollonius had made against Callimachus, which was not sufficiently elucidated by Callimachus. In what was called to take his revenge we are not told; but it must have been effective, if we may judge from the bitter retort it produced from Callimachus. His poem entitled Ibyss was directed
against Apollonius, and though no fragments of it remain, we can form some opinion of its character and leading features from the Ibis of Ovid, which is said to be an imitation of this poem. Apollonius left Alexandria, probably, in consequence of the severe proscriptions under the rule of Herodotus of Rhodes, where he lived for many years, and was at last recalled to his native country to occupy the place of the learned Eratosthenes. These few facts are gleaned from Suidas, and from a short account of his life prefixed to two of the most ancient manuscripts.

Of all his works only one poem remains, entitled Argonautica, in four books, containing 5835 verses, and giving a detailed account of the wanderings of the Argonauts. This was composed in 366 B.C., with the gods present; but how much Apollonius borrowed from his predecessors Herodorus and Epimenides, or whether he servilely copied Cleon in the whole design of his work, as an antient scholar asserts, we have no means of determining. The opinion of Quintilian (x. 1. 54) seems to be just and impartial. He considers the poem as possessed of considerable merit, but greatly deficient in true poetic spirit. (See also Longinus on the Sublime, xxxiii.) It is easy to perceive that Apollonius does not possess the qualities which constitute a great poet: he impedeis the narrative with a minute and superfluous detail of circumstances till the reader's patience is fairly worn out. There is an affectation too of learning which pours out so plentifully into the poem as never has been more successful in his treatment of the tender passions: nothing can be more beautiful than the manner in which he paints the gradual progress of Medea's love for Jason till it became one absorbing passion. In this he is not surpassed by Virgil, who, indeed, has not been more successful in his treatment of passion in any of his works (see Prov. x. 25, 31). We have borrowed his idea of Dido's love for Aeneas from this part of the poem of Apollonius.

Many learned Greeks wrote commentaries on Apollonius: and the Latin poet Valerius Flaccus closely imitated him in his work, also entitled Argonautica. Terentius Varro translated it into Latin; in still later times it was turned into fablie verse by Mairianus. The first edition of this work was published in 1518, 4 vols. 8vo. It has been translated into English by Green, Fawkes (1797), and Preston (1803); into Italian by Flangini (Roma, 1791); into German by Bodmer (Zürich, 1779); and into French by Causin (1779). For explanatory works, the reader may consult Schoenemann, Comment de Geograph. Argon. Göttin. 1798; Gerhard, Lectiones Apollonianae. Lips. 1816; Weichert, Uber das Leben und das Getrich des Apollonius von Rhodos, Meissen, 8vo. 1821.

APOLLONIUS, a celebrated statue in the island of Rhodes, was carved by Taurins and Amphion, and for a time was the wonder of the world. The group has been restored in the very worst taste by a Milanese artist, Batista Bianchi. We have no means of discovering, with any degree of certainty, at what time Apollonius lived, but some have imagined that it was a few years after Alexander the Great. See Pinnacius, Statua; Maffei; Winkelmann, vi. i. p. 128; Müller, Handbuch der Archäologie, &c. p. 137.

APOLLONIUS, a celebrated statue, the son of Nestor of Corcyra, was said to have been found by his mother on the fragments of a statue which was discovered in the 15th century, and is now called the Tower Belvedere. It has neither head, arms, nor legs, and yet it is considered one of the finest pieces of antiquity. It is said to have been the grand object of study; and so enthusiastic was he in his admiration of it, that even after his sight failed him, he used to be led to it that he might enjoy the pleasure of feeling it with his hands. All agree as to its being one of the finest specimens of antient sculpture, but there is some doubt as to the period when Apollonius lived. Meyer, in his History of Greek Sculpture, p. 296, imagines that he discovers a great resemblance between the Toro Belvedere and the disputable statue of the Etruscans in the Greek National Museum at Rome, and knowing fully the merits of the statue, considers it the production of a much later age. Others think that this opinion is confirmed by the particular form of the letters in the inscription, but no dependence can be placed on this circumstance, as the name may have been inscribed centuries after the statue was executed. Visconti, Pio Clementino, t. i. plate x; Winkelmann, x. iii. s. 15; Thiischers, Kunst-Epoche, p. 333.

APOLLONIUS, the Sophist, supposed to have lived at Alexandria in the time of Augustus, is the author of a Lexicon of Homeric words, entitled Alciiq Smqy Xpe. It was first published by Villoison at Paris, in 1773, in two vols. 4to., accompanied by a commentary and glosses. The work was reprinted at Leyden in 1786, 8vo., with notes by Tolius, but with the omission of Villoison's Latin translation and prolegomena.

APOLLONIUS of Tyana was born, at the commencement of the Christian era, in Tyana, a town of Cappadocia. At the age of seventeen, his father, Apollonius, sent him to Taras, to study grammar and rhetoric under Kuthydemus, a Phanichian. Dissatisfied with the luxury and indolence of the city, Apollonius retired to reside with his master to Aegae (Ayas), a town near Taras, where he became acquainted with the doctrines of various philosophers. His master, Eusebas of Heracleas in Pontus, was little disposed to practise the soterities of the Pythagoreans, and, as he said, 'had not yet the power to be professed. Apollonius observed the Pythagorean rules more strictly, took up his abode in the temple of Asclepius at Aegae, famous for miraculous cures, abstained from animal food and wine, lived upon fruits and herbs, avoided in his dress every article made of animal substance, walked barefoot, and let his hair and beard grow. The priests initiated him in their mysteries, and said that Asclepius himself rejoiced at having a man of such goodness as his cure. Apollonius recommended his moral and ascetic doctrines by example, and by an appeal to the heathen gods. He healed a young Assyrian afflicted by a disease which was a consequence of intemperance, by teaching that the gods were willing to give health to all who were willing to receive this gift. Having finished his studies at Aegae and other cities of Cilicia and Pamphylia, Apollonius travelled by land to India. At Ninivah he met with Damis, who became his interpreter and travelling companion. On a rock of Mount Caucasus he saw the chains of Prometheus. King Bardanes, his priests, and magi, honoured him at Babylon. In Taxila, a town of India, he met with the king, Pharsortes, a descendant of the Persians. In India he was consecrated to Venus, who was black from the head to the chest, and white from the chest to the feet. He joined a party who hunted dragons by magic. The eyes and scales of these dragons shone like fire, and were talismans. He saw the animal in all its power and beauty, and served as an associate of Eceias, with the head of a man and the body of a lion, fountains of golden water, men who dwelt below the ground, griffins, phoenix, the precious stone pantarbus casting rays of fire, and attracting all other gems, which adhered to it like swarms of bees. Pharsortes recommended him to the president of the gymnosophists, who revealed to him all their secrets, convinced him that Pythagoras had borrowed the most of his philosophy from the Egyptians, and to recognize their superiority in the performance of miracles. Apollonius returned from India by sea, was much admired in the towns of Asia Minor, conversed at the grave of Achilles with the ghost of this hero, explored the hidden and unutterable prophecies. He threatened the Egyptians with pestilence unless they would mend their immoral lives. They were converted, but nevertheless the plague broke out among them. The Egyptians sent messengers to Apollonius, who then at Sebastopolis, was writing Rhodius, gave a new view to the plague. Apollonius was in a moment at Ephesus, conversed with the people in a theatre, commanded them to stone a beggar, and ordered them to remove the stones on the following day, when, instead of removing them, they gathered stones. He saw into which the demon of the plague had entered, the ravages of which had now ceased. The Greek priests at Athens, in the Peloponnesus, the oracles at Paphos, Pergamus, and Colophon, heaped their marks of honour upon Apollonius,
rate mathematical treatises have to the science of mathematics.

The science of apologetics was not the offspring of literary vanity; it was unknown till the attacks of the adversaries of Christianity assumed a learned and scientific character. (So in the first book. The great enemy, which predication was considered to be fulfilled when, three days after, the cup which Nero held in his hand was struck by lightning. When Nero left Rome for Greece, he ordered all foreign philosophers to quit the city. Apollonius went to Spain, and stirred up a rebellion against Nero and the Romans. He then visited Africa, the south of Italy, and Sicily, where he heard of the death of Nero. Apollonius again visited Athens, and was initiated by the hierophant of Eleusis. He next visited Egypt and Ethiopia, and sought for the sources of the Nile. In Egypt he joined Vespasian, who probably found it politic to gain a man whose sanctity and miracles had raised him to the rank of a deity; for during his lifetime, and still more after his death, Apollonius enjoyed this distinction, and was sometimes ranked with Jesus Christ. (See Life of Alexander Severus, by Laundrius, cap. 29.) Afterwards he revisited Asia Minor and Rome, where he was accused by Emperors of high treason against Domitian, and cast into prison. Having blamed the emperor for suffering such informers, he removed to Puteoli, where he met his followers, Damis and Demetrius. He again visited Sicily, Greece, and Asia Minor. He was entertained in some magnificent manner, until he died, eighty, or ninety, or one hundred, or one hundred and seventeen years old, either at Ephesus, or at Lindus in the temple of Pallas. Others say that he was chained, and shut up in the temple of Deity in Crete. But no mention of this was made, and the emperor was opened, the voices of invincible virgins proclaimed his elevation to the skies, and his chains were found burst asunder. These statements are chiefly found in The Life of Apollonius by Philostratus. The two first books exist in an English translation by Charles Blount, Lond. 1650, fol. In 1693, this translation was suppressed on account of the annotations being hostile to Christianity, and Blount committed suicide. Philostratus wrote in Greek originally, excepting the Life of Julius, and the Life of Septimius Severus, who died 217. The empress had obtained possession of the account which Damis had formerly given to a relative.

It is almost needless to remark that the life of Apollonius has a heap of absurdities and impossibilities. Apollonius was probably a cunning impostor, and one of the pretenders to miracles, not uncommon in that age: his biographer, Philostratus, seems rather to have believed a half of what he wrote about his hero. The fact of Apollonius being mentioned by no writer earlier than Apuleius and Lucian (see his Alexander), tends to show that his celebrity during his lifetime was not so great as his biographer made it to appear. The style of writing is very much in account of Apollonius about a century after the wise man's death. Some extant letters, attributed to Apollonius, are printed in the collection of Aldus and Cujacius; and a few appear in his life by Philostratus. For further remarks on the character of the Life of Apollonius, see Philostratus, Flavius. A remarkable passage in the Life of Aurelian (chap. 24) by Vopiscus, shows that the fame of Apollonius was even then firmly established, and that temples and statues still existed in his honour. The true friends of the god, as the credulous historian calls him.

It appears from Suidas and Eudocia, that a person called Soterichus Oosiates also wrote a life of Apollonius.

Apologetics (from the Greek word apologistes = ἀπολογητής = a defender, advocate) is the designation given in Germany to that branch of divinity which is most intimately connected with logic, metaphysics, and general history, and has for its object a systematic arrangement of those internal and external evidences by which Christians are enabled scientifically to justify the peculiarities of their faith. The name is derived from a Greek adjective apologistikos = ἀπολογιστικός, defend, advocate.

Since Christianity was opposed from the beginning by men who denied its high origin and its internal and external authority, circumstances demanded on the part of Christians a compliance with the express injunction of the apostle Peter, 'Be ready always to give an answer (στάντας στήθους, 1 Pet. iii. 15.) for the hope that is in you.' Separate apologies have the same relation to apologetics that separate mathematicians have to the science of mathematics.

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APOLOGY (Ἀπολογία), a Greek word, originally signifying a defence made in a court of justice by or for a person accused. (See the titles of several early Greek orations.) The word ἀπολογία, to 'apologize', to 'make a defence,' was the corresponding verb. There is extant a small piece attributed to Xenophon, entitled The Apology of Socrates; and another, with the same title, by Plato. The word apologo- gis is adopted by the Christian Fathers (see APOLOGETICS). At the present day it is only used in ordinary language in one sense, that of 'asking pardon or excuse for some offence.' But even in modern times the word has occasionally been used in the early Christian sense, as by Bishop Watson in his treatise entitled An Apology for the Bible, and by Barclay in his Apology for the Quakers.

APOPHTHEGM (ἀποφθέγμα), a Greek word signifying 'a thing spoken out,' and, in its more technical sense, a pithy saying calculated to arrest the attention. 'Certainly apophthegms are of excellent use. Cicero prettily called them salinas, salt-pits, that you may extract salt out of, and sprinkle it where you will. They serve to be interlaced in continued speech. They serve if you take out the kernel of them and make them your own.' (Bacon.)

We may take the following as examples of apophthegms.

—Bigotry murders religion, to frighten fools with her ghost.—Lacoom. 'We ask advice, but we mean approbation.'—Ibid.

Plutarch made a collection entitled The Apophthegms of Kings and Generals, and dedicated it to the Emperor Trajan. Many of these apophthegms would be classed in modern times among anecdotes. The following is an example; it is one of the apophthegms placed under the head of Alexander:—'An Indian was taken prisoner who had a very high reputation for archery, and was said to be able to shoot an arrow through a ring. Alexander bade him exhibit a specimen of his skill, and on his refusal, the king in a passion ordered him to be executed. On his way to his death the man remarked to those who were taking him, that he had not practised for several days and was afraid of missing his mark. Alexander hearing of this, admired the man, and setting him loose, made him great presents, because he preferred death to the loss of his reputation.' (Wytttenbach's edit, vol. i., P. 716.)

The Lacedemonians were noted for affecting the apothetis- thmatic mode of speech; and Plutarch has collected their sentences also under the title of Lacomica.

APOPHTHILITES, a crystallized mineral, whose fundamental form is the square prism. Its most general modification is obtained by supposing the angles of fig. 1 cut off, so as to give rise to a plane triangular surface, as is seen at a in fig. 2; these faces a, from the plane cutting deeper into the crystal till they intersect each other, frequently lose their triangular form, and of course, at the same time, the face P again becomes a square, and the prism will be terminated by the form seen in fig. 3. On the operation of these modifications, apophyllite sometimes assumes the form in fig. 4.

![Fig. 1](image1)
![Fig. 2](image2)
![Fig. 3](image3)
![Fig. 4](image4)

The inclination of $P$ on $a$ is 120° 31' $E$, and is on $a$ 137° 9' $W$.

The structure of this mineral is lamellar, and admits of cleavage in directions parallel to the sides of the regular prism, but most readily in the perpendicular to its axis and its glistening green-red: it possesses various degrees of transparency, and occurs even opaque. In hardness it approaches nearly to apatite; and
its density varies from 2.3 to 2.5. Before the blow-pipe it forms a white glass. Its chemical constitution is stated as follows:

\[ (C + \frac{3}{2} S) + (K + 6 S) + 16Aq \]

and the mineral is therefore an hydrated silicate of potash and lime.

Anophylite has been found in the mines of magnetic iron-ore of Sweden and Norway; in the lead-mines of the Harz mountains; and also in the cavities of several basaltic rocks, at Marienberg in Bohemia; at Fossa in the Tyrol; in the isle of Skye, &c. In the basaltic it is usually accompanied by porphyrite, &c.

APOPLEXY, from ἀπόπληξις, a sudden blow, a deprivation of power and motion, &c. Morbus altitutudis, sallitaio, percussio, &c., are synonymous terms. In the animal body two sets of functions perfectly distinct from each other are combined, the organic and the animal; the organic include the various functions by which the structure of the body is built up and its integrity maintained, and the animal include the actions of sensation and voluntary motion.

[See Life.] The disease termed apoplexy is an affection of the animal functions, the organic remaining comparatively unimpaired. It is the loss of sensation and voluntary motion, while respiration, circulation, secretion, and the other functions of the body are not at all interfered with. It may also be called the apoplectic stroke, and performed, though not indeed without more or less disorder.

Of all the diseases to which the human body is subject, there is none which is more frequently conceived to attack so swiftly and fatally, as is usually called the attack is indeed sudden; but the disease itself, from being sudden, is generally even slow in its progress, giving distinct and repeated indications of its presence and of its course. The signs by which the apoplectic constitution is denoted, the premonitory signs of the disease as they are termed, is of the utmost importance to observe, because judicious measures adopted at this stage will almost always avert an attack, or render an attack mild which would be fatal in the head of a few months. Several diseases over which both the physician and the patient have so much control: the patient by the general management of himself, in removing the constitutional predisposition to it; and the physician by active remedies when the attack is instant, in effecting what the general management may have proved inadequate to accomplish. Prevention is often practicable; but when the attack has once come on, life is in imminent peril: the most judicious and powerful measures, though resorted to instantly, and employed with the greatest skill, are commonly unable to avert death; and even when they do succeed, the functions of the brain and the general health have usually sustained so severe a shock that the patient is no longer worth preserving.

In general, the premonitory symptoms are steady in their nature, uniform in their course, and so obvious that all may perceive and understand them. Considered individually, they may appear numerous and diversified; but they are generally so much alike, that they all obviously belong to one class.

Among the premonitory symptoms the most remarkable are the following, which are here enumerated in the order of their importance and frequency.

1. Drowsiness. This feeling may exist in every degree from unusual dulness of mind to an uncontrollable propensity to sleep. There may be merely inability to fix the attention, or even the most intense of studies, and no usual vigour, or the individual may absolutely fall asleep in the midst of his ordinary occupations. The last is the more alarming event, and for that very reason the less dangerous, because it is in circumstances with which few can fail to be struck; but an unusual heaviness or torpor of mind may be overlooked or neglected: and thus, when at last the apoplectic attack comes, though warning of its approach were really given, it may be truly a surprise. Connected with this last symptom, there is a sensation of weight in the head, or a feeling of fulness.

2. The next premonitory symptom is giddiness. Giddiness is more alarming than drowsiness, and would never fail to produce the sensation of danger, if not of the immediate necessity of arising from other causes; for example, from a disordered state of the stomach. Whenever giddiness is present, while the functions of the stomach are sound, its source should be carefully investigated; and even when the digestive functions are manifestly disordered, it should still be minutely investigated and vigilantly watched, because tendency to apoplexy and disordered stomach may co-exist, and the symptoms of the latter may mask those of the former. If the giddiness is continued, and the patient, if it be at all like that of approaching fainting, it may be considered that there is but a single step from the actual superintervention of the paroxysm.

3. Connected with these two important symptoms is a number of subordinate sensations, which are of consequence chiefly as marking the presence of the more serious indica
tions. The sensations in question are the ordinary compa
nions of the first two, and are often the most prominent and obvious, and this gives them a name of their own, the premonitory sensations. Such concomitant and subordinate symptoms are, frequent yawning, dulness of hearing, imperfect or disordered vision, noise in the ears, noises or sparks before the eyes, repeated sneezing, occasional hiccup, and the like.

4. All this time there is generally some degree of pain in the head. The intensity of the pain may vary from the slightest uneasiness to the most intolerable headache. The slightest degrees of pain are more common than the severer, the patient usually stating that his pain is trilling. The seat of the pain is often in the forehead, and deep in the socket of the eyes, rendering them intolertant of light; but it may also be in the temples or in the parietal bones of the neck, between the shoulders. Frequently, however, there is no degree of pain whatever, and the patient may alarm not being taken at the presence of the other symptoms because of the absence of pain. In general, when serious disease attacks vital organs, pain is excited, and we are thus warned of our danger; but sometimes a mental disease in
vides an organ without inducing the slightest pain, and there is no disease more apt to do this than apoplexy.

If, combined with the other premonitory symptoms, there be no pain, there is danger; if there be none, the danger is the greater; for the enemy is as certainly at hand, but his approach is insidious.

5. Last in the train comes a symptom which is more important than any of the preceding, because it demonstrates their true nature, and shows that the actual attack is instant; namely, paralysis, whatever its form or degree, whether it assume the shape of inability to articulate distinctly, or to write steadily, or to walk firmly, or in reading to fix the eye on the right line, or in talking or laughing to keep the mouth in the natural position, or in deglutition to swallow without unusual difficulty, or without excusing cough. If with this loss of muscular power there be at the same time a sense of pins and needles in the skin or in the limbs or fingers, or difficulty in voiding the urine, or dis
tortion of the face or mouth, dropping of the eyelid, stam
mering, unsteadiness in the gait, and so on, the attack may be considered as having actually commenced.

Of these premonitory symptoms some alone may be present, or two may be combined, or several may co-exist or may follow each other in rapid succession. The period of their duration, before the attack supervenes, is different in every individual case. Sometimes there slippage only a few hours, more frequently several days; occasionally many weeks. When they are present, no man is safe from a fatal attack for a single instant.

With regard to the attack itself, the phenomena are different according to its intensity. There are, indeed, various modes or forms of the disease which are mainly matters of degree; nevertheless, these diversities are not only very striking in their own nature, but in a practical point of view are highly important, because the remedies appropriate to the one are not suited to the other, at least without such modifications as, in point of fact, to render them different remedies.

For all premonitory cases it will be sufficient to comprehend the various forms of the disease under four heads, namely, first, that in which the attack is sudden and vio
lent; secondly, that in which the attack is comparatively mild, though in severity, thirdly, that in which the attack commences with apoplexy and terminates in paralysis; and, fourthly, that in which the attack commences with paralysis and terminates in apoplexy.

1. The sudden and violent form constitutes the apoplexia
fulminans of the older authors; the apoplexia fortissima of more modern writers; and the apoplexia frondosyntate of the French. In this form of the disease the patient is struck suddenly and instantly senseless, and the mind falls down utterly deprived of all the functions of the animal life. The organic functions in the mean time go on, but in an unnatural and disordered manner. The respiration is slow, deep, and laboured; the face is flushed, and exudes a peculiar fiery sweat; the pulse is fuller, stronger, and slower than natural; the urine and feces are passed without consciousness; the skin is covered with a cold and clammy perspiration; foam flows from the mouth; the face is flushed, turgid, and distended, and in the space of a few minutes, or a few seconds, or not until the end of the first, or even the second, day; but life is seldom protracted beyond the second day. Now and then the prompt and vigorous measures of the apoplectickc attack are too late to save the life even in this form of the disease; but if they fail to restore consciousness in a few hours, they commonly fail altogether, and death almost always happens when the paroxysm continues undiminished during twenty-four hours.

On examining the state of the brain after death from this variety of the disease, the blood-vessels of every part of the cerebral substance and of the delicate membranes that invest it are found gorged with blood; this is also sometimes found along the inner surface of the brain, within its cavities, of the thinner portion of the blood called serum, while, in many cases, pure blood itself is poured out on various parts of the brain from some ruptured vessel. Occasional instances are known of the injection of the spinal fluid, insufficient to account for the attack, or for death, the consequence of it.

In the second form of the disease, in which the attack is less violent in commencement, but progressively increases in severity, the loss of sensation and voluntary motion is neither sudden nor complete, or, if it be so, the abolition of these functions is only of momentary duration. Instead of stupor and coma, the patient is seized with a sudden and violent attack of headache, attended often with sickness and vomiting. The pain of the head is sometimes so severe that the patient sinks under it, pale, faint, and exhausted, occasionally with a slight convulsion; but from this state of depression be recovers rapidly, stilly however remaining weak, faint, and chilly, with a quick and feeble pulse, a sunk countenance, and occasional vomiting. This state having continued from one hour to three, or more, the heat increases, the pulse acquires strength, the face becomes flushed, the sunk expression of the countenance disappears, and torpor or stupor rapidly supervenes, the patient appearing dull and heavy, answering questions slowly and with difficulty, and sinking at last into a state of profound unconsciousness. In the first stage of the paralysis coming on of perfect coma, the period may vary from one hour to three days and more. This form of the disease is at least equally dangerous with the preceding, and, in fact generally proves fatal.

On examining the state of the brain after death from this variety, there are found extensive effusions of blood; softening of the substance of the brain; sometimes ossification (conversion into bone) of portions of its membranes; but far more constantly ossification of the coats of its blood-vessels, which organic change in the structure of the blood-vessels diminishes their strength, renders them incapable of resisting the current of the blood and of carrying on the circulation, and thus predisposes them to rupture.

The third form of the disease commences with a distinct apoplectic paroxysm, which terminates in apoplectics. When the apoplectic symptoms disappear, some part of the body is found to be paralyzed; it may be the muscles of the face, giving rise to various kinds of distortion; or the muscles of the limbs, occasioning inability to move the affected member; or the muscles of one side of the body, producing what is called hemiplegia; or the muscles of one half of the body, paraplegia. In the great majority of cases the speech is more or less affected, the power of articulation being either wholly lost or greatly impaired. Often the sensibility seems imperfect to the patient and to himself by words or signs; but, at other times, the mind itself is indistinct, confused, rambling, and incoherent. Occasionally in this form of the disease the apoplectic state disappears bodily; yet the patient remains for years a hemiplegic. Sometimes the paralysis slowly diminishes until suddenly another apoplectic attack supervenes, leaving the paralysis greater than before; at other times the paroxysm continues undiminished for days, months, and years, until a second, or a third, or a fourth apoplectic paroxysm at length destroys the brain, and the patient recovers consciousness. After recovery from the paroxysm, the mind is always slow in recovering its energy, and often never regains it.

On examining the state of the brain after death from this variety, the brain is found in a state which differs but little from a normal state, excepting the softening of the cerebral substance, or ossification of the membranes, or of the blood-vessels, or several of these morbid conditions may be combined.

In the last form, the brain presents a more complicated morbid condition, in which the attack commences with paralysis and terminates in a complete apoplectic paroxysm, the premonitory symptoms are, in general, very distinctly marked. Drowsiness, giddiness, disordered vision, impaired memory, and pain of the head especially, commonly precede the attack. While the brain is thus affected, the limbs about to become paralytic are troubled with prickling, tingling, numbness, weakness, and sleep. Their local aments progressively increasing, the limbs at last begin to sink into a state of profound paralysis, and in a paralytic state having continued for an indefinite period, an apoplectic paroxysm supervenes, often preceded and denoted by spasms or convulsions in the unparalyzed limbs. The paralysis, however, remains in some degree, and some times comes on gradually, and is manifestly progressive in intensity, the patient at first being capable of giving a coherent answer when strongly roused, but by degrees the loss of sensation becomes more complete, till finally the stuper passes into a state of total insensibility, from which there is no recovery. Now and then the patient recovers from the apoplectic state, and slowly regains the condition of health, in previously to the apoplectic attack; more frequently, on the contrary, the opposite condition increases, and another apoplectic seizure quickly supervenes, which proves mortal.

In some cases the morbid appearances that present themselves on inspection of the brain after death from this variety, differ in no respect from those which have been described as belonging to the preceding form; but the most frequent and characteristic morbid change is the softening of some portion of the substance of the brain. This softening of the cerebral substance is the result of inflammation, which is generally not acute in its nature, and is slow in its progress. The vessels belonging to this softened portion lose their vitality, and allow the red particles of the blood to pass through the vessel wall and attach themselves in the wall; the blood is not only soft but red, from the infiltration of blood through the diseased blood-vessels.

From this account of the phenomena of the disease, and of the morbid appearances of the brain, it appears that the brain is enabled to form an accurate conception of the pathological condition of the brain in apoplexy. Two of the conditions essential to the performance of the functions of the brain, are a supply of a certain quantity of blood, flowing with a certain impetus and freedom from pressure. Without a certain portion of blood flowing with due impetus, the functions of the brain fail; with more than a certain portion, or with the velocity of the current quickened or retarded beyond a certain point, they equally fail: and when the pressure induced by either of these states exceeds a certain degree, they also immediately cease. The substance of the brain is tender and delicate, and abounds beyond all other organs with blood-vessels. It is of a soft and yielding nature, but it is enclosed in a firm, unyielding case. Coupling this fact with the phenomena of the circulation, it is easy to conceive how almost its entire mass, and still more readily how particular portions of it, may become subject to undue pressure, and how, as an inevitable consequence, the functions of the brain may become deranged. Any cause which quickens or which retards the circulation through the brain is a cause of injury to the brain, and is preternatural distension of the arteries with blood, or a preternatural intensity in their action, and a consequent increased impetus of the circulation; or, on the contrary, a relaxation of the blood-vessels. They submit them from a too great quantity of blood poured into them, and a consequent retardation of the circulation through
them. Either from a too great velocity or intensity of the circulation in the arterial vessels, or from too great distension of the veins in consequence of an impeded flow of the blood through them, the thinner portion of the blood or lymph may not be supported, which in this manner may become subject to undue pressure. In consequence of either of these diseased states, the coats, whether of the arteries or veins, may suddenly give way and break, and the blood poured out upon the brain from the ruptured vessel may be such a pressure upon its valves as instantly to destroy its functions. Again, tumors occasionally form in the brain, which progressively increase in magnitude, and at length exert such a degree of pressure upon the brain as is so intolerable to it that the performance of its functions.

The brain, like all other organs, is nourished by organic processes, over which the organic nerves exert a most important influence. The blood-vessels of the brain, like those of all other organs, depend for their vital energy on organic or ganglionic nerves [see Nerve], which are distributed to them in great abundance. We may conceive, that the organic nerves which preside over the nutrition of the brain may fail in their functions to such a degree, that the brain may be deprived of its vital power, and hence its functions necessarily cease. And this without doubt is the case in those fatal attacks of apoplexy in which no morbid appearance can be detected in the brain or in any part of the body.

We may conceive, that the organic nerves which impart vital energy to the blood-vessels of the brain may fail in their functions to such a degree, that the blood-vessels may no longer be capable of performing their natural actions, but may become insensate to quantity and quality, to heat and cold, and elastic costs becoming indurated, brittle, and bony. On the other hand, these organic nerves may become prematurely irritable, and consequently produce an inordinate action in the blood-vessels. And these are the ordinary changes which precede and which predispose to apoplexy; and, in a practical point of view, these facts are of paramount importance, for they show that apoplexy is not a sudden disease, that it is even slow in its progress, and that it is as much dependent on an increased excitability of the nervous system as on the judicious employment of remedies tending to restore the brain to a sound condition, as it is by the use of such remedies to check morbid changes of structure in any other organ of the body.

Prognosis.—When once an attack has come on, even though it be slight, it places the individual in imminent danger, both because it greatly increases the predisposition to a recurrence of the paroxysm, and because the profound shock to the constitution which is seldom entirely repaired, and never without much time and most judicious management. In the paroxysm the immediate danger is proportioned to the profundity of the convulsion, the degree of unconsciousness, the number of the respiratory, and the frequency and intermission of the pulse. Unfavorable signs are, delirium, convulsions, paroxysms, involuntary and unconscious discharge of the urine and feces, and above all, the continuance of the paroxysm without material diminution of its severity after the judicious employment of powerful remedies. When the respiration is exceedingly slow and laborious, when the pulse sinks to such a degree that it can be scarcely felt, and when the head, chest, and limbs are covered with a cold, clammy sweat, dissolution is near. On the other hand, the favorable signs are, mildness of the paroxysm, diminution of the symptoms after the exhibition of the appropriate remedies, consciousness, spontaneous return of the power of voluntary motion, with a calm and soft pulse, a gentle, warm, and general perspiration, and a spontaneous flow of blood from the nose the rectum, and so on.

Causes.—The causes of the disease are either predisposing or exciting. The predisposing causes are, 1. Sex. It is decidedly more common in the male than in the female, because the male is more exposed to the exciting causes, and more susceptible to their effect. 2. Age. It may occur in childhood and youth; it is indeed rare in the former, but it is not uncommon in the latter; still the disease is by no means one of children, but still occurs at the more advanced stages of life. The period commonly conceived to be that in which it most frequently occurs, is the interval between forty and seventy. Out of sixty-three cases, two were between twenty and thirty years of age; eight from thirty to forty; seven from forty to fifty; ten from fifty to sixty; twenty-three from sixty to seventy; twelve from seventy to eighty; and one from eighty to ninety years. 3. Constitutional causes. The large head, short neck, full chest, corpulence, and other symptoms, have from time immemorial been considered as forming the apoplectic constitution, and though the disease may and often does occur in the very opposite states of the system, yet it cannot be a question that the constitution of the body just described is peculiarly favorable to the formation of that pathological condition of the brain on which, as we have seen, the malady depends. 4. Mode of Life. Luxurious or indolent habits, or such habits, as are more or less contrary to the common and necessary occupation, is a most powerful predisposing cause. 5. Suppression of accustomed evacuations, namely the suppression of the pilor or of discharges from the skin, whether from the sudden disappearance of eruptions, the result of natural disease, or the drying up of a seitan or issue. 6. Mental states. Violent emotion: cases continually occur in which persons drop down suddenly in a fit in a paroxysm of anger. Long-continued anxiety is almost as powerful an exciting cause as luxurious living. It is the common opinion that the sthedious are more prone to this disease than other classes; but this notion is ill-founded, for the evidence is complete that moderate intellectual labor is not only in a higher degree consonant to health, but that it is more especially preventive of that pecuriar condition of the brain on which apoplexy depends. The condition of all others most conducive to apoplexy is that in which a somewhat advanced age the food habitually taken is large meals or grand dietary, and the passing of the time that the intellectual faculties are little excited; while the history of lawyers, judges, and philosophers, would indicate a remarkable exemption from this disease in all its forms.

The predisposing causes, of whatever nature, act either by favouring an habitual determination of blood to the brain, or by impeding its return from this organ, or by impairing its vital energy, while they favour a plethoric state of its vessels. Both sets of causes produce an habitual stagnation of the blood in the vessels of the brain, and the slightest exciting cause is often sufficient to produce an attack.

Among the most powerful exciting causes are intermixture in eating and drinking, violent emotions of mind, whatever determines the blood with undue impetuosity to the brain or impedes its return from it, such as great muscular exertion, dependant posture of the head, tight ligature around the neck, or violent movement of body, etc. Both sets of causes, the predisposing and the exciting, bring about a paroxysm either by diminishing the vital energy of the brain, or by producing undue pressure on its substance.

TREATMENT.—The treatment of this disease must obviously vary with the pathological condition of the brain on which it depends. The skill of the physician consists in detecting what that pathological condition is, and in exactly adapting his remedies to it, which must differ widely according as he is called to treat a threatening or an actual paroxysm, or to prescribe for a patient subsequent to an attack. To enter into a discussion of the different remedies suited to the manifold states of the brain, and of the system, in the various forms and stages of this malady, would require a larger space than can be allotted to it in this work. There are not many parts of his science in which the physician is required to make such nice and difficult distinctions, and, in which life so completely depends on the accuracy of his discrimination. At one time the vital energy of the brain is so far exhausted as of itself to threaten the total abolition of its functions; at another time the arterial action or the venous congestion is so intense as to demand an immediate effusion of serum or a large extravasation of blood. For states so opposite, opposite remedies must of course be required; but the difficulty at all times is to interpret the outward signs aright. If, together with the prognostic symptoms, there be nothing to indicate immediate drowsiness, giddiness, headache, and so on, there be a flushed countenance, a dull or suffused eye, a hot skin, a strong or full pulse, the abstraction of blood may be indiscriminately employed. But if outside of life, and the countenance be pale and sunk, the pulse full, and the skin cool, the slightest blood-letting may utterly exhaust the vital energies of a brain already greatly depressed,
and the only chance of averting death may be the judicial employment of stimulating remedies. It is in clearly point-
ing out distinctions like these, and in guiding to the selec-
tion of the remedy appropriate to each, that science is the salvation of life. But such too are precisely the cases in which the part of the physician can terminate without the steady co-operation of the patient. The physi-
ician duly weighing the prognostic signs may foresee the impending danger, and give warning of it, and pre-
scribe only the medicine and advice fitted to avert it. But if these are either altogether neglected or only partially followed, the disease will hold on its course and life be lost. And this loss of life is deplorably frequent from the neglect on the part of the patient of the appropriate rem
edies at the stage of the disease, when such remedies may be employed with almost certain success; and the same is true from the neglect of such remedies in the stage subsequent to an apoplectic paroxysm, although in this stage the best-conceived measures have a much less chance of securing their object.

For the same reason it would be vain to attempt here to enter into the modifications of treatment required in the premonitory and the consecutive stages of the disease, it would be out of place to discuss the measures proper to be adopted in the paroxysm itself. The state both of the brain and of the system varies in every individual case, and safe, not to say successful treatment, must in every case be modified, the only necessary thing here is, that whenever a person is seized with a fit of apoplexy, he should be placed in a large room, the freshest possible circulation of fresh air should be promoted around the body, which should be thrown on its back in the first instance; however, considerably raised, all bandages should be taken from about the head and neck, and especially from about the neck; and a medical man should be sent for instantly. Every observer of such a case should bear in mind that the loss of life may be the consequence of the loss of a minute.

APOPHYGE, a term applied by architects, generally, to the space between the two flat surfaces not in the same plane, and particularly to a slight concavity which is almost invariably found to terminate the shaft of an Ionian or Corinthian column both above and below;—immediately above the uppermost fillet of the con-
gers of mouldings called the base, and under the moulding or mouldings of the hypotrachelium or necking. In the latter case the apophyge is distinguished in the two positions as the lower and the upper. The more familiar English term for the same thing is, the escarp; and in French, the apophyge is termed the congé. Apophyge is from a compound Greek word signifying a 'fying off.'

A POSTERIORI. [See A PRIORI.]

Boswell, Joseph (1740-1795), the biographer of Johnson (1709-1784), and a faithful companion of the famous eccentric judge, Lord Mansfield, to whom he devoted 30 years of his life. A memoir of Boswell was published in 1795, 1801, and 1817.

The interpretations of the Acts by Clemens Alexandrinus in the Hypotypoes, and the commentaries of Origio, Dionysius of Alexandria, and Eusebius, have been lost. The Fifty-five Homilies of St. Chrysostomus on the Acts are still extant. There exist commentaries by Clemens of Alexandria and Theophylactus. In the works of Grotius, Wolf, and others, on the New Testament, the Acts also have been ex-
plained. Limborch published his great work on the Acts at Rotterdam, 1711; and Walsh his Dissertations in Apocalypsin a Joh. 1675-1731, 3 vols. Besides these the following commentators may be mentioned: Moraus, ed. Dindorf, Lips. 1794, 2 vols.; Thiel, Übersetzung mit Vermittlungen, etc. (2 vols.); Ewald, Anmerkungen perpetua illustrata, Götingen, 1809; Kühnel, Lips. 1818. Stier has written a work on the speeches con-
tained in the Acts. (Über die Reden in der Apostelgeschichte, etc.) (2 vols.) 1822. The author endeav-
sours to show the logical arrangement of these speeches. Die Apostelgeschichte von Lucas erläutert von Michal: Wirth. 2 vols. 8vo. Ulm, 1831-32. 8vo. That Matthew Henry, Wesley, Dodd, Coke, Souter, Benson, Clark, and other English commentators of the whole Bible of the New Testament, have not omitted the Acts, is generally

APOSTOLIC VICAR, the title given to the Bishop of Rome, as the civil head of the Christian church who distinguished themselves during the first two centuries, and derived their Christian knowledge from personal acquaintance with the apostles. [See Cle-
ments Romanus, Ignatius of Antioch, Polycarpus, Harmar, Thou, etc.]

APOSTOLIC VICAR, ICI, were imitators of the apostolic life mentioned by Epiphanius. (Haeres. 57.) In the middle ages they were called Cathari. Some of them indulged Manichean speculations, and others distinguished themselves only by
their obedience to the moral doctrine of the New Testament. The latter, called Apostolic Brothers, were very numerous on the banks of the Lower Rhine, about the middle of the twelfth century. We learn from a letter written A.D. 1116, in which Everwin, ecclesiastical provost of Steinfelden, exhorts St. Benoît, prior for the first time, to correct abuses, and that they rejected oaths, infant baptism, fasts, ceremonies, worship of saints, purgatory, masses, second marriages, the power of the pope, &c. Some of them were brought before the ecclesiastical court of Huy, and defended themselves by biblical quotations. After that, for three days, being still unconverted, the people dragged them to the flames, in which they died manfully.

Another apostolic brotherhood was founded by Gerhard Segarelli in 1295, and the numerous other brotherhoods which Pope Nicolas IV. endeavoured to suppress by various decrees of 1288 and 1290. Nevertheless Segarelli and his adherents spread through Italy, Germany, France, and Spain. They went about accompanied by women singing, and preaching especially against the corruptions of the clergy. In 1294, two brothers and two sisters were burnt alive at Parma. Segarelli abjured his heresy, but was burnt in 1300 for having relapsed. From this time Dolcino of Milan became the leader of this party, who predicted the sudden downfall of the Romish church. Dolcino divided the development of Christianity into four dispensations, the last of which began with his apostolic order. Dolcino composed a law book in 1304, which was returned to him by the pope. In 1304 Dolcino founded an organized body of men, who were to return to Italy in 1304. He fortified, with 1400 followers, a mountain in the diocese of Novara, near the village Balmas, and plundered, for his support, the adjacent country. In 1304, the Commune of Como threw Dolcino and his followers into the dungeons of Vercelli, and fought against the troops of the bishop, until he was compelled by famine to surrender in 1307. Dolcino and his companion Margaretha of Trent were burnt with many of their followers. These Apostolic ideas rejected the authority of the Pope, oaths, capital punishments, &c. Some Apostolic Brothers are mentioned A.D. 1311, near Spoleto, and A.D. 1320, in the south of France. The synod of Lavrion, 1356, mentions them for the last time.

Several apothecaries in England, existing at this time, turned away, a sudden change in our discourse, when, without giving previous notice, we address ourselves to a person or thing different from that to which we were addressing ourselves before. (Beattie. Elements of Moral Science.) The term is also used, less properly, for an address to some absent or animate object, as in Julius Caesar, Act iii. Sc. i. O pardon me, then bleeding piece of earth, For losing your niche among the senseless wrack of numbers. It is also used to express the contraction or division of a word, as boro for borough, learnt for learned. This practice of division, intolerable in a language already overburdened with consonants, was much more frequent in the writers of a century, or a century and a half ago, than now. It has been affected by the English, and gives an air of negligence and familiarity to their style. It ought seldom to be used except in verse, and very sparingly there. The commma, by which the final s of the genitive case is separated from the word, is also called an apostrophe, as in 'Israel's monarch.'

APOTACTITES. (See HERETICS.) APOTHEOCYARIES (Company OP), one of the incorporations of the city of London. In England, in former times, an apothecary seemed to have been the common name for a general practitioner of medicine, a chief part of whose business it was, probably in all cases, to keep a shop for the sale of medicines. In 1345, a person named Peter of the Company, who was an apothecary to King Edward III., settled a pension of sixpence a day for life, for his attendance on the Majesty some time before he lay sick in Scotland, is called in the grant, in Rymer's Fasinus, an apothecary of London. But few of these21 Confused these heretics, that after, the profession of physic was entirely unregulated. It was not till after the accession of Henry VIII. that the different branches of the profession came to be distinguished, and their laws were regulated. This, however, was not assigned to it by the law. An act of parliament was passed in the third year of that king (1511), by which, in consideration, as it is stated, of the great inconvenience which did ensue by ignorant persons practising physic and surgery, to the prejudice of the use of physick, the chirurgia, and dispensing of medicines by the king's liege people, it was ordered that no one should practise as surgeon or physician in the city of London, or within seven miles of it, until he had been first examined, approved, and admitted by the Bishop of London, or the Dean of St. Paul's, who were to call in to assist them in the examination 'four doctors of physic, and of surgery other expert persons in that faculty.' In 1518, the physicians and surgeons were incorporated, and a general superintendence and authority over all the branches of the profession. In 1540, the surgeons were also incorporated, and united, as they seemed to be till the beginning of the present century, when the anatomists and surgeons, thus established appear, however, to have very soon begun to overthrow their jurisdiction. It was found necessary, in 1543, to pass an act for the preservation and protection of the numerous apothecaries for their charity in giving the poor the benefit of their skill and care, and for the great public usefulness of their labours generally. The import of the enactment is expressed in its title, which is, 'An act for ministering outward medicines.' The persons thus tolerated in the administration of outward medicines, of course comprehended those who kept shops for the sale of drugs, to whom the name of apothecary was generally applied. The acceptance of the name, as thus confined, may be gathered from Shakespeare's delineation of the apothecary in Romeo and Juliet (published in 1595 or 1597), as one whose business was 'to make and sell simples,' to keep a 'shop,' the 'shelves' of which were filled with 'green hart's pott,' &c., and who was resorted to as a dealer in all sorts of chemical preparations. Nothing is said of his practising medicine; and it certainly was not till nearly a century later that apothecaries assumed the title of physicians, and surgeons, ever began to act as general practitioners.

Meanwhile, however, the apothecaries of London were incorporated by James I. on the 5th of April, 1665, and united with the Company of Grocers. They remained thus united till the 6th of December, 1617, when they received a new charter, forming them into a separate company, under the designation of the Master, Wardens, and Society of the Art and Mystery of Apothecaries of the City of London. This is the charter which still constitutes them one of the city companies, although various subsequent acts of parliament have materially changed the character of the society. It appears to have been only a few years before the close of the seventeenth century, that the society of apothecaries, at least in London and its neighbourhood, began generally to prescribe, as well as to dispense, medicines. This encroachment was strongly resisted by the College of Physicians, who, by way of retaliation, established a dispensary for the sale of medicines to the poor at prime cost at their hall in Warwick Lane. A paper controversy of great animation rose out of this measure; but the numerous tracts which were issued on both sides are now all forgotten, with the exception of Garth's burlesque epic poem, entitled The Dispensary, first published in 1679. The apothecaries, however, may be considered as having made good the position they had taken; although for a considerable time their pretensions continued to be looked upon with some suspicion; the late President Addison, in the Spectator, No. 155, published in 1711, speaks of the apothecaries as the common medical attendants of the sick, and as performing the functions both of physician and surgeon. After mentioning the advantages and the inward applications employed as expediencies to make luxury consistent with health, he says, 'The apothecary is perpetually employed in countertrimming the cook and the vintner.' On the other hand, Parkinson, published the same year, has the following lines in the illustration of the dissertation which he asserts to have been usurped by the critics over the post:—

Nor, indeed, did the apothecaries themselves contend at this time for permission to practise as medical advisers and
attendants any further than circumstances seemed to render it indispensable. In a cleverly written tract in their defence, published in 1774, and attributed, though without the allegation of originality themselves, entitled "Pharmacoepiae Justificati; or the Apothecaries Vindicated from the Imputation of Ignorance, wherein is shewn that an academical education is nowise necessary to qualify one for practice," the following opinion expressed (p. 31), "As to apothecaries practising, the miserable state of the sick poor, till some other provision is made for their relief, seems sufficiently to warrant it, so long as it is confined to them. We have observed, that perhaps the greatest number of persons licensed by the bishops to practice medicine within their dioceses continued to subsist at least to about the middle of the last century. It is explained against as a great advantage in a tract entitled An Address to the College of Physicians, published in 1747.

It has been stated in various publications, that the order of dealers in medicines, known as chemists or druggists, first made their appearance about the end of the last century, or not much more than forty years ago. As they immediately, or at least very soon, began to prescribe as well as to dispense, the rivalry with which they were thus met was as eagerly opposed by the regular apothecaries, as their own environment had in the first instance been by the physicians. In certain resolutions passed by a meeting of members of the Apothecaries' Company on the 20th of November, 1812, among other causes which are asserted to have of late and to degrade professional distinction, is mentioned the intrusion of pretenders of every description: 'Even druggists,' it is said, 'and their hired assistants, visit and administer to the sick; their shops are accommodated with what are described and sold as medicines;' and, as additional proof of their presumption, instances are recorded of their giving evidence on questions of forensic medicine of the highest and most serious importance! But in all this the druggists really did no more than the apothecaries themselves had begun to do a hundred years before, if the first appearance of these interlopers was so recent as has been assumed. We find a tract, printed on a single folio leaf at the Star in Bow Lane in 1663, entitled A Plea for the Right of Commoners to Practice the Above-mentioned Art, and Nat Merry, stoutly defends the right of himself and the other manufacturers of chemical preparations to administer medicines, against the objections of the members of the Apothecaries' Company, who seem to have been themselves at this time only beginning to act as general practitioners. And in 1708, we find a series of resolutions published by the Court of Apothecaries, in which they complain of the intrusion into their business of foreigners—that is, of persons not resident in London. Their complaint, however, though they seemed to bestow upon them somewhat extensive privileges, had been found nearly inoperative from the omission of any means of executing its provisions, and of any penalties for the violation of them. In 1729, therefore, an act was obtained by the company, giving them the right of visiting all shops in which medicinal preparations were sold in London, or within seven miles of it, and of destroying such drugs as they might find unfit for use. This act expired in 1729; and although an attempt was made to obtain a renewal of it, the application was not persevered in. But in 1748 another act was passed, empowering the society to appoint ten of their members to form a committee of examiners, without whose license no one should be allowed to utter medicines in London, or within seven miles of it. It was stated before a Committee of the House of Commons, that there were at this time about 700 persons who kept apothecaries' shops in London, not one-half of whom were free of the company. But this act probably had the effect of putting the unlicensed dealers down; which may account for the common statement, that no such description of persons ever made their appearance till a comparatively recent period. In an Introductory Essay prefixed to the first volume of the Transactions of the Associated Apothecaries and Surgeon Apothecaries of England and Wales (London, 1742), in which it is stated "that the Apothecary held the same situation which apothecaries, or ought to appertain, to the present druggist, who arose, it is affirmed, 'about thirty years ago,' the following remark is added, 'For some time previous to that period, indeed, certain apothecaries' shops in London, not one-half of whom obtained their degrees or certificates without passing through a long course of study and a rigorous examination. Persons thus qualified are admitted as surgeons in the army and the navy, and in the several public hospitals; for which reasons they are no longer allowed to act as country practitioners in England. This privilege can only be obtained by a service of five years in the shop of a practitioner who is a member of the Company of Apothecaries, and by undergoing an examination for a certificate, which if obtained, entitles the person obtaining it to practise as an apothecary, except such only as were already in practice. It was also made imperative that candidates for examination should have previously served an apprenticeship of at least five years with a member of the company. The history of the steps taken to procure this act is very minutely detailed in the Essay prefixed to the Transactions of the Associated Apothecaries and Surgeons, already referred to. The application was commenced, and indeed principally carried through, by this private society; the Colleges of Physicians and Surgeons, and the Apothecaries' Company themselves, having declined joining in it. The act, however, fell in one material respect very far short of the design entertained by its projectors, inasmuch as the opposition of the chemists and druggists rendered it necessary to introduce a clause into it exempting that class of dealers altogether from its operation. From London to the country places, with very few exceptions, no person can practise medicine without keeping a supply of drugs for the use of his patients, or in other words, acting as an apothecary, this statute has given the monopoly of the sale of drugs to the Society of Chemists, or to the College of Surgeons. There is an act for the suppression of apothecaries under the title of medical profession throughout England. Every general practitioner must not only have purchased license, but must have served a long apprenticeship with a member of the company. The price of a license to practise in London is within ten miles of it, or in any other part of the country six guineas. The penalty for practising without this license is twenty pounds. It is expressly declared in the act that the society may appropriate the sums of money collected by the society by this act, to an annual expedition. It appears by a published list, that from the 1st August, 1818, when the new act came into operation, to the 31st July, 1832, about 1600 practitioners had been licensed by the Court of Examiners. We have not been able to find any account of the number of rejected applicants. From a return, printed by order of the House of Commons last session, it appears that from the 29th March, 1825, to the 19th June, 1833, the money received by the Company from the license is, at the rate of 12s. 6d. per person in the course of the eight years, 10,218, 124. had been paid to the members of the Court of Examiners, besides 980l. to their secretaries. It is right to state that the parties by whom the act was sought did not originally contemplate the giving of these extensive powers to the Apothecaries' Company. In one of their first reports, dated the 5th of December, 1812, the committee of management express themselves as of opinion 'that the management of the sick should be as much as possible under the superintendence of the physician;' and it was then proposed that a new and a distinct privileged body should be created to examine and license practitioners, composed of members of all the different branches of the profession. This scheme, however, was abandoned when both the Colleges of Physicians and Surgeons refused to cooperate in getting it carried into effect. Before this act came into operation a large proportion of the medical practitioners in country places throughout England were graduates of the Universities of Edinburgh, Glasgow, and Dublin, or licentiates of the Royal Colleges of Surgeons of these cities, or had otherwise obtained their degrees or certificates without passing through a long course of study and a rigorous examination. Persons thus qualified are admitted as surgeons in the army and the navy, and in the several public hospitals; for which reasons they are no longer allowed to act as country practitioners in England. This privilege can only be obtained by a service of five years in the shop of a practitioner who is a member of the Company of Apothecaries, and by undergoing an examination for a certificate, which if obtained, entitles the person obtaining it to practise as an apothecary, except such only as were already in practice. It was also made imperative that candidates for examination should have previously served an apprenticeship of at least five years with a member of the company.
of education prescribed by the Company's Court of Examiners was of an extremely inferior description. For this we were told, in the year 1832, during our first meeting, that the examination system had been introduced only the preceding year, they say, 'The medical education of the apothecary was heretofore conducted in the most desultory manner, and with no adequate regard to the authority or established by usage; some subjects were attended to superficially, and of great importance were neglected altogether. In fact, all the attendance upon lectures, even in hospital practice, was grossly neglected or neglected. All the lectures described in 1832 for those members of the House of Commons attended on lectures had commenced on or after January in the preceding year, comprehends two courses of chemistry, two of materia medica and therapeutics, two of anatomy and physiology, two of anatomical demonstrations, two of the principles and the practice of medicine, two of midwifery and the diseases of women and children, one of botany, and one of forensic medicine; together with twelve months' attendance on the wards. All these attendances are to be comprehended at least forty-five lectures; and the whole, with the hospital attendance, are to occupy two years.

Notwithstanding this reform, a strong feeling of dissatisfaction has continued to prevail in many quarters at the exclusion of the Scotch and Irish professors, of whom there are not more than two at Edinburgh University, and of whom they have served an apprenticeship of five years with an apothecary; and a bill was last session brought into the House of Commons to remove this disability. It was withdrawn in consequence of some difference of opinion, but is still used in the University as a minor point among the parties by whom it was promoted; but it is understood that it will be again brought forward during the present session (1834). The object was not to take the right of examination and license from the Court of Examiners, but to give admission to the Scotch and Irish professors, and the Colleges of Surgeons, to practise in England, as well as those who have the diplomas of the Apothecaries' Company.

In respect to this proposed reform, we have only to observe, that the legislature cannot make any change in the present state of the law which regulates the practice of apothecaries in England without a full and impartial inquiry. Whatever may be the result of this, we believe it will be shown that the examinations of the court have been progressively improving, and that the attainments of the successful candidates are very much higher than those possessed by medical practitioners at the time of passing the act. The marks of the candidates have been at least as high as those of former candidates, and the number of successful candidates has increased from the year 1831-1832, nearly one-sixth, and in the year 1830-1831, nearly one-fourth, of the candidates were rejected. The rejected candidates no doubt frequently obtain their diplomas at a subsequent examination, after preparing themselves better; but the fact of so many being rejected is creditable to the Court of Examiners, as, in the present defective state of the early medical education of medical students, every body knows that a large number of them cannot possibly pass a satisfactory examination. No fees are paid by the rejected candidates, as the rejected candidates. (See A Reply to the Statement in Support of a Petition of the Royal College of Surgeons of Edinburgh.)

We ought not to omit to mention that the Apothecaries' Society, in their interpretation of the clause which requires five years' apprenticeship to an apothecary, have considered that 'every candidate who has been an apprentice for the length of time directed by the act, is entitled to exemption and the person to whom he was an apprentice was legally qualified to practise as an apothecary according to the laws in force in that kingdom or particular district in which he resided: and in accordance with this interpretation, the Court of Examiners has exonerated many who had served their apprenticeships in Scotland and Ireland, as well as many from America and the British colonies.' (See Reply, &c. p. 3.) Of twenty-four graduates now at the College, only six are said to have served their apprenticeships in London, and the others in Edinburgh, while many of these from the United States and British colonies were enrolled among the numerous tenants of heaven. It is to the death and reception of Julius Caesar into heaven, that the 5th Beuloge of Virgil is by some supposed to refer. The term Apotheosis, in Greek and Latin, signifies the apotheosis of the gods that presided of the deities, and we are not without an example of the process of apotheosis in the Roman emperors.
admitted, if we may use the expression, after death to divine honours. This is minutely described by Herodian (lib. iv. c. 3.), and the passage presents so curious a picture of the abstinence in diet and self-mortification of the votaries, that we translate it here. 'It is the custom of the Romans to deify those of their emperors who die, leaving successors; and this rite they call apotheosis. On this occasion, a semblance of mourning, with a scene of reverence, is exhibited throughout the city. The body of the dead they honour after human fashion, with a splendid funeral; and making a waxen image in all respects resembling him, they expose it to view in the vestibule of the palace, and at great size, spread with cloth of gold. The figure is made pallid, like a sick man. During most of the day senators sit round the bed on the left side, clothed in black; and noble women on the right, clothed in plain white garments, like mourners, wearing garlands of flowers. These ceremonies continue for seven days; and the physicians severally approach the couch, and looking on the sick man, say that he grows worse and worse. And when they have preserved that he is dead (Iesw H eipic erefarwvverwv), the noblest of the equestrian and chosen youths of the senatorial order takes up the couch, and bear it along the Via Sacra, and expose it in the old forum. Platforms like steps are built on either side of it by the order of the chieftain, and on the opposite, a chorus of women of high rank, which sing hymns and songs of praise (lyprows kai trakwov) to the deceased, modulated in a solemn and mournful strain. Afterwards they bear the couch through the streets of the Camp of Mars, to the brother part of which, a square pile is constructed entirely of logs of timber of the largest size, in the shape of a chamber, filled with faggots, and on the outside adorned with hangings interwoven with gold and ivory. Upon this, a similar, but smaller chamber is built, with open doors and windows, and above it, a third and fourth, still diminishing to the top, so that one might compare it to the light houses, which are called Phari. In the second story they place a bed, and collect every species of cense; and every sort of fragrant fruit or herb or juice; for all cities and nations and persons of eminence, emulate each other in contributing these last gifts in honour of the emperor. And when a vast heap of aromatics is collected, there is a procession of horsemen and of chariots around the pile, with the drivers clothed in robes of office, and wearing masks made to resemble the most distinguished Roman generals and emperors. When all this is done, the successor to the empire applies a torch to the building; and others set fire to it on every side, which easily catches hold of the faggots and aromatics. And from the highest and smallest story, as from a pinnacle, an eagle is let loose to mount upwards to heaven. And the fire ascends by the Romans to carry the soul of the emperor from earth to heaven; and from that time he is worshipped with the other gods.' Compare with this description Dion's account (B. Schl., II. 49) of the festivities in Puteum. In conformity with this practical, it is common to see on medals struck in honour of an apotheosis, an altar with fire on it, and an eagle taking its flight into the air. Several representations of real or supposed apotheoses have been preserved in ancient gems and sculptures; of which the most celebrated is the apotheosis of Homer, formerly in the Colonna palace at Rome, but now in the Tournely gallery of the British Museum. This monument has been illustrated by me in a preceding number of the magazine. Falcon has published the apotheosis of Romulus in the third volume of the supplement to his Antiquities. See a remark on the apotheosis of Augustus, under omph, in the article Arou. APOTHEOSIS, in ancient Greek music (from ap, from, and ipo, to cut), the remainder of a whole tone when diminished by a limma [see Limma], or smaller semitone, the ratio being 2167 and 2048. The Greeks were aware that the cut were not the rational or equal parts; they therefore divided it into a greater and less semitone, which they called apotheoi and limma, the difference whereof is a comma. [See Comma.] Under the heads Tone, and Scale, Musical, of the Greeks, will be found further information concerning the ancient manner of dividing the octave.

APPALACHE, a bay in the Gulf of Mexico, formed by the coast of West Florida, and a line joining Cape St. George, the most southern point of the Appalachian delta, with the outlet of the Suwanee river. It receives the Ocklockonee, St. Mark's, and a few other considerable streams.

APPALACHIAN MOUNTAINS. The mountain system which runs along the eastern side of the continent of North America, is generally known, in this country, by the name of the Alleghanies or Alleghany mountains. The name Alleghanies is derived from the Indian name of a river which flows into the Gulf of Mexico, in Appalache bay; but the English, who visited them principally in their more northern parts, preserved the Indian name, and were given of Alleghanies, which is supposed to mean the Endless. The Appalachian system consists of numerous parallel chains, some of which form detached ridges, extending in most instances, in the same direction as the entire system which they contribute to form. There is a range which does not deviate materially from N.E. to S.W., and it extends about 1200 miles in length. The northern and southern extremities of this mountain system are not well defined, but it appears from which it stands out most to the north and south may be traced from the state of Maine into Alabama. The most remarkable chains are, the Blue Ridge, which lies nearest to the Atlantic, and stretches from the state of Georgia to its intersection by the Delaware River, but no exact limits can be assigned to it. The next are the Kittatiny Chain; the Alleghany Mountains, in the western part of Virginia and the central parts of Pennsylvania; the Cumberland Mountains, on the eastern boundary of Tennessee and Kentucky; the Catskill Mountains, in the state of New York; the Secondaingo Chain, which is a continuation of the Catskills; the Green Mountains, in the state of Vermont; the Highlands, eastward of the Hudson River; and the White Hills in New Hampshire. In the whole of the Appalachian system, there are no great detached mountain peaks; the greatest elevations are in the White Hills of New Hampshire, where Mount Washington, according to the measurements of Captain Partridge, rises to the height of 6634 feet above the sea; its base being at an elevation of 1888. The summit is much below the limit of perpetual snow. Moosehill, another of the White Hills, is 4636, and Grand Monadnoc, 3254 feet. In the Green Mountains, Killington Peak is 3924 feet above the sea; in the Catskills, Round Top, 3814, and the High Peak 3718 feet above the tide level of the Hudson, about 18 miles distant. The Peaks of Otter, in the Blue Ridge, Virginia, are said to be about 4000 feet above the sea. Catoctin Mountain, in Maryland, in the Blue Ridge in Virginia is far below this height. Table Mountain, in South Carolina, is supposed to be not less than 3400 feet above the sea. Canaan Mountain in Georgia, the southern extremity of the Blue Ridge, is 1500 feet high.

The Appalachian Mountains do not form a high dividing line between the waters which flow into the Atlantic on one side, and into the Mississippi on the other. They cover a widely-extended area of about 170 miles in breadth, only one-third of which is occupied by the mountain chains, the rest being the intermediate valleys. The rivers which rise in the Appalachians, flow in long valleys between the chains, and are deficient of many branches. Many of the rivers passing nearly at right angles through depressions in the ridges, or through deep rents in the mountains, as at Harper's Ferry, in Virginia, where the United Potomac and Shenandoah cut the Blue Ridge at right angles. From the headwaters of the Potomac, the rivers belonging to the Appalachian system, to the Alatamaha of Georgia, we find a series of large rivers which, originating within the Appalachian system, or on the margin of its limits, are filled into it by the great water-shed, between the streams that run to the Atlantic, and those that flow into the Gulf of Mexico, runs from the sources of St. John's River, on the north-western limit of the state of Maine, to the Point of Florida, almost following the southern boundary of the state. The system crosses that line, at an angle of about 30°. The land between the sea-coast and the foot of the most eastern of the Appalachian chains, is of very unequal breadth; at
the Hudson River, the Atlantic almost washes the base of the mountains, but from that point southward, there is a gradual increase in the breadth of the Atlantic Slope, as if it were widened from north to south. The most prominent is Cape Hatteras, in North Carolina, and from that point to the mouth of the Atalamaha in Georgia, the coast runs nearly parallel to the mountains, at a distance of about two hundred miles.

The western slope of the Appalachian system falls by a gentle but broken descent to the Mississippi; it is upwards of 1000 miles in length, and about 300 miles in width, from the river to the base of the mountains, covering an area of about 300,000 square miles. The surface is intersected by gently rising hills, but deeply furrowed by rivers over its whole surface. Nowhere can the wearing effects of rivers be more advantageously studied, for their channels do not appear to have been formed by rents and dilatactions of the ground, the strata being usually horizontal, but by the erosion of a stream. The hills parallel to the Appalachian system on the western slope consist, in their lower parts, of transition slate and limestone, in highly inclined beds, which are covered near their summits by coal-measures and superior secondary formations, in unconfornmable and horizontal stratification. Hills, separated by valleys several miles wide, are composed of the same horizontal strata, the deeper sides of the valleys being recognizable; it seems, therefore, a legitimate conclusion, that the strata were once continuous over the valley, and it is difficult to conceive how the gap could have been produced, in such circumstances, except by the scooping out of the strata with great velocity, by a considerable period. Further observation, however, should be made before any positive opinion is adopted about the formation of these river valleys.

In the northern parts of the Appalachian system, a considerable tract of country is occupied by primary strata, such as gneiss, mica-slate, clay-slate, and granular limestone, associated with granites, serpentine, and traps, under various aspects, underlying and supporting the strata of the Gruawacke sandstone and slates, and transition limestones, are, however, more abundant in this mountainous range than the primary strata. Gruawacke slate forms the western margin of the primary country of New York and New England, and also of the great body of the Alleghany Mountains and of the Catsberga. It is still more widely extended in the north, occupying much of the surface in the state of Vermont, the northern parts of the state of New York, and Canada. In the Alleghany Mountains of Pennsylvania, Maryland, and Virginia, its beds are of great thickness, and form, in some instances, the prevailing rocks, being, however, almost invariably overlaid by sandstone. Transition limestone is found on the upper side of the Alleghany chain, along the northern part of the Alleghany chain, associated with the gruawacke slate, but generally inferior to it. It is found in Vermont alternating with gruawacke slate, and is separated from a secondary limestone in the valley of the Connecticut River. It lies on the lower side of the Alleghany chain, and on the upper part of a range of hills called the Snake Mountain. In the western part of Massachusetts, and along the eastern side of the Hudson River, it lies upon primary clay-slate. North-east of the Hudson, this limestone nowhere occupies any great extent of country. Crossing the Hudson, and proceeding south-west, little of this limestone is seen in the lower part of New York, but it becomes more abundant towards the north, in the northern part of Pennsylvania, and Pennsylvania forms the lower part of the ridge in southern Pennsylvania and Virginia. According to Maclure, it extends nearly to the south-western termination of the mountains, between the Alabama and Tumbeeksee rivers. It contains many caves, some of which are of great extent, and in these caves fossil bones of various animals have been found. Aremaceous and conglomerate gruawacke are perhaps the most frequent forms in which the transition rocks occur. The beds, in some parts of the Alleghany Mountains, are horizontally stratified, but in other parts, the beds are inclined, and it has been surmised that the age of our old red sandstone has not yet been made out. A red sandstone partially covers the lower levels of the primary strata, from twelve miles south of Connecticut River, to the Rappahanock River, a distance of nearly 400 miles; though often interrupted, it retains a remarkable degree of uniformity throughout the whole distance. The sandstones, in highly-inclined beds, prevail very generally throughout the middle and eastern chains in Pennsylvania and Maryland. Near the summit of the Alleghany Mountains, the gruawacke passes into a red sandstone, which is not in unconfomrable stratification, but gradually assumes a horizontal position.

Coal is found in Pennsylvania, which is rich in coal, associated with sandstones and slates, which American geologists have hitherto described as belonging to the transition or gruawacke series. The coal is usually termed anthracite by them, and some of the quality which is generally called blind coal in Great Britain, and of which our regular coal-measures consist, in several situations, as in the South Wales Coal-basin. The great Pennsylvania coal-fields are situated in the valleys of the Susquehanna, and the Lackawanna and the Schuykill rivers, the two last being affluents of the Delaware.

The natural beauty of these valleys seems destined at no distant period to be impaired by black smoking heaps, such as those which now disfigure the country along the valleys of the Tussey and the Wear. The Susquehanna River is in the valley of Wyoming, and runs up into the valley of its tributary the Lackawanna. It is between sixty and seventy miles long, by about five miles broad. The beds of coal break out in the face of the precipices, in the banks and beds of the rivers, and occur in several alternations with conglomerates, sandstones, and slates. In these sandstones and slates, as well as in the coal, are found the remains of many species of fishes, some of them ranging to the fern tribe and others. From the description of these by Professor Silliman, coupled with the fact, that bolts of clay-ironstone accompany the strata, we are led to doubt whether these strata belong, as it has been said, to an earlier geological period than the regular coal-measures in Europe.

The coal-region of the Lehigh River is chiefly wrought at a place called by an Indian name, Mauch Chunk. The coal here also forms alternating beds with sandstones and slates, and is extracted at the summit of a mountain 1500 feet above the level of the sea, in a quarry open to the day. The beds are usually from twenty to twenty-five feet thick, but in some places they are fifteen feet thick; they are known to extend over many miles. These mines, together with others on the Schuykill River, are an immense source of wealth to the state of Pennsylvania. They are now extensively wrought, and the coal is conveyed by railroads to the banks of the navigation rivers. They will have a powerful influence on the future condition of the United States, for there is enough to supply the whole country along the Atlantic shore for many ages. Deposits of the same kind of coal are wrought in Rhode Island, and in Worcester County in the state of Massachusetts. Bituminous coal, of the same sort with the regular coal-measures of Europe, is found in several places on the Atlantic Slope. About ten or twelve miles south of New York, Dr. A. T. Maclure says that there is such a deposit, from twenty to twenty-five miles long, and about ten miles wide; it is situated in an oblong basin, having a whitish freestone and slate clay with vegetable impressions alternating with the coal. It lies in a valley ten miles broad, which forms the upper part of a range of hills called the Snake Mountain. In the western part of Massachusetts, and along the eastern side of the Hudson River in New York, it lies upon primary clay-slate. North-east of the Hudson, this limestone nowhere occupies any great extent of country. Crossing the Hudson, and proceeding south-west, little of this limestone is seen in the lower part of New York, but it becomes more abundant towards the north, in the northern part of Pennsylvania, and Pennsylvania forms the lower part of the ridge in southern Pennsylvania and Virginia. According to Maclure, it extends nearly to the south-western termination of the mountains, between the Alabama and Tumbeeksee rivers. It contains many caves, some of which are of great extent, and in these caves fossil bones of various animals have been found. Aremaceous and conglomerate gruawacke are perhaps the most frequent forms in which the transition rocks occur. The beds, in some parts of the Alleghany Mountains, are horizontally stratified, but in other parts, the beds are inclined, and it has been surmised that the age of our old red sandstone has not yet been made out. A red sandstone partially covers the lower levels of the primary strata, from twelve miles south of Connecticut River, to the Rappahanock River, a distance of nearly 400 miles; though often interrupted, it retains a remarkable degree of uniformity throughout the whole distance. The sandstones, in highly-inclined beds, prevail very generally throughout the middle and eastern chains in Pennsylvania and Maryland. Near the summit of the Alleghany Mountains, the gruawacke passes into a red sandstone, which is not in unconfomrable stratification, but gradually assumes a horizontal position.

There are, in several other situations in the Appalachian system, very extensive deposits of bituminous coal; one of the most remote of these is found in the Pocahontas formation, on the Ohio, where it is associated with ironstone, as near Staffordshire, and, from very similar local advantages, a Birmingham for the United States has grown up at Pittsburgh. A mountain group, called the Laurel Ridge, lies between Pittsburgh and the Alleghanies, and is separated from the latter by a wide valley. Near the summit of the mountain are strata of sandstone and bituminous shale, alternating with coal, which is thick enough to be worked. These coal-measures are also found in several parts of the Alleghanies, and as they are horizontal, they must have been raised up from the bottom of the sea in a vertical direction to this great height: a circumstance which perhaps seems to indicate rather the formation of the Appalachian system, than a sudden and violent action. The Alleghany mountains near Pittsburgh are opened along the sides of the hills at an elevation of 320 feet above the level of the Ohio, and the strata are quite horizontal. This coal-formation is believed to be of great extent, indications of it having been observed.
100 miles above Pittsburgh; but it is not very probable that it is uninterrupted, continuous over so great an extent.

Natural springs, extremely rich in salt, are found all along the western slope of the Appalachian system; and from Onondaga, in New York, to Louisiana, wherever the earth has been highly fractured, salt springs have been found; in some places, where the boring was from 300 to 400 feet, the water rushed up with so much force, as to rise like a fountain several feet above the surface of the ground. Such springs are established in many places, and the history of one from Onondaga to within a short distance of Natchitoches in Louisiana, and the quantity annually made is immense. In the valleys of the Appalachian system there is a considerable number and variety of marshes, swamps, and water-logged valleys in the remoter parts of the State, which, from the overflow of the streams and from the influx of the waters of the lakes, will, if continued, submerge the forest on many of the hills, and extend the marshy tracts so as to completely cover the surface; they are covered in many situations by great accumulations of gravel, sand, and other alluvium. In these have been found the remains of extinct quadrupeds, and the bones of the genera Megatherium and Geotria, from New Jersey, the megatherium in Georgia, and extinct species of the elephant in several places.

Among the unstratified rocks, granites, slates, and serpentinie occur abundantly in the Northern States, and in detached masses in the Southern States, as far as the southern extremity of the mountain system.

The proper explanation of the formation of the Allegheny range is a matter of doubt. It is not a case of recent volcanic action throughout the whole of the Appalachian system.

There are both iron and lead mines, but the produce of neither has hitherto been very considerable. Gold has been found rather abundantly in the states of North Carolina and Georgia, and south of the Tennessee in the Cumberland gold belt; according to Professor Olmsted, lies on the southern side of the state, and is spread over a space of not less than a thousand square miles. The prevailing rock is a clay slate, or sandstone, in which form it is found in the eastern part of the state, and in the central part of the State, the slate, occasionally accompanied by pyrites. These have been found in Georgia the remains of works, which were carried on by some people before the arrival of Europeans, consisting of a shaft and excavations in a large quartz vein, with part of the ore that had been smelted.

In the natural state of the country, that is, when it was first discovered by Europeans, an almost unbroken forest spread over and around the Appalachian system of mountains, reaching to the Atlantic Ocean, Gulf of Mexico, far beyond the St. Lawrence river, and westward towards the Mississippi. The spots which have been cleared in this ocean of trees are very insignificant when compared with its vast extent, which has been estimated at 5,000,000 of square miles. Virginia, Maryland, Delaware, New Jersey, and New York, contain the greatest proportion of oak, pine, and hickory, and three or four species of maple, one of which, the sugar maple, is extremely valuable. The liriodendron, a kind of magnolia, flourishes in such luxuriance and abundance of growth in the eastern forests. The great Weymouth pine is one of the most beautiful of the North American forest trees, attaining its greatest magnitude and perfection in the more northern regions. Its trunk is often of the diameter of five or six feet, rising smooth and straight from 60 to 80 feet, and terminated by a dense conical top. It forms a striking feature in the forest scenery of Vermont, New Hampshire, New York, and some parts of Canada; rising by nearly half its elevation above the summits of the other trees, and resembling, like the palms of the tropics, a forest planted upon another forest. Descending from the Alleghanies into the valley of the Ohio, we find near the summit of Laurel Ridge a change in the aspect of the forest. The deep hue of the hemlock spruce, the Weymouth pine, and other trees of the family of conifer, is exchanged for the livelier verdure of the broad-leaved laurel, the rhododendron, and magnolia. Darby's Trees; varnish oil; Silver Journal of Science; Macrile's Geography of the United States.

APPLACHICOLLA, a river of the United States, which rises, in the state of Georgia, and flows into the Gulf of Mexico; a zone of Apalachicolla consists of two main branches, the Chatahooche and Flint river; and the Chat- hoochee itself consists of two main branches, the Chestate and Chatahooche proper. The Chestate rises in the northern part of Florida, and is a torrent on the extreme coast of the State. Since the time when the existing species of mollusca occupied the adjoining seas. It is stated by Mr. Conrad that on fresh-water lacustrine formations have yet been discovered on any of the tributaries of the United States. This is a remarkable fact; but as the space is vast and much covered by vegetation, and the careful and competent observers of geological phenomena have hitherto been few, we are perhaps hardly enabled as yet to say positively that they do not exist. The following is a description of the rocks that occupy the surface; they are covered in many situations by great accumulations of gravel, sand, and other alluvium.

Several of these are found in numerous places, and sometimes in the form of columnar basalt, but there is not a trace of recent volcanic action throughout the whole of the Appalachian system.
those of the Savannah, which flows into the Atlantic, the Coosa, which is an affluent of the Alabama river (see Alabama), and the Tennessee, one of the great affluents of the Mississippi. The Chickasaw, after a course of 100 miles, for the most part S.S.W., receives, near the parallel of 34° and from the N.E., the river of Chattanooga, whose course to the point of junction is shorter than that of the Ches-
tate.

At their junction, the river takes the name of Chat-
tookoee, and pursues an almost southerly course for 250 miles, to about 33° 46' N. lat., where it is joined on the east by the Flint River. This river system presents several pecu-
larities. The general course of the Chattookee proper, and that of the united streams for a short distance below the point of junction, is, in common with the course of the Chattahoochee proper downwards, at a short distance from its channel and to the east we find some of the higher affluents of the Savannah and all the head waters of the Altamaha: those two rivers flow into the Atlantic. Thus it appears that a very narrow belt of high land divides the channel of the Chattookee proper from the sources of the Atlantic streams just mentioned. From the junction of the Chattac and Chattookee to the junction of the Flint River, no stream larger than an inconsiderable creek joins the Chattookee which has a long and very narrow basin, estimated at about 320 miles in length, with a mean breadth of 35 miles, and an area of 11,200 square miles.
The Flint River rises in Georgia (33° 39' N. lat.), and as its upper waters have a direction exactly similar to those of the upper waters of the Altamaha, it appears, for about a third part of its course, double whether its waters will enter the Gulf of Florida or the Atlantic. Its general direction is S., and then S.W. to its junction with the Chattookee; its course is estimated at about 210 miles, and its basin is nar-
row, not exceeding 40 miles of average breadth.
The united streams of the Chattookee and Flint take the name of Apalachalooche, and run S. 70 miles, dividing into several channels and forming a delta. The outlets of this stream are in St. George's Sound, in the Gulf of Mexico, in 29° 46' N. lat. The direction of this river is sin-
gularly straight, having a general southern course of about 400 miles; it runs through more than five and a half degrees of latitude; and as the elevation of the highest part of the river is 2000 feet, we have, as we advance from the mouth to the source, all the variations of temperature that can arise from the combined effect of variation of latitude and elevation of surface.
The Appalachian is navigable for vessels up to the junction of the two great branches, and the Chatahoechee is navigable for vessels of its size. The bed of this river is said to be deep and capacious: the tides ascend about two-thirds of the distance between the sea and the junction of the Flint and Chattookee. (Darby's Geographi-
ical View of the United States.)

APPARATUS SCultOPRIS, or the Sculptor's Work-
shop, a constellation formed by Lacaille. It is situated in that region of the heavens immediately to the eastward of the large star Fomalhaut or a Piscis Australis, and hardly rises above the horizon in our hemisphere. It is bounded by Cetus and Aquarius on the north, Fornax Chemica on the east, Piscis Australis on the west, and Phoenix on the south. Its principal stars are designated as follows:

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APPARATUS (in astronomy). When it is necessary or convenient to reduce an observed phenomenon, either by clearing it of the effects of any optical delusion, or substituting for it an equivalent phenomenon which would be observed at some more commodious station, that which is actually observed is called the apparent phenomenon, in opposition to that which results from correction or reduction, which is called the real or true phenomenon. Without discussing the propriety of these names, we shall give a few instances of their use. The apparent altitude of a star requires a correction for refraction, an optical delusion which makes the star appear a little higher than it would do if there were no atmosphere to obstruct (obscurant) place of a planet is always reduced to that in which it would have been from the centre of the earth, which is called its true place [see Parallax]. The same correction is required to reduce the apparent phenomena of an eclipse to the true. The apparent or sensible horizon is the plane in which the sun is actually or apparently situated; the real or rational horizon is a plane parallel to the preceding, drawn through the centre of the earth. These will be sufficient exemplifications of our new point of view, and will be considered in detail, and, in some cases, inconsistent. For example, the ap-

...
In order that the brain may carry on these operations, that is, in order that it may receive the impressions conveyed to it by the nerves from the organs of sense, in order that it may interpret these impressions into sensations, and in order that it may duly combine and revise them, it must be in a sound state. The chief agents which maintain the brain in a sound state are its organic nerves, and its circulation, and this disease is made up of an insufficiency of these organs in maintaining a healthy condition by the organic process of nutrition, over which the system of nerves termed organic [see nervous] presides. If these organic nerves become disorder, diseases may take place in the instance of the brain, and this disease may assume a variety of forms far too great to be enumerated here, the slightest of which may be incompatible with the production of sound thought. If, on the other hand, the flow of blood through its circulating vessels be deranged, the process of thought may be equally disordered. Stop the flow of blood to the brain altogether, insensibility will follow instantly; fainting will supervene, and this state will be quickly succeeded by death, unless the vital current be instantly re-established. Quicken the circulation beyond a certain point, insensibility equally follows; and, though the preternatural velocity of the circulation should stop short of inducing insensibility, it may yet disturb the ordinary process of thought in an infinite variety of modes. Malaria, a name which is not capable of disturbing, in a greater or less degree, the action of the organic nerves of the brain; but the maladies which most commonly and remarkably disturb the functions of the brain, and stimulate the meningeal vessels, particularly of the alimentary canal, and more especially of that portion of it which forms the stomach; certain diseases of the liver, and of the mesenteric glands, and of the urinary and reproductive organs. In like manner excitement or depression of the action of the blood-vessels of the brain beyond a certain point, uniformly disorders sensation and all the mental operations. Striking illustrations of both are afforded by the effect of many physical agents, as well as of natural diseases. Of the first, the effects of the inhalation of nitrous oxide affords an example. When nitrous oxide is received into the lungs, the pulse is increased in strength, fulness, and velocity. A corresponding change takes place in the mental impressions. Sensation becomes more vivid; the sensibility to touch increases; luminous points dazzle the eye; the hearing is more acute; recollections, generally of a pleasing nature, and of uncommon intensity, pass rapidly through the mind. One individual compares his feelings, under the influence of this gas, to those which he experiences when witnessing an heroic scene upon the stage; another likens them to the emotions he felt when, on the occasion of the commemoration held at Westminster Abbey in honour of Handel, he heard seven hundred instrumentalists simultaneously performed. After my return from a long journey," says Sir Humphry Davy, "being fatigued, I aspirated nine quarts of nitrous oxide, having been thirty-three days without breathing any air. After the first moment, I was enabled to lose the perception of external things, and a vivid and intense recollection of some former experiments passed through my mind, so that I called out: 'What an amazing concurrence of ideas!' On another occasion, after having been enclosed in an air-tight breathing box, of the capacity of nine cubic feet and a half, in which he became accustomed to the excitement of the gas, which was there carried on gradually, and after having been in this place of confinement an hour, he was enabled to write as a man who had been as a quantum of more than eighty quarts were thrown in, this experimentalist says: 'The moment after I came out of the box I began to require twenty quarts of unmingled nitrous oxide. A thrilling, extending, from the chest to the head, most immediately produced. I felt a sense of tangible extension, highly pleasurable, in every limb; my visible impressions were dazzling, and apparently magnified. I heard disconcerted, of which I had perfectly awareness of my situation. By degrees, as the pleasurable sensation increased, I lost all connexion with external things; trains of vivid, visible images rapidly passed through my mind, and were connected with words in such a manner as to produce sensations perfectly novel. I existed in a state of newly-connected and newly-modified ideas. When I was awakened from this semi-delirious trance by Dr. Kinglake, who took the bag from my mouth, indignation and pride were the first feelings produced by the sight of the persons about me. My emotions were enthusiastic and sublime; and for a moment I walked round the room perfectly replete with the happiness of my success. As I recovered my former state of mind, I felt an inclination to express in the most splendid language the pleasing sensations which I had experienced. I thought of Dr. Kinglake, "Nothing exists but thoughts; the universe is composed of impressions, ideas, pleasures, and pains!" From this interesting experiment, it appears that in consequence of an extraordinary impression upon the brain, through the medium of the nerves and the circulating vessels, 1. sensations were increased in intensity; 2. ideas were increased in vividness; 3. in consequence of this change in the ordinary state of sensation and ideation, all consciousness of external things was lost—a world of newly-connected and newly-modified ideas arose; 4. emotions were produced corresponding in intensity to the acuteness of sensation and the vividness of ideas. My emotions were enthusiastic and sublime. I exclaimed, "Nothing exists but thoughts; the universe is composed of impressions, ideas, pleasures, and pains!" The inhalation of malaria, the poison which produces fever, affords an equally striking illustration of the modification of sensation, and of all the subsequent operations of the mind, by a cause affecting the nerves and blood-vessels of the brain. Feverish mania is a depressing, nitrous oxide affords an example. The cerebro-spinous nerve was infected by the brain, therefore, to be the reverse of the latter, and, accordingly, in receiving into the lungs the feverish mania, the pulse becomes oppressed and weak; languor and lassitude pervade the limbs; the countenance becomes pale, the surface cold, a headache, grief, and sometimes vomiting supervenes, while the mind is feeble, dull, dejected, incapable of the effort of attention, and utterly unable to control or even to connect the trains of gloomy and distressing images which terrify the imagination. Some circumstances had occurred," says a physician who carefully observed the phenomena which attended the progressive derangement of his own mind under the influence of fever, "to render me anxious and dispirited; of these I took an exaggerated and gloomy view. I had been studying during several months with unusual severity. One day in the cold weather of January, after having been occupied many hours in the practical duties of my profession, I returned home fatigued. Great was my bodily exhaustion, the depression of my mind was still more remarkable. My head ached, and unable to study or to attend to any professional engagement, I lay on the sofa and attempted to read, chancing having thrown in my way the American novel called the Water Witch. I was interested by the description of the confusion of my head increased, I requested a friend to read to me, my own eye continually wandering from the page. The progress of the fever was rapid; its chief force was upon the mental faculties, and, being restored and became enabled to lose the perception of external things, and a vivid and intense recollection of some former experiments passed through my mind, so that I called out: 'What an amazing concurrence of ideas!' On another occasion, after having been enclosed in an air-tight breathing box, of the capacity of nine cubic feet and a half, in which he became accustomed to the excitement of the gas, which was there carried on gradually, and after having been in this place of confinement an hour, he was enabled to write as a man who had been as a quantum of more than eighty quarts were thrown in, this experimentalist says: 'The moment after I came out of the box I began to require twenty quarts of unmingled nitrous oxide. A thrilling, extending, from the chest to the head, most immediately produced. I felt a sense of tangible extension, highly pleasurable, in every limb; my visible impressions were dazzling, and apparently magnified. I heard disconcerted, of which I had perfectly awareness of my situation. 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with a malignant spirit, which assumed the shape of the
demon of the Water Witch. By an object of my tender
affection, who was anxiously watching over me, but in whom
I now saw only the willing agent of the demon, I was
betrayed, and through this treachery the malignant spirit
obtained a footing in my apartment, and I lost all power of
the demon than she began to suggest to me the
commission of crimes abhorrent to my nature, and at last
there fixed upon my mind the impression that I had really
blurred the guiltiness of the vivid picture of which my
imagination had been disturbed. I passed over the hurricanes
and storms I encountered, evidently suggested by the
descriptions in the novel I had just been reading; on the sud-

nus subsidence of these I thought I stood before an invisible
tome in my apartment, but all I could see was the door
was on me; while there was visible to me only a portion of
the deck of the Water Witch, and very obscurely the
shadow of my malignant accuser. Not the crimes falsely
laid to my charge, but the actual events of my life, even the
events of childhood and youth, long forgotten, were now
called up to me with extraordinary vividness; all the
circumstances of place, person, dress, language, and atti-
dude, such as had actually accompanied them, being revived.
Of each of these events I was compelled to give a true
account, an invisible hand recording every syllable that fell
from my lips, and a secret power obliging me to utter the
words which expressed the exact truth. During this ordeal I
felt my heart swell with a century's hate, and a secret
open enemies, those that had long been dead, as well as
those that were still living; the former cheering me by their
attitudes and words, the latter scowling upon me and
smiling menacingly upon me, but uttering no sound. And
now again I felt myself under the power of that invisible
hand to whose uncontrollable agency I was compelled to accuse
myself of the crimes of her own suggesting; and while suffer-
ing the bitter anguish of self-reproach, and expecting some
heart-rending punishment, I again saw my dearest friends, with
their innocent and happy countenances, engaged in occupa-
tions with which associations of a highly pleasurable
nature had been formed in my mind, but whom I could not
myself identify. And now I remembered the mirth which
Thomson said had held affectionate intercourse no more.
After this I have no remembrance of anything that passed, until conscious of
the return of some obscure and vague recollections. I had
the impression that some calamity had befallen me; but I
felt as if a soft and refreshing breeze were blowing gently
upon me; and soon I found myself in a vast ocean, in a
beautifully-constructed vessel, with a fresh and invigorating
breeze, sailing rapidly along a coast presenting the most
magnificent and beautiful of all scenes...
ner; their figure, their features, their manner, their dress, and their complexion, are all visible to my fancy. As long as I meditate on a fixed plan, and afterwards carry it into effect, even when I am interrupted and when I must begin it all over again, all the impressions connected in the same way as the present in the very same form in which my imagination at first produced them. I find myself frequently in a state between sleeping and waking, in which a number of pictures of every description, often of the strangest forms, show them- selves, change, and vanish. In the year 1778, I was affected with a bilious fever, which at times, though seldom, became so high as to produce delirium. Every day, towards evening, the fever came on, and if I happened to shut my eyes at that time, I thought I saw that the fever was beginning, even before the sensation of cold was observable. This I knew by the distinct appearance of coloured pictures, of less than half their natural size, which looked as in frames. They were a set of landscapes, composed of trees, rocks, and other objects. If I kept my eyes shut, every minute some alteration took place in the representation. Some figures vanished and others appeared. If but I opened my eyes, all was gone; if I shut them again, I had a different landscape. In the cold fit of the fever, I sometimes opened and shut my eyes every second, for the purpose of observation, and every time a different picture appeared, replete with various objects, which had not the least resemblance to the one before. They were preserved by themselves without interruption as long as the cold fit of the fever lasted. They became fainter as soon as I began to grow warm; and when I was perfectly so, all were gone. When the cold fit of the fever was entirely past, no more pictures appeared. Three or four days after, when my eyes were open, I saw pictures when my eyes were shut, it was a certain sign that the cold fit was coming on.

This is a remarkable instance of spectral illusion manifestly arising from a physical cause, in a person of a philosophical turn of mind, able to refer the illusions to their real source, and therefore to maintain his consciousness of their true nature. It was otherwise with John Beaumont, the author of the "History of Tuberculous and Asemptaneous Cases," who, having undergone a hypochondriacal dispossession, and who, while labouring under this bodily disease, saw hundreds of imaginary men and women about him, and in whose real existence he came to be a firm believer. Among the spirits that visited him, there were two who became his constant attendants, and who called each other by their names: several spirits would often call at his chamber, and ask whether such spirits lived there, calling them by their names, and they would answer, they did. One spirit, which came for several nights together, and rung a little bell in his ear, told him that his name was Ariel. The two spirits that constantly attended him were ladies of a brown complexion, about three feet in stature; they had both black loose net-work gowns, tied with a black sash, their hair was long, and wavy, and they wore a gown of a golden colour, with somewhat of a light striking through it. These women told me they would kill me if I told any person in the house of their being there, which put me in great astonishment, and caused me to take steps for the purpose. I made a servant sit up with me four nights in my chamber, before a fire, it being in the Christmas holidays; telling no person of their being there. One of these spirits, in woman's dress, lay down upon the bed by me every night, and told me, if I slept, the spirits would kill me, which kept me waking for three nights. In the mean time, a near relation of mine went (though unknown to me) to a physician, of my acquaintance, desiring him to prescribe me somewhat for sleeping, which he complied and gave me a potion, but I set it by, being very desirous and inclined to sleep without it. The fourth night, I could hardly forbear sleeping, but the spirit, lying on the bed by me, told me again, I should be killed if I slept; whereupon I rose, and sat by the fire-side, and in a while returned to my bed; and so I did a third time, but was still threatened as before; whereupon, I grew impatient, and asked the spirits, what they would have me do? and I found them in the character of a Christian, in humbling myself to God, and feared that I should not; and rose from my bed, took a cane, and knocked at the ceiling of my room; a near relation of mine, lying then over me, who presently rose and came down to me, about two o'clock in the morning—the spirit then said, "O God, let me be saved; for these four days past, and that I have not slept—the occasion of it was, that five spirits, which are now in the room with me, have threatened to kill me if I told any person of their being here, or if I slept; but I am not able to forbear sleeping longer, and acquaint you with it, and now stand in defiance of them: and thus I exerted myself about them; and, notwithstanding their continued threats, I slept very little all the day. I have been in this condition so long, that I continued with me above three months, day and night."

We have seen that some minds have a strong natural tendency to form vivid pictorial images of every thing that interests them; in others, there is a like tendency to the dense reunion of past impressions. 'I remember,' says Dr. Ferrier, 'that about the age of fourteen, if ever I had been viewing any interesting object in the course of the day, such as a romantic ruin, a fine seat, or a review of a regiment, I was sure of its resuming its form in my brain, if I went to go into a dark room, the whole scene was brought before my eyes with a brilliancy equal to what it had possessed in day-light, and remained visible for several minutes. I have no doubt that dismal and frightful images have been often presented to the mind in the same manner after scenes of domestic affliction or public horror.' Certain states of the body, and certain affections of the mind, powerfully predispose to the intense reunion of past impressions, however those impressions have been indeed and whatever their nature, the immediate exciting cause of the reunion being often some external object acting upon the senses or upon the imagination under circumstances favourable to the illu- sion. A gentleman was benighted, while travelling alone, in a remote part of the highlands of Scotland, and was compelled to ask shelter for the evening at a small lonely hut. When he arrived there, it was to find the door locked, with mysterious reluctance, that he would find the window very insecure. On examination, part of the wall appeared to have been broken down to enlarge the opening. After some inquiry, he was told that a pedlar, who had lodged in the room a short time before, had committed suicide, and was found hanging behind the door in the morning. According to the superstition of the country, it was deemed a very bad omen to die by the door of the house; and to convey it through the window was impossible, without removing part of the wall. Some hints were dropped that the room had been subsequently haunted by the poor man's spirit. My friend laid his arms, properly prepared against intrusion of any kind, by the bed-side and retired to rest, not without some degree of apprehension.

He was visited in a dream by a frightful apparition, and, awaking in agony, found himself sitting up in bed, with a pistol grasped in his right hand. On casting a fearful glance round the room, he discovered by the moonlight a corpse dressed in a shroud, reared erect against the wall close by the window. With much difficulty he summoned up resolution to approach the dismal object, the features of which, and the appearance of the work apparent, were distinctly. He passed one hand over it, felt nothing, and staggered back to bed. After a long interval, and much reasoning with himself, he renewed his investigation, and at length, on approaching the place, was suddenly attacked by the moonbeams, forming a long, bright image, through the broken window, on which his fancy, impressed by his dream, had pictured, with mischievous accuracy, the hallucinations of a body prepared for intermediate. Powerful associations of terror, in this instance, had excited the recollected images with uncommon force and effect.

The peculiarity of constitution expressed by the term predisposition, whether corporeal or mental, is not only deeply impressed on the imagination, but is also much implicated in the formation of these phantoms, but it often determines even the specific character which each assumes. Since the predisposition varies in each individual, the same morbid cause may conjure up images the most diversified. The imagination of nitrous oxide commonly excites vivid images of a pleasing nature, accompanied with grateful sensations; but in some cases it presents to the imagination frightful phantoms, and causes the phantoms on the stage of its action, for the same reason, the morbid cause, whatever it be, which gives rise to spectral illusions, may in one excte soothing and delightful visions, and in another hideous and appalling spectres. The daughter of Sir Charles Lee's Saw, about two o'clock in the morning, two of the most beautiful women woman between her curtain and her pillow, who told her she was her (deceased) mother; that she was happy, and by twelve of the clock that day she should be with her.
There are many cases on record which directly prove that the phantoms which the rigid puritans of the seventeenth century mistook for real spirits, were of very shape which these phantoms assume and the images which have previously occupied the mind. A writer in the fifteenth volume of Nicholson's Philosophical Journal, who was haunted with the apparition of frightful spectres, and who was familiar with the characters of the dead persons that were associated in his mind with these images and his previous thoughts, states, that he tried the experiment, whether by fixing his meditation upon other objects, he could not make these assume the place of the phantoms which persecuted him; that with this view, while the faces were flashing before him, he reflected upon landscapes and scenes of architectural grandeur; that accordingly, after a considerable interval of time, a rural scene of huts, valleys, and fields was presented to him, which was succeeded by another and another, in ceaseless succession; that the manner and times of their respective appearance, duration, and vanishing, did not sensibly differ from those of the faces; that the scenes were calm and still, without any strong lights or glare; that, after a time, these figures changed entirely, and consisted of books, parchments, or papers, containing printed matter. The writer adds, 'I was so now so aware of the connexion of thought with these appearances, that, by fixing my mind on the consideration of manuscript instead of printed type, the papers appeared, after a time, only with manuscript writing, and afterwards, by the same process, instead of being erect, they were all inverted, and the lowest of the four, for example, a philosophical Nicolai saw nothing but men and women, in their natural form and aspect, horses, dogs, and birds: the illusions of stupendous minds consist of angels or devils, which assume all sorts of fantastic shapes. Remigius, who was famous in former times, the thing that amazes and who boasts that, in the course of fifteen years, he had condemned nine hundred criminals to the stake, paid particular attention to the form, features, and dress of demons; yet his statements clearly show that they did not vary from the gross sculptures and paintings of the middle ages, and that recollected images only were present to the persons labouring under the delusions for which they suffered death. They are said to be black faces, fleshy or hairy, with fingers, feet, hands, and arms of various sizes, and in many cases of unlike dimensions; their bodies being sometimes of such a shape as to give the imagination of the people, but even to their very senses. They could go neither into their dwellings nor their temples without seeing them; they were sculptured on the walls of the church, they were carved on the wainscots of the manor-houses, and painted with them; there was not a hill nor a valley, a wood nor a grove, not a fountain nor a stream, in which they were not seen and heard, and communed with. No place was void,' says Burnet, 'but all full of spirits, devils, or other inhabit-

ants; not so much as a hair breadth was empty in heaven, earth, or water above or under the earth.' Our mothers' maids, observes Reginald Scot, 'have so terrified the children with horned lions, the mewing horns on his head, fier in his mouth, and a tail in his breast, with a beak, and two wings like a dog, claws like a beare, a skin like a niger, and a voice roaring like a lion, that we start and are afraid when we hear any one cry enough.'

What wonder, then, that the hideous phantoms should make an indelible impression on weak and ignorant minds, and exert an influence even over strong and cultivated understandings, which their better reason could not at all times resist! What wonder that the corporeal discipline, sensations and ideas were rendered preternaturally intense, or the vivacity of ideas was so increased as to overpower actual impressions, that these spectres should be seen in solitude, and in heart in the storm; should dance before the eye, and whisper in the ear, and be heard as amorous whispers in the dreams of the guilty, and come with the cherub's smile in the visions of the innocent; should be to the maniac all that existed, and to the feverish and dying what most they hoped or feared.

In regard to ghosts, it is observable that they were remarkably abundant in this country during the interregnum after the civil war in 1649. The melancholy tendency of the times gathered more strength upon the very old family seats, formerly the residence of hospitality and good cheer, which in their hands became desolate and gloomy; and the dismal stories propagated by the discarded retainers to the antient establishments, ecclesiastical and civil, continued altogether as popular subjects in the succeeding periods of our history. It is well known that ghosts commonly appear in the same dress they wore when living; sometimes, indeed, they are clothed all in white, but these are chiefly the 'churchyard ghosts, who were no particular part of a paler colour than real beings; and when they began to diminish and disappear, their colour became fainter and fainter, until at last they appeared entirely white.

We cannot dismiss the subject of appearances without observing, that the manner in which these phantoms have vanished before the light of knowledge affords a striking illustration of the blessedness which descends even to the lowest of the fruits of the tree of knowledge, and principles of philosophy. The powerful and capricious agents which filled 'the heavens, the earth, and the waters above and under the earth,' added, in no inconsiderable measure, to the sum of human suffering. They were, in general, serious crimes, from the fact of the guilt of the good small, that of the evil countess; and though of soft and uncompounded essence, they might have come in what shape they chose, 'diluted or condensed, bright or obscure;' yet they did assume 'forms forbidden, such as retire to chaos, and with untold commixt'; and their visitations were much more often accompanied with 'blasts from hell' than 'airs from heaven.' They produced powerful emotion, for the most part painful and of pernicious tendency. They afforded materials for wide, and fluctuating, or rather for the pencil of the painter; but the imagery of the one, and the figures of the other, were distinguished for incongruity and deformity, not for beauty and grace. Haunting the touch of sickness, in minds debilitated by disease, they often chased reason from its throne, and sometimes deprived the sufferer of life. The ignorant they terrified with false fears, and they afforded no compensation in the uniformity and efficacy with which they visited the guilty with remorse. As agents in the administration of reward and punishment they were most unjust. If they brought down vengeance on the criminal, it was not for the commission of crime, but the neglect of punishment. All the guardian angels, they hovered about the pillow of the dying, and the party was not punished with evil to the wicked, and ministers of grace to the good; but this 'blessed troop, with faces bright like the sun, bearing garlands, and promising eternal happiness,' was as disposed to wait to heaven the soul of the sinner as of the saint. By
preoccupying the mind, they took off the attention from the observation of nature, and deprived it both of the power and of the human mind, and the exercise of those intellectual, mental, and moral phenomena which could not wholly escape notice, and in this lies the real malignity of their influence. They incapacitated the mind for the perception of truth, disposed it for the reception of the grossest delusions of the passions, and fitted it for the manufacture of that false and fallacious account of the sources of calamity and suffering. In the hands of the priest and the tyrant, they were potent to delude and enslave; and they did their work faithfully. The influence of the medieval Church was not in its effect inferior to that of the Papacy upon the past. In the former, there will always be sufficient to fear, and in the latter, enough to regret, without the stimulus of fictitious terror, or the imputation of imaginary guilt. As long as the human frame can suffer, and is subject to the impulses and will, the same principle will require that the mind can pour it upon, to preserve it from error, and whatever consolation religion can afford, to save it, at least, from misery, if not from despair. In philosophy, there is light, and in religion, consolation; and he is a friend to man, who labours to secure to him these inestimable blessings, free from the admixture of ignorance and the alloy of superstition. See article Apparitions, Westminster Review, No. II., of which large use has been made by the author of the Essay towards a Theory of Apparitions, by John Ferrier, M.D., 1813; and Sketches of the Philosophy of Apparitions, or an Attempt to trace such Illusions to their Physical Causes, by M. J. F. D. 1814. These works are positive apropos.

Appeal. The removal of a cause from an inferior court or judge to a superior one, for the purpose of examining the validity of the judgment given by such inferior court or judge, is called an appeal.

An appeal from the decision of a court of common law is usually prosecuted by suing out a writ of error, by means of which the judgment of the court below undergoes discussion, and is either affirmed or reversed in the court of error. The proceedings in such cases will be found under the title Error.

The term appeal, used in the above sense, is by the law of England applied in strictness chiefly to certain proceedings in Parliament, in the Privy Council, in the Courts of Equity, in the Admiralty and Ecclesiastical courts, and in the Court of Quarter Sessions. Thus, an appeal lies to the House of Lords from the decree of the Court of Chancery in this country, and in Ireland; from the Equity side of the Court of Exchequer; and from the decision of the supreme courts in Scotland. An appeal lies to the king in council from the decrees and decisions of the colonial courts, and indeed from all judgments and decrees of the dominions of the crown, except Great Britain and Ireland.

To the same jurisdiction are referred (in the last resort) all ecclesiastical and admiralty causes, and all matters of luxury and distress.

A decision of the Master of the Rolls or the Vice-Chancellor may be revised by the Lord Chancellor upon a proceeding in the nature of an appeal.

An appeal lies directly from the Vice-Admiralty courts of the colonies, and from other inferior admiralty courts, as well as from the High Court of Admiralty, to the king in council. This latter appellate jurisdiction has been recently regulated by statutes 2 and 3 Will. IV. c. 92, and 3 and 4 Will. IV. c. 41, by which the Court of Delegates, Commission of Review, and Commission of Appeal in Prize Causes, have been abolished.

In the ecclesiastical courts, a series of appeals is provided from the Archdeacon's Court to that of the bishop, and from the bishop's court to the High Court of Arches. Frod. 1640, no bishop the appeal of right lay to the king in council before the Reformation; yet appeals to the Pope were in fact common occurrence until the reign of Henry VIII., by which time the number of appeals so to the Pope was limited by his own self-preservation. After that period, a Court of Delegates, appointed for each cause, was the ordinary appellate tribunal, until the abolition of their jurisdiction by the late act alluded to in the former part. It is now provided, that no Commission of Review shall hereafter issue, but that the decision of the king in council shall be final and conclusive.

Such are the principal heads of appeal, to which we may add the appellate jurisdiction of the justices of the peace assembled at the Quarter Sessions, to whom various statutes have given authority to hear, upon appeal, the complaints of persons alleging themselves to be aggrieved by the orders of such justices, and of those related to their official acts.

Appeal (appeller, to accuse), in the old criminal law of England, was a vindictive action at the suit of the party injured by some heinous offence, in which the appellant, instead of merely seeking pecuniary compensation as in civil actions, supposed, and in the very nature of the law, to defect it by a pardon. It seems to have been in reference to this peculiarity that the appeal is said to have been called by the celebrated Chief Justice Holt 'a noble birthright of the subject,' insomuch as it was the only mode by which the subject was enabled to supplant the power of the criminal justice without the risk of royal interposition on behalf of the offending party. Even a previous acquittal on an indictment for the same identical offence was no bar to the prosecution by the appellant; nor was previous conviction a bar, where the execution of the sentence had been intercepted by a pardon. It was in the power of the appellant alone to relinquish the prosecution, either by releasing his right of appeal, or by accepting a compromise.

Another practice formerly observable was the mode of appeal, which in cases of treason or capital felony was either by jury or by battle, at the election of the defendant.

Where the latter form of trial was adopted, the following was the custom. The defendant, accompanied by an appellee, and the appellee with the offence; the latter distinctly denied his guilt, threw down his glove, and declared himself ready to prove his innocence by a personal combat. The challenge was received by the appellee, and they proceeded to a matter to allege, in which was termed a counterpolea, showing that the defendant was not entitled to the privilege of battle, and both parties were then put to their oaths, in which the guilt of the accused was solemnly asserted on one side and denied on the other. A day was next appointed for the court to fight, the defendant was taken into custody, and the accuser was made to give security to appear at the time and place prefixed. On the day of battle, the parties met in the presence of the judges, armed with certain prescribed weapons, and each took a preliminary oath, of which the effect was that he had resorted to unequal means for securing the assistance of the devil in the approaching contest. If the defendant was vanquished, sentence was passed upon him, and he was forthwith hanged. But if he was victorious, or was able to persist in the combat till starlight, or if the appellee voluntarily yielded, and cried craven, then the defendant was acquitted of the charge, and the appellee was not only compelled to pay damages to the accused, but was further subjected to very heavy civil penalties and disabilities.

Some of the details of this singular mode of trial, as reported by contemporary writers, are sufficiently ludicrous. Thus we read that the combatants were to be attended within the lists by counsel, and a surgeon with his ointments. In the reign of Charles I. Lord Rosia, on a similar occasion, was indulged with a seat and wine for refreshment, and was further permitted to avail himself of some valuable auxiliaries as nuts, hammers, files, scissors, bodkin, needle and thread. (See Rushworth's Collections, cited in Barrington's Observations, p. 328.) We also learn from the story of the Close Rolls of the thirteenth century that a preliminary to the trial were allowed to go out of custody for the purpose of practising or taking lessons in fencing. (See Mr. Hardy's Introduction, p. 185.) The whimsical combat between Horner and Peter, in the second part of Henry VI., is perhaps the most familiar to the readers of Shakespeare; and the scene of a judicial duel upon a criminal accusation has been still more recently presented to us in the beautiful fictions of Sir Walter Scott.

It appears to me probable, that our courtly epistolarity has come into our jurisprudence from Normandy. The Grand Cousinier of that country, and the Assises of Jerusalem, furnish evidence of its early existence.

The courts of criminal jurisdiction in which it was admitted were the King's Bench, the Court of Chivalry, and (in the earlier periods of our legal history) the High Court of Parliament.

In some cases the appellant was able to deprive the accused of his choice of trial, and to submit the enquiry to a
The river Sitter, which has its source at the foot of this mountain, crosses Appenzell in a north-western direction, and afterwards joins the river Thur in the canton of Thurgau. The country of Appenzell produces but little corn, and has no vast extent of pasturage; but in the higher parts of the inner rhônes or districts of this country, Honey and wax are also gathered plentifully. In the northern and western districts called auster rhoden, manufactures of linen and cotton cloths, muslins, damasks, &c., afford employment to a great part of the people. Of these two manufacturing towns of Appenzell, Herrisau has between 7000 and 8000 inhabitants, and is a place of considerable wealth.

In its internal administration, Appenzell is divided into two distinct republics independent of each other, called interior and exterior rhoden, or communes. The former are Catholic, the others Protestant. The separation took place in 1597, after the war of religion which raged in Switzerland in the sixteenth century. The two, however, count but as one canton of the Swiss confederation, and have only a single vote in the federal Diet, to which they send deputies of each of their two republics. In its towns and cantons are pure democracies; in each the landsgemeinde, or general assembly, comprising the male natives above eighteen years of age, meets once a year in a field, and constitutes the supreme or legislative power. Two councils constitute the executive; they propose the laws for the general approval. Herrisau is particularly celebrated as the high judicature of the country, for the two powers, administrative and judiciary, are often blended together in these small democracies. The landammann is the chief magistrate. The revenues of the state are extremely limited; those of the exterior rhoden do not ascend to 1500l. sterling annually, and those of the interior rhoden are still less, but the expenses are likewise trifling, for there are no establishments kept up, few public offices are paid, and those but scantly, and no national debt is taken. The security of these little republics lies in their federal bond with the larger, more populous, and wealthier cantons of Switzerland.

The Protestant or exterior rhoden of Appenzell are more populous and industrious than the interior or Catholic districts, the inhabitants of the latter being chiefly addicted to pastoral life. It ought to be observed, however, that the interior rhoden are the most mountainous and wild, and that the people of these seceded districts, little visited by strangers, have retained much of the primitive Swiss simplicity of manners. The Catholic rhoden have a population of 15,000, the Protestant or exterior rhoden reckon about 43,000. The landsgemeinde, or legislative assembly of the latter, musters about 9000 members.

The country of Appenzell was little known till the seventh or eighth century, when the Frankish kings who ruled over extensive countries, for centuries, in the domains in these mountains and valleys on the Abbey of St. Gall. By degrees the abbey acquired the jurisdiction over the whole country, which was granted to it in 1292, by the Emperor Adolphus of Nassau. The abbots built a monastery dependent on that of St. Gall, which was called Abbatis Cells, and in German Abten-zell, from whence the name of Appenzell was given first to the village which grew around the monastery, and afterwards to the whole county. The inhabitants being the proprietor of the See, the income of the monastery, considerable privileges and franchises; they elected their landammann and other magistrates, and the dues and fees they were to pay to the abbey were fixed. But under an elective government, like that of an abbey, much depended on the personal character of the abbot for the time being. Some of the abbots encroached, or allowed their bailiffs to encroach, on the liberties of these mountaineers; they levied fresh taxes on their butter and cheese, and committed various other acts of oppression. The Appennellers complained, remonstrated, but to no great purpose. The example of their neighbours of the forest camps, who had thrown off for similar reasons the rule of Austria, encouraged them in their efforts, and when they rose in arms, surprised the castles which the abbots had built in their country, and drove their bailiffs away. A war ensued, in which first the imperial cities of Swabia, and afterwards Austria itself took the abbots' part, but the
Appennellz, a town or rather large village in the inner Rhodian. It is the capital of the Catholic part of the canton, and the residence of the council of government. It lies in a fine valley on the river Sitter, nine miles south of the town of St. Gall, from which there is a carriage road to it. The air is delightful, and there are several spots of scenery, about 3000. It has a convent of capuchins, and a monastery of nuns of the order of St. Clara. The mineral springs of Weissbad rise about two miles south of Appenzell. The air of this country is remarkably clear and pure, and the climate so favorable to the health of those who love the sweet air of nature, that many persons of consequence have built villas in the salubrious air of this elevated region, and to drink the whey which is brought warm every morning from the chalets or daires of the Alps. Gais is about 3000 feet above the level of the sea.

Appia, or Appia (Ancient Greek: Ἀππία, a native of Alexandria, in Egypt, the author of an extensive history of the Roman empire, in the Greek language. The time in which he lived may be fixed from several passages in his writings. In the preface (c. 7) he speaks of an idyl, i.e., of two heroes. He states (c. 17) the sovereignty of Caesar (49 or 47 B.C.) and the time when he wrote his history, which brings us to the reign of Antoninus Pius (138–161 A.D.). The date of 'nearly nine centuries' from the foundation of Rome (c. 9) leads to the same result. Moreover, he speaks of Hadrian as no longer alive, in two separate passages (Iberica, 38; and Bell. Civ. I, 38). On the other hand, he mentions the terrible vengeance which Trajan and his generals inflicted on the Jews in the last year of his reign, i.e., in 109 (Iberica, 32). This is in his own time (Bell. Civ. ii. 90). Appian practised as an advocate at Rome under more than one emperor; and he so far won the favour of the court, that he was sent to his native country in perpetuity. Augustus held him in high esteem, and treated him as if he indeed was not prefector sumptuosus, or governor-general of the province of Egypt (see his preface, last chapter). His history, instead of embracing the Roman empire as a whole, treats of the several provinces separately, taking them up in succession as they became connected with Roman history, and then giving a continuous account of their relations with Rome. But to make his work a complete whole, he found it necessary to give a preliminary view of Rome under the kings, and to devote a book to about 3000 feet above the level of the sea. 

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broadness of the road is about fourteen feet, so as to admit two carriages.

APPIUS CLAUDIUS. [See Claudius.]

APPLE, in Botany. [See Pyrus.]

APPLE. This fruit, which, from its hardness and great astringency, has been called apple, is one of the most important productions of cold climates, it, in its wild state, the sweetest crab-apple of the hedges. At what period it first began to acquire from cultivation the sweetness and other qualities which consequently are cultivated in the wild state, or by what accident the tendency to amelioration was first given it, we have no means of ascertaining. All that we know is, that the apple is spoken of by Homer as being one of the fruits of the garden of Alcinous and of Laertes, that it was a favorite fruit of the Romans, who had many variants, and that it has never ceased to be of an object of great interest with all northern nations.

It is a most inexpressible circumstance, while some kinds of plants will produce a great multitude of varieties when raised from seed, and are susceptible of an almost unlimited degree of improvement, there are others of very nearly a similar nature which seem almost incapable of varying at all; and yet there are so many instances of it that the fact will not admit of doubt. Among these instances are the apple and the hawthorn: millions of millions of the latter have been raised in this country alone, and yet our gardens do not contain a dozen varieties, whereas the apple, on the contrary, is, besides being matches, being allied to the hawthorn, the varieties are innumerable; in the last edition of the Catalogue of the Garden of the Horticultural Society, 1400 are described; and it is probable that the number is very much larger, even in old age, as it is now in number.

In the beginning, varieties, it may be supposed, were produced accidentally, owing to the peculiar tendency to change that this species of fruit possesses. A few varieties once obtained and placed in a garden, their blossoms would be certain to fertilize each other mutually, giving and taking the peculiar properties of one another: if the seeds of these were again sown, a greater degree of variation would arise, and this being repeated from generation to generation, the process would be ever plausible, although so numerous as to render it difficult to be recognized. Until within comparatively a few years, varieties were procured in no other way than in this, and by constantly destroying inferior kinds as better were obtained; but since the discovery of the effect produced by fertilizing one variety another, a very rapid advance has taken place towards bringing the apple to its highest state of perfection, and the cultivator has no longer to trust to mere chance for the results of his experiments.

In procuring improved varieties of the apple, no other mode which leads to certain results has been discovered, than this of cross-fertilization: but, at the same time, it is believed that for every scion taken the position of the rootstock is of great importance. It is not possible to give a formula which will apply to all cases. It is believed, however, that for the Siberian crab, to a west wall, till they afforded blossoms, and the soil in which they were planted was made of the most rich and favourable kind. Each blossom of this species of fruit contains about twenty chives, or male, and generally five or seven, or small yellow ball, or anther. It is necessary, in these experiments, that both the fruit and seed should attain as large a size, and as much perfection, as possible; and, therefore, a few blossoms only were suffered to remain unfruitful, as it is found that the fruit set is less abundant on a portion of their pollen or farina, when ready to fall from the mature anthers, was, during three or four successive mornings, deposited upon the points of the blossoms, which were placed in a horizontal position. It is not uncommon in this experiment that one variety of apple only should bear the emulated blossoms; for where other varieties are in flower at the same time, the pollen of these will often be conveyed by bees to the prepared blossoms; and the result of the experiment will in consequence be uncertain and unsatisfactory.

Every seed, though many be taken from a single apple, will afford a new and distinct variety, which will generally be found to bear some resemblance to each of its parents. Examples of this are presented in the Grange apple and Donwton pippin, and in the Foxley apple and Siberian Harvey.

Of all the apples cultivated by our ancestors, a very small number only is known to the present generation. This may have been owing to their having gradually grown in better kinds; but, in the opinion of Mr. Knight, it is rather to be ascribed to an expenditure of their vital principle by the apple. This doctrine of physical improvement, as it is called, no varieties of fruit trees are capable of remaining in perfection beyond a limited number of years; he thinks that after that period they suffer from the debility attendant on age, although although prolonged by the mode in which they are protracted by means of grafting or budding them upon healthy stocks, yet that in the end they will entirely disapppear. This opinion is founded upon the well-known fact that the oldest varieties of the apple are now diseased, especially the celebrated golden pippin, which was formerly the common hardy cider-apple of the Herefordshire orchards, &c. This is now only preserved with difficulty in gardens. But it must be remembered, that however this be the case, the trees may be propagated in another manner; and objections, among which more especially are the following: it is not impossible that the varieties alluded to by Mr. Knight were originally less hardy than those now cultivated, and that their constitutions were not adapted to the cold summers which generally prevail at the present epoch in England, a proposition which is rendered the more probable by the circumstance, that the golden pippin still abounds in all its pristine vigour in the island of Madeira. It may also be conjectured that neglect was a great cause of the disappearance of the golden pippin, and other kinds, from the elder orchards; for if, as is so often the case, the trees were once allowed to fall into a state of decay, then the disease, acquired in the first instance by neglect, would be perpetuated according to the well-known laws of vegetable physiology. (See Lindley's Outline of the First Principles of Horticulture, p. 24, sec.)

It is not our intention in this place to enter into any detailed account of the varieties of the apple, for which we must refer our readers to works treating exclusively on such subjects, especially to the Guide to the Orchard and Kitchen Garden: we shall rather confine ourselves to topics of general interest, such as the selection of varieties for small gardens or orchards, the modes of pruning and planting the trees, keeping them in proper condition, and preparing them for the market.

England is celebrated for the excellence of its cider; a beverage which perhaps acquires its highest degree of excellence in Herefordshire, and the neighbouring counties. In those districts, it has been found that the best cider apples are the forsythia, a worn-out sort, much used for mixing with other kinds, to which it communicates strength and flavour; the red must; the baglowe crab, which, however, is only of moderate quality; the yellow stone, a very curious stone, in a warm situation and season; the grange apple; the orange pippin; the forest styre, which is supposed to produce a stronger cider than any other, but is not a good bearer; the yellow Elliot; the Bennett; the rose; the Siberian Harvest; and the harbour. These are very hardy; and above all, the golden Harvest, or brandy apple. The specific gravity of the juice of these varieties has been stated by Mr. Knight to be as follows:--

...
Of the kitchen, the apple is certainly, of all fruits, the most useful; and it is here that its utility to man is most conspicuous, because it proves, when cooked, a nutritious and wholesome food. In every district there is an abundance of local varieties, which are considered by their cultivators as of peculiar excellence. But for those who are anxious to find the kind of apple best determined by comparison to be the best of all, we should recommend the following: for summer use, the Kentish codlin and theハウルドン; for autumn, theワルメイプシン and theアフリコン; for winter, theフレジス, ブラッドベルフ, and グレノゼン; and for drying, theノルフォク・ベーヴアン. Of all these, the Грэновен, Африкон, and Бранбант・ベーヴан are the best.

Of table apples, the varieties are endless; but by far the greater part of the local sorts, and of those commonly cultivated, is of only second-rate quality. The finest variety of all is the Корнш・ギフリウフ; to other equals it is excelled in excellence, it is unfortunately, of those which combine productiveness and healthiness with the highest quality, the six following must be considered the best: golden Харви, old nonpareil, Hubbard's pearmain, ロシピシン, Dutch mignonette, Court of Wick. Finally, the best planting stock could be derived from small plants, so as to obtain a constant succession of fruit from the earliest to the latest season, would be the following, which are enumerated in their order of ripening, the first being fit for use in June, and the last keeping till the end of April.


In pruning the apple-tree, as indeed in all similar cases, three objects are chiefly kept in view; the first of which is to remove superfluous, or excessively vigorous shoots; the second is to allow light and air to all parts equally; and the third is to check exuberance, and thus to promote fruitfulness. The mode of proceeding in the two first cases is so obvious as not to require explanation; for the third, a few simple rules may be given. As the apple is a tree of very hardy habits, if its branches are allowed to go unpruned, they will not produce any considerable number of lateral shoots, but will have a great tendency to keep lengthening from the terminal buds, when always producing barren and vigorous shoots; it is the lateral shoots only that are fertile, and they are so only when stunted, or in the state of what are technically called spur. The mode of procedure is then obviously to destroy the terminal barren shoots, and to encourage the lateral fertile ones. This is effected by shortening back all the leading shoots every year, to a distance from their point of origin, which varies according to their strength: where they are very strong, the leading shoots may be reduced to ten, or sometimes even more than ten, or twenty or fifteen inches of their base, but when they are weaker, they may be cut to within nine inches. By this means the onward growth of the branch is momentarily arrested; it accumulates sap within itself instead of losing it; it is compelled to use it in forming branches, which are thus developed, and form branches, some of which will be sure to grow so slowly as to become productive; for notwithstanding the check the branch may receive from

the amputation, it will after a little while again lengthen by means of the bud nearest its extremity, and this latter will then grow so fast as effectually to hinder the new lateral shoots from acquiring much vigour. Of the lateral shoots then obtained, some will be required to form new branches, others will be required for fruiting purposes; the latter will become fruit spurs; the first will be treated as those from which they spring, the second are to be cut down to within an inch of the bottom, which will generally cause the surrounding shoots to form fruit spurs, or, until they have borne fruit, when they are cut out so as to leave only a single bud behind. In all cases, the fruit spurs, which, like the leading branches, have a tendency to lengthen, should have that tendency stopped by being cut back to the lateral bearing shoot, and of which all the rest is generally provided for sufficiently by nature herself. They are principally employed in planting orchards, being now seldom admitted into good gardens. As these orchards are of inestimable value to the farmer and the consumer, they must be esteemed the most bearable, to be generally understood: we therefore select, from many others, the following method recommended by Mr. Knight. 'Let a soil of good quality be selected for a nursery, which should be trenched fifteen inches in depth and eight in width, and planted with the stocks of one year old, each plant being placed at the distance of six feet from the others. These will be fit for grafting at two years old; and an acre of ground, thus planted, will contain about 1500 trees, and, consequently, enough to plant about one thousand yards of trees stands at twelve yards distance from others. A nursery thus planted, when the trees are seven or eight years old from the seed, will form a more productive orchard, than which cannot be obtained by any other means with which I am acquainted; and during the earlier periods of the growth of the trees, they will be rather benefited than injured if the ground be planted with potatoes, or other low-growing crops, with proper manure. During the growth of the trees in the nursery, they should not be pruned to single stems, without leaves, as is usually done in nurseries, but each should retain many small lateral branches, which will tend to make the young trees grow strong and steady, and bear better, and will afford much fruit whilst the trees are very young. I would recommend the Downton pippin for an experiment of this kind, in preference to any other variety.

'At the end of eight or nine years from the time when the trees are first planted, they will have covered with their branches the whole surface of the ground, and will then begin to injure each other, if the whole be suffered to remain. At this period, therefore, every other row of trees, and at no distant subsequent period, every other tree in the remaining rows, must be taken away; and if this be done with proper care, and leaving the roots at least two foot long upon each side of the trunks, such trees may be removed with still less risk than is supposed.

But to insure success, it will be necessary to take off much the greater part of the lateral branches; and the holes in which the trees are to be planted must be made not less than six feet and eighteen inches deep, placing the turf, if the field be pasture, in the bottom, cannot be too early that the trees be not planted deeper in the soil than they previously grew. Each tree will require, during the first year, a stake and a few bushes to protect it; after which, nothing more will be required, but the annual dressing annually with lime and water, and cow dung, to defend it from the teeth of sheep and cattle.

For garden purposes, dwarf apple-trees are so far superior to all others, as that they have most advantages. Independently of the little space they occupy, the small degree in which they overshadow the soil, and the great facility they offer for gathering their fruit, they are generally more healthy, and grow to a greater height. Some have but little of their crop blown down by an unusual gale, and their fruit is also finer than on standards. No directions for their management can be given better than the
Following excellent observations of the author of the Guide to the Orchard and Fruit Garden.

Trees for this purpose should have their branches of an equal strength: those which have been grafted one year, or outwardly plastered, should be at least four years old, and the best: they should not be cut down when planted, but should stand a year, and then be headed down to the length of four or six inches, according to their strength; these will produce three or four shoots from each cut-down branch, which will be most promising to form fruit. At the end of the second year, two or three of the best placed of these from each branch should be selected, and shortened back to nine, twelve, or fifteen inches each, according to their strength, and tied on an oak. To produce balanced fruit (if the expression may be allowed), so that one side shall not be higher nor more numerous in its branches than the other; and all must be kept, as near as may be, at an equal distance from each other. If this regularity in forming the head be attended to and effected at first, there will be no difficulty in keeping it so afterwards, by observing either to prune to that bud immediately on the inside, next to the centre of the tree, or that immediately on the outside. By this means, viewing it from the centre, the branches will be produced in a perpendicular line from the eye; whereas, if pruned to a bud on the right or left side of the branch, the young shoot will be produced in the same direction; so that the said eye or branch points from one side to the other, the eye, on the right successively, or the left successively, a very material difference will be found, and the regularity of the tree will be destroyed in one single year's pruning; which may be readily illustrated thus:—fix four branches, equally spaced within a very small distance, the distance of eight inches from each other; let the branch on the left be called a, the second b, the third c, the fourth d; head down a to the left-hand bud; b to the right, c to the left, and d to the right. When these have grown, those between a and b, and between c and d will be ten inches; thus the distances now are not as eight to eight, but as six to ten; which would require two years' pruning in a contrary direction to that on which the head is to its former regularity; and it will not be forgotten that this system of pruning will hold good in every other case.

What has just been said has reference only to the leading shoots, which are always produced from the terminal buds when pruned, and which alone form the figure and beauty of the tree. The intermediate space must of course be provided for at the same time, having regard to the number of branches thus employed, that they do not crowd each other out of the sun. If such be the case as I have described, the small fruit may be expected, perfectly open, so as to admit plenty of sun and air, without which the fruit produced will be small and good for but little: the middle of the tree, indeed, must be kept quite open from the first to the last, taking care that all the surrounding branches be laid outwards, and preserve a regular distance from each other.

Expeller apple-trees were formerly much used, but they are in all respects so greatly inferior to dwarfs, and so much more expensive to keep in good order, that we omit all further notice of them.

A mode of managing apple-trees called Balloon training has been much recommended. It consists simply in this: you plant a common standard tree, with a stem six or seven feet high, and with five or six equal-sized branches; to the tip of each branch is to be attached a cord which passes under a peg driven into the ground near the stem, and by means of which the branches may be gradually drawn up towards the top, so as to form a kind of balloon, in order to take advantage of the breadth of the part of the tree whence the branches diverge, and the approximation of their points, the whole assumes the appearance of a balloon. All the care that these trees require is, to have their branches kept at equal distances by means of a hoop, or some such contrivance, until they are strong enough to preserve their acquired direction, and to have all the shoots which will every year spring upwards from them carefully cut away, except such as can be brought up the space of a year. Upon the termination of the balloon head. Trees thus managed produce an abundance of spurs, and when loaded with fruit are beautiful objects; like dwarfs, they occupy but little room, and the fruit is very good. The late Mr. A. C. Smith, at Blackheath, has noticed this great disadvantage, that all their buds are exposed to the sky in the spring, when they flower; consequently they are liable to suffer very much from the effect of spring frosts; so that they will scarcely bear, except in very favourable seasons, or in very mild and sheltered places. It is, in fact, only into gardens sloping to the south or south-west, and on the sides of valleys, that balloon apple-trees should be attempted. The above is drawn from my own observations.

Many different methods of preserving apples have been recommended, and almost every one has some favourite plan of its own. As far as our own experience goes, the best mode is to allow the fruit to go to waste, after being gathered, to lie till the superfluity has evaporated, which is what is technically called sweating; the apples should then be spiced quite dry, wrapped in tissue paper, and stowed away in jars or chests of pure san dwhich has been previously dried; they should always be brought into use within a few days before they are wanted, and laid in dry fern or some such substance; they then absorb oxygen, and acquire a little sweetness, which is necessary to their perfection.

The apple is propagated by every mode of budding: the former practice is preferable for standards, the latter for dwarfs. The stocks that are employed are the wild crab, the doucin or English paradise, and the French paradise apple. The former should be used for standards only, as it imparts too much vigour to the scions to render them manageable as dwarfs; the French paradise should always be employed for the latter, as it has the property of stunning the shoots, and rendering them much more fertile. The latter is so generally known by English nurserymen usually sell as the paradise stock, is intermediate in its effect between the crab and the French paradise, being less vigorous than the first and more so than the last. When there is no wish to confine the dwarf trees to this stock which is much harder than the French paradise, is the proper one to employ: but if the dwarfest trees that can be procured are the objects of the cultivator, then the latter only should be planted.

In conclusion, it is only necessary to add that the proper season for planting the apple is in October or November, as soon as the leaves are dead or discoloured, and beginning the drop. Vegetables that are not planted too late but go on just enough to enable the plants to send out a few roots before winter, and to prepare themselves for taking advantage of the first period of growth in the succeeding spring—a period, the commencement of which is never exactly known by external indications.

APPLE, LOVE. [See LOVE APPLE.]

APPLE, PINE. [See PINE APPLE.]

APPLEBY, a market town and borough in the county of Westmoreland, and lying in the Yorkshire dialect, is the name of a town well known of N.N.W. from London, and 31 S.E. of Carlisle, 54° 25' N. lat., 2° 28' W. long. It is upon the river Eden, which falls into the Solway Firth below Carlisle, and is by no means of such extensive commerce as might be expected from some that Appleby was a Roman station, but there is at least no decisive evidence of this; no Roman antiquities have been discovered. It was, however, a place of some importance before the conquest, and continued to be so until the time of Henry II., in the 22d year of whose reign it was surprised and utterly destroyed by William, King of Scotland. A second calamity of a similar kind in the 12th year of Richard II., a.D. 1356, completed the misfortunes of Appleby. It never recovered from this blow. The greatest part still lay in ruins in the time of Philip and Mary, and on this account the rent due to the crown was reduced from twenty marks annually to two marks, or 11. 6s. 8d. Burra, a small place, two miles of a mile, is surrounded from Burgh walls; and the remains of buildings have been dug or ploughed up two or three miles from where the town now stands.

Appleby contains two parishes, St. Lawrence on the left, and St. Michael on the right side of the river Eden. In St. Lawrence is the greater part of the town; in St. Michael a few houses only which can be considered part of the town, the parish of St. Michael being an agricultural one. The parishes are separated by the river. The borough extends from Carlisle through Brough and Penrith passes through the latter; and a short street and an ancient stone bridge of two arches over the Eden lead into the main street of Appleby, which is irregularly built on the slope of a hill. The castle

9 There is some difference of opinion as to the part of Northumberland and Westmorland which gave the 39d of Henry II.; but it was in this year that the tax for delivering up the place was levied on the governor, and the event might have occurred a year or two before.
stands on a lofty height rising from the river at the upper end of the main street, and at the lower end is the parish-church of St. Lawrence. The keep of the castle is in good preservation; it is called Carew's Tower, but is not of Roman origin, though it is of great antiquity. The principal part of the present edifice was built in 1686, by the then Earl of Thanet, in whose family it still remains. The church of St. Lawrence was nearly rebuilt in 1656, by the Convent of Pembroke. Near the church is the market-house, rebuilt in 1811 in the Gothic style. The town-hall and shambles are incommodiously placed in the middle of the main street; at each end of the town is an ancient stone obelisk. The town-hall and new goal are in the parish of St. Michael or Bondgate, in the part of Appleby which lies on the north-east or right bank of the Eden. Both the Lent and Summer assizes are held here, and the judges when on circuit have from time immemorial been entertained at the castle.

Towards the upper end of the town is an almshouse or hospital, for twelve widows and a superior, or 'mother,' founded by the above-mentioned Countess of Pembroke; and near the church is a grammar-school, established in the time of Elizabeth. The income of the school is or was 204l. 1s. 7d.; the number of free scholars is six. (Digest of Reports, &c. on Public Charities, p. 622.)

The town-hall is on Saturday, study day for corn; and there are several fairs for cattle, horses, sheep, and linen cloth; especially a cattle-fair once a fortnight from Whitsun eve to Michaelmas. The population of the borough of Appleby was, in 1831, 851, and of the township of Bondgate and Langton 645, together 1496; but the parishes of St. Lawrence and St. Michael had 1459 and 1264 inhabitants respectively.

The corporation consists of a mayor, twelve aldermen, sixteen common-councillors, and other officers. The borough returned two members up to the passing of the Reform Bill, by which it was disestablished. Appleby was distinguished by its adherence to Charles I. in the contest between that prince and his parliament. The Countess of Pembroke fortified the castle for the king, but it was forced to surrender.

APPOGGIATURA, in music (from the Italian verb appoggiare, to lean on), commonly called a grace note, or note of embellishment, but more correctly, a note of expression. This is invariably written in a smaller character than the essential notes of the melody. The term explains itself; the appoggiatura should always have more or less pressure of the breath or hand, being, where the notation is accurate, used for the purposes of emphasis, especially in recitative, where it is quite as important as the notes in a larger character. But in recitative it is a practice as common as erroneous, to write notes not meant to be sung, presuming the grace notes to be performed which are not represented. Thus Handel, in his Jepthah, has written a recitative in the following manner:

heard the mournful cause of all your sorrow

but meant it to be sung thus:

heard the mournful cause of all your sorrow.

It may however be a question, whether a note having a syllable, and directly to it, can properly be called an appoggiatura; but all writers on the subject do, nevertheless, so term it.

The appoggiatura takes its length, or duration, from the note it precedes, whence it is almost invariably abstracts one half; except in the case of a dotted or pointed note, from which it takes two-thirds. Example:—

As written.

As performed.

Occasionally, the small note is not only written, but intended to be performed, as a very short one. For instance: a small semiquaver sometimes precedes a crotchet, or a minim, where, if it be from a distance above to the principal note, which is rare, it is merely a note of animation. If it be the semitone, the octave, or indeed any interval below the principal note, it is then called an acciacatura, or crush-note, (from acciacere, to crush, to pound) and is to be forced and short. The appoggiatura, M. Fraymer observes, gives tenderness to the air; it therefore is not adapted to music of an energetic or majestic kind. In the hands of an accomplished performer it is the most expressive, the most important embellishment intrusted to his discretion, degree modern composers, unwilling, perhaps, to repose too much confidence in those who are to execute their works, generally write all that they mean to be introduced, trusting nothing to the caprice of the interpreter. Hence:

APPRAISSMENT, from apprécier, apprizer, or apprayer, to set a price upon an article. When goods have been taken under a distress for rent, it is necessary, in order to enable the landlord to sell them according to the provisions of the statute of William and Mary, sess. i. c. 5, that they should be previously appraised or valued by two appraisers. These appraisers are sworn by the sheriff, under-sheriff, or constable, to appraise the goods truly according to the best of their understanding. After such an appraisement has been made, the landlord may proceed to sell the goods for the best price that can be procured. By the statute 48 Geo. III. c. 140, an ad valorem stamp duty is imposed upon appraisements.

APPRAISERS are persons employed to value property. By the statute 46 Geo. III. c. 43, it was first required that any person exercising the calling of an appraiser should annually take out a license to act as such, stating his name and place of abode, and signed by two commissioners of stamps. By the same statute a stamp duty of 6s. was imposed upon such licenses; and unlicensed persons were forbidden to act as appraisers under a penalty of 50l. The same duty has been continued by the General Stamp Act, 48 Geo. III. c. 149.

APPRENTICE, from aprendre, to learn, signifies a person bound by indenture to serve a master for a certain term, receiving, in return for his services, instruction in his master's profession or art, or occupation. In addition to this, the master is usually bound to provide the necessary food and clothing for the apprentice, and sometimes to pay him small wages, but most commonly the master receives a premium. Formerly it was used to denote an applicant of the common law in the societies of the inns of court who—having completed their professional education by ten years' study in those societies, at which time they were qualified to leave their inns and to execute the full office of an advocate, upon admission by writ to the bench of sergeant-at-law—were yet of sufficient standing to be allowed to practise in all courts of law except the court of Common Pleas. This denomination of apprentice (in law Latin, contemptu legem nobis—out of reach of law, or simply apprensius ad lege) appears to have continued until the close of the sixteenth century, after which this term fell into disuse, and we find the same class of advocates designated, from their pleading without and as our barristers, now shortened into the well-known term, barrister. (See Spelman's Gloss. ad verbum; Blackstone's Commentaries, vol. i. 23; vol. iii. 27.)

Apprenticeship appears to have been unknown to the ancients; and although it has been stated that in Rome the distribution of the citizens into companies or colleges according to their trades took place at an early period, we can discern in the Roman history no distinct traces of such a system as apprenticeship. Its origin is to be sought in
The institutions of modern Europe, and it probably sprung up in conjunction with the system of associating handicraft trades in the twelfth century, the natural result, perhaps, of the great need which was felt for a means of protection against feudal oppression. The restraint of free competition, the assertion of peculiar privileges, and the limitation of the numbers of such as should participate in these privileges, were the main results to which these institutions tended; and for these purposes a more obvious or effective instrument than apprenticeship could hardly be found. To exercise a trade, it was necessary to be free of the compagnon and of the master, an order, a guild, or a company of masters, and not to be restricted to the only mode of acquiring this freedom in early times was by serving an apprenticeship to a member of the body, it became easy to limit the numbers admitted to this privilege, either by the length of apprenticeship required, or more immediately by limiting the number of apprenticeships be taken by each master. So strict in some instances were these regulations, that no master was allowed to take as an apprentice any but his own son. In agriculture, apprenticeship, thought in some comparatively later instances encouraged by positive laws, has never prevailed to any great extent, which is probably to be attributed to its origin as a part of the system of associated trades. The tendency to associate extends through the societies of agriculture, population, combination being, to the scattered inhabitants of the country, inconvenient and often impracticable; whereas the inhabitants of towns are, by their very position, invited to it.

Subsequently to the twelfth century, apprenticeship has prevailed in almost every part of Europe. In France, Germany, Italy, and Spain, it may be distinctly traced, and it probably existed in various other countries. It is asserted by Adam Smith, that seven years seemed antiently to have been all over Europe the usual term established for the duration of apprenticeships in most trades. There seems, however, to have been no settled rule on this subject, for the term of apprenticeship, in this respect varied not only in different countries, but in different incorporated trades in the same town.

In Italy, the Latin term for the contract of apprenticeship was accovestitatio. From an old form of an Italian instrument, given by Beier in his learned work De Collectivo Opificio, it appears that the contract, which in most respects closely resembled English indentures of apprenticeship, was signed by the father or other friend of the child, and not by the boy himself, the latter testifying his consent to the agreement merely by being present.

In France, the trading associations prevailed to a great extent in the cities, and in the country, under the name of 'Communautés.' At the latter end of the seventeenth century, there were in Paris six 'Corps de Marchands,' and one hundred and twenty-nine 'Communautés,' or companies of tradesmen, each fraternity having its own rules and laws. All the terms of apprenticeship in these varied from three to ten years. It was an invariable rule in the 'Corps de Marchands,' which was generally followed in the 'Communautés,' that no master should have more than one apprentice at a time. There was also a regulation that no one could exercise his trade as a master until, in addition to his apprenticeship, he had served a certain number of years as a journeyman. During the latter term he was called the 'compagnon' of his master, and the term itself was called his 'compagnonage.' He had also, before being admitted to practise his trade as master, to deliver to the 'jurande,' or warden of the commune, his proficiency in his art, called his 'chef d'oeuvre.' He was then said 'aspirer à la maîtrise.' The sons of merchants living in their fathers' house till seventeen years of age, and following his trade, were reputed to have served their apprenticeship, and became entitled to become masters; but those who actually left the contract of apprenticeship ceased in France to be imperative upon the artisan, it has not fallen into disuse; and an act passed the 12th of April, 1805, prescribes the rights and duties both of master and apprentices. It does not, however, lay down any particular form, and leaves the time and other conditions of the contract to be determined by the parties.

In Germany, though we find the same institution, it varies much in its enactments, but has some other remarkable peculiarities. The companies there called 'Handwerkszünfte' or 'Handwerkszünften,' appear to have exercised in many respects a sort of judicial control over their members, and, either on account of moral or physical defects, to have refused admission to applicants who had, perhaps, come through the regular stages of instruction. The company which continues to the present day is as follows:—The apprentices, after having served the term prescribed by their indenture (aufstiegs-brief), is admitted into the company by a subscription (schenkung), which amount is paid after ten years to the master apprentice, who has served in any respect to the French compagnon. Having passed through the years of his apprenticeship, called lehrjahre, satisfactorily, he becomes entitled to receive from the masters and companions of the guild a certificate, or general letter of recommendation (hundeschaft), which testifies that he has duly served his apprenticeship, and has been admitted a member of the company, and commands him to the good offices of the master, who is to be his kundschaft to procure admission into the fellowship and privileges of his brother workmen of the same craft. On his return home, he is entitled, upon producing certificates from any of the masters of his good conduct during his sojourn abroad, to become a master. In Germany, the periods of servitude have varied in different states and at different periods; in general, the term is seven years; but in some instances an apprenticeship of five or six years is sufficient. In this respect varied not only in different countries, but in different incorporated trades in the same town.

Neither in Ireland nor in Scotland have the laws relating to associated trades or apprentices been very rigorously enforced. In the former, the same system of guilds and companies certainly existed; but, as it was the policy of the English government to encourage sedentary industry, all attention was paid to their exclusive privileges; and in 1672 the Lord Lieutenant and Council, under authority of an Act of Parliament, issued a set of rules and regulations for all the walled towns in Ireland, by which any foreigner was allowed to become free of the guilds and fraternities of tradesmen on payment of a fine of 20s. A statute containing very similar enactments was passed in 19 George III. The term of apprenticeship was fixed at five years to the moderate length, five years being required by 2 Anne, c. 4, for the linen manufacture, which, by 10 George I., c. 2, was reduced to four years. It is asserted by Adam Smith, that there is no country in Europe in which corporation laws are so little observed; and that when they are observed, there is there a common term of apprenticeship even in the nicer trades, but there is no general law on the subject, the custom being different in different communities. It is, perhaps, impossible to ascertain precisely at what time apprenticeships first came into general use in England. But that the institution is one of very old date is certain, being probably contemporaneous with the formation of the companies of the guilds. In the states of the continent, however, there is no reference to such an institution for about 300 years after the guilds are known to have existed, apprentices being first incidentally noticed in an act (21 Hacht. c. 3, 1838), which contains the singular enactment, that no one shall bind his son or daughter apprentice unless he have land or rent to the value of 20s. This act was afterwards repealed, and it was stated to be the scarcity of labourers in husbandry, in consequence of the custom of binding children apprentices to trades. In the act (5 Henry VI. c. 11) which repealed this statute in favour of the city of London, the punishment of taking apprentices is stated to have been at that time a custom of London time out of mind. The same statute was repealed (by the 11th Henry VII. c. 11) in favour of the citizens of Norwich, and (by the 19th Henry VIII. c. 11) in favour of the worsted-makers of Norfolk; and in the former...
not we find the first mention of any particular term of servitude, the custom of the worsted-sheerers of Norwich being confirmed by it, which required an apprenticeship of seven years. Except in London, it does not appear that at an early period there was in England any uniform practice in this respect. In the court of common pleas, there was a matter for agreement between the parties to the contract. In Maxon’s *Formulae Anglicane*, there is an indention of apprenticeship dated in the reign of Henry IV., which is nearly in the same form as the modern instrument; and that the binding is to a master for six years. It is, however, probable that before the statute of the 5th Eliz. c. 4. the term of apprenticeship was seldom less than seven years. In London, the period of seven years was at the least was expressed in the statute as the custom of the shortest. In 1586, Sir Thomas Smith, in his *Commonwealth of England*, written about the time of the passing of the statute of Eliz., says, in reference to the previous practice, that the apprentices served, some for seven or eight years, some nine or ten years, as the master and the friends of the young man shall think meet, or can agree together.

The statute of the 5 and 6 Edw. VI. c. 6, which enacts that no person shall weave broad woollen cloth, unless he has served a seven years’ apprenticeship, may be adduced as a further proof that this term was fast becoming the customary one, when, by the 5th Eliz. c. 4, it was made the law of the land, and one uniform practice in all trades introduced into the whole kingdom. But not even by that statute, nor by the customs of London and Norwich, which were excepted by the act, was a longer term of apprenticeship than seven years forbidden.

At the time the act was passed, in early times, were an important, and often a formidable body. They derived consequence from their numbers, the superior birth of many of them, and the wealth of their masters, but particularly from their union, and the spirit of freemasonry which prevailed among them. The author of a curious poem published in 1647, entitled *The Honour of London Apprentices*, observes, in his preface, that ‘from all shires and counties of the kingdom of England and dominion of Wales, the sons of knighthoods, gentlemen, tradesmen, and tradesmen, come up from their particular places of nativity and are bound to be prentices in London.’ He also mentions ‘the unimposing correspondence that is amongst that innumerable company.’

It may be truly supposed that such a body, in the midst of a large metropolis, densely crowded with population, and frequented by strangers of all kinds, was not a little obnoxious to the police; and accordingly, we find of several incidents of a collision of apprentices and tumults, and some instances of serious and alarming insurrections arising among the apprentices. Thus the riot in London against foreign artificers, which took place on the day of May, 1571, that day was called ‘Evil May Day,’ was commenced and encouraged by the apprentices.

In the year 1595, certain apprentices in London were imprisoned by the Star-Chamber for a riot; upon which, several of their fellows assembled and released them by breaking open the prisons. Many of these were taken and publicly whipped by order of the Lord Mayor. This caused a much more formidable disturbance; for 400 or 500 apprentices assembled in the Tower-square, and marched with a drum in a warlike manner to take possession of the person of the Lord Mayor, and, upon the principle of retaliation, to whip him through the streets. Several of the ring leaders in this riot were convicted of high treason. (See *Criminal Trials*, vol. i. p. 317.)

In the troubles of the civil wars the apprentices of London took an active part as a political body; numerous petitions were presented from them to the parliament, and they received the thanks of the House for their good affections. Nor did they confine their interference merely to petitions, but, under sanction of an ordinance of parliament promising to them security against forfeiture of their indentures, they went through the streets and by-laws of the town in the restoration, and in the reign of Charles II. they were frequently engaged in tumults. The last serious riot in which they were concerned took place in 1662. On this occasion a warrant was issued by the city of London to clear the streets during the holidays, and proceeded to pull down the disorderly houses in the city. For this exploit, several of them were tried and executed for high treason.
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APP

indenture, so that binding by dued-poll, or by an agreement to execute an indenture, or a parol binding, have been held not to constitute an apprenticeship, though, by statute 36 Geo. II. c. 11, a binding by deed not indentured will enable a master to establish an apprenticeship. By statute of 43 Eliz. c. 9, confirmed by 8 and 9 Wm. III. c. 30, and by subsequent acts, the churchwardens and overseers of a parish, with the consent of two justices of the peace, may establish a parish apprenticeship until the age of twenty-one, and not only persons in husbandry and trade, but gentlemen of fortune and clergymen may be compelled to take them. But if such master is dissatisfied, he may appeal to the sessions. Parties who are already bound (2 and 3 Anne, c. 6) to the sea service; and masters and owners of ships are obliged to take one or more according to the tonnage of the vessel. Various regulations have been made by several acts of parliament, and in particular by 56 Geo. III. c. 129, for ensuring that parish apprentices shall be bound to proper masters, and securing them from ill-treatment. A settlement is made by apprentices in the parish where they last resided forty days during the service. (13 and 14 Car. II. c. 12.) [See Poor Law and Settlement.]

An indenture cannot be assigned over, either by common law or equity, but by custom it may. Thus, by the custom of London, a person and his assign may sell his indentures. Parish apprentices may also, (24 Geo. III. c. 57, s. 7,) with the consent of two justices, be assigned over by indenture on the indentures. An indenture is determinable by the consent of all the parties, or by the death of the master, apprenticeship being a personal trust between master and servant. But it is said that the executor may bind the apprentice to another master for the remainder of his term. And if there is any covenant to maintain, the executor is bound to discharge this as far as he has assets. In the case of a parish apprentice (32 Geo. III. c. 57, s. 1), this obligation only lasts for three months, where the apprentices-fee is not more than six pounds, and in such circumstances, was said to be suspended, unless upon application by the widow or executor, &c. of the master to two justices, the apprentice is ordered to serve such applicant for the remainder of the term. By the custom of London, if the master of an apprentice die, the service must be continued with the widow, if she continue to carry on the trade. In other cases, it is incumbent on the executor to put the apprentice to another master of the same trade. By the Bankrupt's Act, 6 Geo. IV. c. 16, s. 49, it is enacted, that the issuing of a commission against a master shall be a complete discharge of an indenture of apprenticeship; and where an apprentice-fee has been paid to the bankrupt, the commissioners are authorized to order any sum to be paid on the account on the use of the apprentice which they may think reasonable.

A master may by law moderately chastise his apprentice for misbehaviour. He cannot, of his own accord, discharge him, if he has been appointed to an office of a master, or an apprentice against his master, on application of either party to the sessions, by 3 Eliz. c. 4, or to two justices in the case of a parish apprentice, by 20 Geo. II. c. 19, and other acts, a power is given to punish or to discharge the apprentice, and in some cases to fine the master. If any apprentice, whose premium does not exceed 10l., run away from his master, he may be compelled (6 Geo. III. c. 26) to serve beyond his term for the time he absented himself, or make compensation for the damages done at an assessment: if he enters another person's service, his master is entitled to his earnings, and he may bring an action against any one who has enticed him away.

The main objections to apprenticeship are, its interference with the property which every man has, or ought to have, in his own labour, and its encroachment not only on the liberty of the poor, but also of those who might be disposed to employ him, and who may safely be allowed to judge whether he is fit to be employed or not. To requisite in the more common mechanical trades the same length of service as in the liberal arts, is not only uneconomical, but is manifestly unnecessary and inexpedient; and it is obvious that long apprenticeships have a tendency rather to repress than to encourage a love of industry, as an apprentice is excluded from the greatest incentive to voluntary labour, namely, a participation in the fruits of his exertions or skill. Most of these objections may, however, be met and overcome rather than a voluntary contract, and are of course removed by the present state of the law. At the age at which apprentices are usually bound some objection to restraint is scarcely determinable; and it is more easily borne by those who are practically interested in the question. Approaches, the general term given to the trenches, excavated by the besiegers, for the purpose of forming roads, by which he may advance from his camp to the foot of the breach made in the walls of a fortress without being exposed to the view of the defenders. These approaches sometimes consist of covering masses only, formed either with earth in bags, with faggots, stuffed gabions, wool-packs, or bales of cotten.

APPROVER. By our ancient law, where a person who had been arrested, imprisoned, and indicted for treason or felony, confessed the crime charged in the indictment, and was admitted by the court to reveal on oath the accomplices of the king or crown. The judge or court might in their discretion give judgment and award execution upon the party confessing, or admit him to be an approver. In the latter case a coroner was directed to receive and record the particulars of the approver's discourse, which was to be presented to the king. The process was thereupon issued to apprehend and try the approvers, viz. the persons whom the approver had impeached as the partners of his crime.

As the approver, in revealing his accomplices, rendered himself liable to the punishment due to the crime which he had confessed, and was only respite at the discretion of the court, it was conceivable that an accusation, made under such circumstances, was intended to penalize the accused, and the accomplices were therefore put upon their trial without the intervention of a grand jury.

Here, however, as in other appeals [see Appeal] the parties accused by the approver were not enabled to choose the mode of trial, and the approver might be compelled to fight each of his accomplices in succession. But, unlike an appeal by an innocent person, the prosecution at the suit of an approver might be defeated and discharged by a pardon granted by the king either to the approver or to the approver.

If the approver failed to make good his appeal, judgment of death was given against him. If he succeeded in cogging the approver, he was compelled to pay a small daily allowance from the time of being admitted approver, and to a pardon from the king.

The appeal by approvers had become obsolete before the abolition of it, which was done by the act 9 Geo. III. c. 66, which prefer a bill of indictment against all parties implicated in the charge, and to permit the criminal who confesses his guilt to give evidence against his companions before the grand jury. If upon the trial the demeanour and testimony of the accomplice is satisfactory to the court, he is recommended to the mercy of the crown. [See 2 Hawk. Crown Law, ch. 24.]

APPROXIMATION, from the Latin, signifies a drawing near to. In mathematics, results are said to be found by approximation, when the process employed gives nearly, but not exactly, the result required.

Strictly speaking, the observed phenomena in every branch of experimental philosophy are approximations, more or less near, to the truth. Thus the distance of the sun, or the diameter of a planet, are only known approximately, but general custom does not sanction the application of the term to any 'drawing near' in which the imperfect results vary from error of the senses, or of instruments. It is only when the defects of mathematical analysis oblige us to be content with a formula which gives results only nearly true, that the latter are said to be approximate. To this part of the subject, then, we confine our description of approximations, a necessary distinction is to be made between approximations, and the conditions of the question. But the fault is not in the
processes themselves, but in the problems which it is necessary to submit to them, and in the nature of arithmetical, as distinguished from geometrical, magnitude. It is worth while, briefly, to elucidate this point. In geometry, the mind conceives one line or angle to differ from another by some one point, so that one kind of magnitude is as good as another, and a magnitude is rather imagined to be given, than actually given. If we attempt to construct the line or angle of geometry, we must have recourse to approximation, and that of the circle to the fraction, the error as great as the square of the sense. It is only by laying down the postulate that any line or angle can be assigned independently of all mechanical methods, that geometry becomes a science of absolute exactness. In arithmetic, on the contrary, the very first hint of numerical point renders a theoretical difficulty in the way. We can imagine to live or increase continuously: that is, in such a way that it shall not increase from one to two feet, without previously assuming every possible length which lies between one and two feet. This idea is forced upon us whenever we see points moving to or from each other. But it is therefore true, that every possible length which is greater than one foot and less than two, can be expressed by one foot and some determinate number of fractions of a foot. This question reduces itself to the following. Let A D be 

\[ \frac{A}{B} + \frac{C}{D} > \frac{A}{B} \]

greater than \( \frac{A}{B} \) (one foot), and less than \( \frac{B}{C} \) (two feet); if \( \frac{B}{C} \) be successively divided into two equal parts, three equal parts, and so on, until one term exceeds the other, and then that some one or other of the subdivisions must of necessity fall upon the point D, previously taken at hazard? If we appealed to the evidence of the senses, we should certainly answer in the affirmative, for, though the finest compasses which we could imagine to construct the point D, should be used, we should soon find some point of subdivision so near to D, as not to be distinguishable from it by the severest test our senses could apply. But our mechanical points are nimble: they will have the mathematical point in any length, breadth, or thickness. Conceive the latter, and the affirmative answer does not appear self-evident; for though the confusion of the points of subdivision is unlimited, the number of points which can be taken in the line is also unlimited. But we can demonstratively answer the question in the negative (see the Society's Treatise on the Study of Mathematics, p. 81): as an instance, let B D be equal to the side of that square of which B C is the diagonal, or let B D be the circumference of that circle of which B D is the diameter. In neither case can one of the subdivisions of B C ever fall on D.

Here then is a fruitful source of the necessity of having recourse to approximation, since we cannot be sure that any required relation between concrete magnitudes is absolutely expressible in numbers. In fact, we may state the following as a result of experience, though, not so far as we know, capable of demonstration: numbers being taken at hazard, and submitted to any test by which the solution of an equation higher than the first degree, the odds are greater than can be assigned against obtaining an absolute result without approximation. In a common table of logarithms, fixing at hazard upon any number, the odds are nearly seventeen thousand to one against choosing a number of which the logarithm can be exactly given.

This would appear to throw an air of uncertainty over almost all the claims of pure mathematics, and justly so, if it were not for the fortunate turn, which except so far as the labour of approximation is concerned, renders it practically immaterial whether a result is obtained exactly, or by approximation. Any equation whatsoever, which expresses the conditions of a possible problem, if not capable of exact solution, may yet be so far satisfied that a number or fraction can be found, which, on being tried in the given equation, shall produce an error smaller than any we may think it necessary to name at the outset. For instance, the ratio which the circumference of a circle bears to its diameter does not admit of an exact and absolute determination. If any two numbers be named, their ratio is either too great or too small. But supposing it asked to determine the circumference of a circle from a diameter so nearly, that the error would not be so much as a foot for every hundred miles of diameter, or in that proportion. It can be shown to be more than sufficient for this purpose to multiply the diameter by 3.55 and divide by 113; which, if the diameter were 100 miles, would give 314 miles, 280 yards, and one foot. This, though too small, is within the conditions of the question, not being too small by one foot. Again, though it is impossible exactly to express the equation \( x - 2 = 0 \), that is, to find a fraction which, multiplied by itself, shall make 2, yet naming any fraction, however small, at pleasure, for example, one millionth or \( 0.000001 \), it is possible so to determine \( x \), that \( x^2 - 2 \), though not absolutely nothing, shall be less than the parts of the fraction required. Nor therefore content ourselves with giving a general view of one of the great methods, we might say, the great method, usually employed, and shall thereby, in succeeding articles, show the young mathematician that various methods, upon which he must have come in the course of his reading, contain a common principle, though disguised under various forms of calculation which it is necessary to employ in different cases. We must now suppose the reader acquainted with the elements of the differential calculus.

It is not our purpose here to enter upon methods of approximation: no space which we could devote to the subject would suffice to explain any of them with sufficient detail to render them clear. It is sufficient for our purpose to content ourselves with giving a general view of one of the great methods, we might say, the great method, usually employed, and shall thereby, in succeeding articles, show the young mathematician that various methods, upon which he must have come in the course of his reading, contain a common principle, though disguised under various forms of calculation which it is necessary to employ in different cases. We must now suppose the reader acquainted with the elements of the differential calculus.

When a number is given, and certain processes are also known, so that they can be performed either exactly or approximately, we are in possession of the solution of the following question: given the number, and the process, to find the result of the latter. Hence immediately the reason for inquiry into the inverse question—knowing the process, and the result of it, what was the number on which the process was employed? The way of finding this number is called the inverse process; and, in the event of the occurrence, a name is given to it, and the rule for finding it is put into words, and arranged in its most systematic form. Thus the process of squaring or multiplying a number by itself, is known when the result is given, and the question is easily answered, what is the square of 24 or any other number, or what results from the process of squaring employed upon the number 24? From this arise such questions as the following:—The result of squaring is found to be 50; what number was employed? The number that can be answered approximately; that is, no number squared can give exactly 50, though one can be found, the square of which is as near 50 as we please. This operation occurs sufficiently often to receive the name of the extraction of the square root, and the rule for approximating to it is well known. We can now carry the generalization a step farther, for the result of the last is to put a new process into our hands which we may consider as direct, since, the means of performing it in the case, approximately at least, have been found. We may now ask, what is the result of the process denoted by

\[ x^2 + \sqrt{x^2 - 1} \]

any number being substituted instead of \( x \); but the inverse question—namely, suppose the above process to have been performed, and the result to be 20; what number was employed?—remains to be answered. Neither the direct nor inverse process in this case has received a name; and it is evident that, name as many as we may, each addition will give new processes, require new inverse processes, and so on ad infinitum. Previous to entering upon the process of approximation, it is necessary to inquire into the effect which a small change in the number employed would produce upon the result. We say a small change, because changes of any magnitude are extremely rare in such problems, and are not included in the subject of this Essay. The consideration of the effect of such changes is, among other things, the object of the differential calculus; into which we can here enter no further than to state, that in connection with every process it shows others, which we shall here call by the names of the first derived process, the second derived process, &c.; the two first of which are indispensable, the first for obtaining the approximation in the case, and the second for investigating the accuracy to which the approximation has been carried. These derived processes (as we here call them) are the first and second differential coefficients. [See Differential Calculus.]

Let \( f(x) \) represent the required process or function. Let \( f'(x) \) and \( f''(x) \) represent its first and second derived functions. We suppose this notation known to the reader; but any one who has studied algebra may be prepared to follow us by
reading the first thirteen pages of the Society's treatise, 
entitled *Elementary Illustrations of the Differential and 
Integral Calculus*. If the operations which $f$ indicates to 
have been performed upon $x$, be successively performed on 
$s$ and $s + h$, giving $f$ and $f/(s + h)$, it may be proved that 

$$f(s + h) = f(s) + h f'(s) + \frac{h^2}{2} f''(s + \theta h),$$

(A),

where $\theta$ is a fraction less than unity, or $\theta h$ is less than $h$. 
This rule only admits of exception where $f(x)$ is such that 
either $f''x$ becomes very large, or $f'(x) \text{ very small, for some } 
\text{value of } x \text{ lying between } a \text{ and } a + h; \text{ and since in approxi-} 
mations $h$ is a small quantity, this will rarely happen, 
and when it does happen, the results of an attempt to ap- 
proximate will soon point it out. Let us now suppose that 
we wish to find $x$ in such a way that $f(x) = 0$. Every case 
may be easily reduced to this: for example, to solve $x^2$ 
is to find or approximate to a value of $x$, which makes $x^2$ 
$= 7 - 0.$ The first step is to find by trial some value of $x$ 
which will very nearly satisfy the proposed condition, that is 
to find $a$, so that $f(a)$ shall be small. No general rule can 
be given for this part of the process, which is, however, 
easily done in most cases. To carry an example with us, 
let us suppose it required to solve the equation:

$$x^2 - 2x - 5 = 0,$$

or to make

$$x^2 - 2x - 5 = 0.$$

Here $f(x) = x^2 - 2x - 5$, and, by the rules of the differential 
calculus, $f''x = 2x - 2$, and $f''x = 2x$. We soon find 
that there is a root between 2 and 2, for if $x = 5$, then 
$x^2 - 2x - 5 = 4$, and if $x = 2.1$, it is 0.06: the first less than 
5, the latter greater, but not much. We therefore take 2.1 
as the approximate value of $x$, found by trial.

Returning now to equation (A), let us suppose $a$ the 
approximate value increased by $h$, in such a way that $a + h$ 
shall be the real value of $x$, required, or $f(a + h) = 0$.

This gives

$$h = \frac{f(a)}{f(a) + \frac{1}{2} h f''(a + \theta h)} \quad (B),$$

in which $h$ is not strictly speaking, determined, because it 
orcours on the second as well as the first side. But $h$ is 
small, because $a$ is nearly the value required, and therefore 
we may approximate to the value of $h$ from (B) by rejecting 
the small term

$$\frac{1}{2} h f''(a + \theta h)$$

from the denominator of the fraction, which gives

$$h = \frac{f(a)}{f(a)} \quad \text{for an approximate value of } h,$$

so that the new value of $x$ obtained from the step just made is

$$a = \frac{f(a)}{f(a)}.$$

With this new value of $x$ we may recommence the process, 
and find a new correction; and so on.

Resuming the example, we find putting $a = 2.1$,

$$f(a) = 2.1 - 2 = 0.25,$$

$$f'(a) = 3a^2 - 2 = 11.23,$$

$$x = a - \frac{f(a)}{f(a)} = -0.0034 \text{ nearly,}$$

$$11.23$$

$$a = -0.0034 \text{ nearly,}$$

$$2.0049 \text{ nearly.}$$

Trying this value in $x^2 - 2x - 5$, we find it '005, nearly, 
less than the tenth part of its preceding value. With 
2.0049 for $a$, the process must be now repeated.

The degree of approximation thus obtained may be esti- 

mated as follows, though we can only very briefly explain it 
to those who have no more practice in the differential calculus 
than we have hitherto supposed. Resuming the correct 
equation (B), we see that, if we call $f(a)$, as obtained, a small 
quantity of the first order, $f'(a)$ of the second, and so on, 
then $h$ will be of the same order as $f(a)$, unless $f'(a)$ be also 
of this order, which is one of the exceptions. Hence, in 
rejecting $\theta h$, we reject directly only of the first order of 
the term $f''(a + \theta h)$, or of the second from $\frac{1}{2} h f''(a + \theta h)$, 
or of the third order from the whole fraction, since $f(a)$ is 
\text{itself of the first order. This will appear from the develop- 
ment of the second side of (B) by common division. Thus} \begin{align*} 
- \frac{f(a)}{f(a) + \frac{1}{2} h f''(a)} 
\end{align*} 
\text{as far as terms of the second order, we have} 
$$h = -\frac{f(a)}{f(a) + \frac{1}{2} h f''(a)} \frac{1}{1 - \frac{1}{2} h f''(a) + \ldots}$$

in which, if on the second side we write $\frac{1}{f'(a) h}$ for $h$, which 
rejects terms of the second order only, we still reject terms of the 
third order only in the value of $h$. Hence 
$$h = -\frac{f(a)}{f(a) + \frac{1}{2} h f''(a)} \left(1 - \frac{1}{f'(a) h} f'(a) + \ldots\right)$$

nearly, 

and its ratio to its preceding value is $\frac{-1}{2} \left(\frac{1}{f'(a) h}\right)$, 
whence $\frac{-1}{f'(a) h} \frac{f(a)}{f(a) + \frac{1}{2} h f''(a)}$ represents roughly the greatest part 
of itself, by which the correction $\frac{1}{f'(a) h}$ may be erroneous, the 
sign indicating whether it is too small or too great. In 
the preceding example, where $a = 2.1$, and where 
$$f(a) = 0.25 - 2.1 = 0.061,$$

$$f'(a) = 3a^2 - 2 = 11.23,$$

$$f''(a) = 6a = 12.6$$

the preceding fraction is roughly $\frac{1}{32}$ so that the correction 
0.065 may possibly be one thirty-second of itself too 
great, or about 0.002 too great.

This method does not appear to be of much use for the 
second approximation; but becomes more powerful at every 
succeeding step. Whatever number of correct decimal 
digits is obtained at the end of any one of our successive 
approximations, it is, roughly speaking, doubled by the next; 
since the second term of the preceding development of $h$ being 
$$\frac{1}{f'(a) h} \frac{f(a)}{f(a) + \frac{1}{2} h f''(a)} \left(\frac{f(a)}{f(a)}\right),$$

is of the same order as the square of $h$, or of the same 
order as

$$\left(\frac{f(a)}{f(a)}\right)^2.$$

In treating the various articles, *DIVISION, SQUARE ROOT, 
\&c., EQUATION*, we shall show that principles analogous to 
the preceding have been adopted in the rules for approxi- 
mating.

Various methods of approximation are found in the Hindoo 
Algebra; but, as far as we can find, Vieta is the first who 
generalized the main principle so far as to connect the 
approximate solution of equations with the particular cases 
of division and the square root, which were known by both 
Hutton, in his *History of Algebra*, (see his Tracts), attributes 
this extension to Stevius, but on searching the works of 
the latter, we cannot find anything which, in our opinion, 
justifies the assertion. The connexion of the arithmetical 
rules, in which successive figures are successively found, 
with the preceding, will not at once be obvious; but our 
limits oblige us to refer to *Equation* on this point. Newton 
first applied the theory of derived functions directly to 
algorithmic equations; and the method was further extended 
by Lagrange.

APRICOT is a well-known fruit, cultivated commonly in 
this and other European countries. The old English name is 
apricos, of which apricot is probably a corruption. Like 
many other domesticated plants, the native country of the 
apricot tree is unknown: from the name it bears among the 
Romans, *Armeniacus*, it would appear to have been a native 
of Armenia, to which country it is in fact assigned by both 
Pliny and Columella. It has, however, been represented 
by M. Regnier, a French writer, that it is rather a 
native of the Oases of the Desert of Egypt, an opinion that 
seems to have been formed upon these circumstances: 
firstly, that the modern Greeks call the fruit *Armenia*, 
which is nearly the same as the Arabic name *Berthacus*; 
secondly, that vast quantities of this fruit are actually 
dried in the Oases and brought to Egypt, where they are
Besides the true apricot there are occasionally seen in the gardens of the black and crimson clay, in the southern provinces, one being Prunus daucarpa, and the other Prunus Sibiriaca, neither of which is at all worth the trouble of culti-
vating: they are small, dark purple, acid fruits, and merely objects of curiosity.

APRIL.—The Egyptian king, the son of Psammetichus, (Her-rod, ii. 161,) otherwise called Psammuthius; he was the eighth king of the twenty-sixth dynasty, (Eusebius,) and the seventh according to Archelaus. His name is also written Tepes, and is the epithet of the Greek hero in the Hebrew his-
tory under the name of Pharaoh Hophra (Jeremiah xxxiv. 30). Apries succeeded his father n.c. 593, and reigned twenty-
five years. Early in his reign (n.c. 586) Jerusalem was plundered by Psammuthius; after a great number of the people of Judah took refuge in Egypt, under the pro-
duction of Johnathan, who carried the prophet Jeremiah with him to Tahpanhes. (Daphne,) then the residence of the
Egyptian king. Apries, as we learn from Herodotus, made an expedition against Cyprus, and had a naval engagement with the Tyrians. Near the close of his reign he sent an
army against the Greeks of Cyrene, which was defeated
with great loss. This caused a revolt among the Egyptians,
which ended in the dethronement and execution of Apries
about n.c. 586, or 585. [See AMARIS.] He was buried in the
tombs near the great temple of Athena at Sais, where his
ancestors of the Saitic dynasty were interred (Herod. ii. 169).

APRIL, the fourth month of the year, consists of thirty
days, which is an indication of its vigour. At Tell Marab-
num, Numa Pomphilius deprived it of one day, which Julius
Caesar restored, and which it has ever since retained. In
the original Alban or Latin Calendar, April held the first
station of the year, and the Luni-Solar Month, and was
Lexicon Antiq. Romanum, tom. i. p. 129; Brady's Clavis Ca-
cendaria, p. 67) Its name is usually considered to have
been derived from apricis, to open; either from the opening
of the buds, or of the bosom of the earth in producing vege-
tation. [See APRICIDAE, APRICID.] As an eastern exposure is extremely unfavourable to them, at least
on the east side of the island. The fruit produced upon
walls is the finest, but that from standards is by far the best
flavoured.

Of the kinds that are cultivated upon walls there are only
three that are much worth having, namely, the orange for
preserving, and the Moorpark and Turkey for the table;
several others are to be met with in nurserymen's catalogues,
but they are of little importance.

There are only two sorts that deserve notice as open stand-
ards, namely, the Breda and the Brussels; the former a small
yellowish-brown unsightly kind, the latter a larger com-
pressed and angular kind, and with its fruit more uniformly
ripe. Both these, and particularly the latter, are annually loaded
with fruit in almost any situation as far north as Ipswich,
but we have not remarked them beyond that limit. For
preserving, which is the best use to which the apricot
fruit thus obtained is far superior to any other, as it com-
prises a moderate degree of acidity with a rich saccharine
quality. In the south of Europe there is a sort extensively
cultivated for preserving, which is hardly known in Great
Britain; the French call it 'Alberge, which is probably a
corruption of Alberkhaft, the Arabian name of the Misch-
miah variety, from which it is probable that the alberga is not
manifestly different; this sort is too tender for England.

The rule for training the apricot is essentially the same as those for the Peach. The practice is to arrange the
shoots upon the wall in what is called the fan fashion,
which is by making them radiate at nearly equal distances from a common centre, which is the point where the stock
and stock are united. In order to effect this, the shoots are
annually shortened back to the length of from six to eighteen
inches, according to their strength, and nailed to the wall at
from five to six inches distance from each other. Besides
this, the first shoots that are protruded in the spring should
be examined in May, and all that are superfluous ampu-
tated; the stoutest entirely, the weakest only reduced to the
length of an inch or two, when they will often become flow-
erish.

No stocks for apricots should ever be employed except the
mussel plum and the common plum for clayey, or loamy,
or sandy soil; and the seedling apricot itself for soils that
are warm and rich. All others being of inferior quality, the
so-called Brompton stock, are so unsuitable to the constitu-
tion of the apricot, as to be short-lived and worthless.
able difficulties in the way of finding where it ends and the other begins. In common language, we reason *a priori* when we infer the existence of a God from the general difficulties in the supposition of the existence of what we then call the creation, or other hypothesis; but this reason *a posteriori* when we infer the same from marks of intelligent contrivance in this particular creation with which we are acquainted.

"All *a priori* is reasoning, but frequently used in a sense which implies "*previous to any special examination." As when a sentence begins with "*a priori* we should think, *et c.", which in most cases will be found to mean nothing more than the sentence contains, it is peculiar to the speaker found his mind inclined to, when he had only heard the proposition, and before he had investigated it.

*All *a priori* reasoning is dubious, to say the least: in but very few cases, if any, are we able to say we know sufficient beforehand to render this sort of argument safe. The whole mass of school learning, the greater part of which was overturned by the inductive philosophy, was based upon *a priori* argument. But though the method is of little effect towards the establishment of truth, it is highly effective in its discovery; indeed, by the very nature of its definition, it must be the guide which points out the probable direction in which the thing sought may be found. Columbus went to look for the continent of America, in consequence of a dream in which his God informed him of its existence. *A priori* reasoning. So far he was right: but he had contented himself with writing a quarto volume to prove the existence of the new continent, by reasons which were only strong enough to beget in others less imaginative *a posteriori* reasoner would have been the real discoverer.

APSIDES, a Greek term, used to signify those points of a planisphere in which it is moving at right angles to the line drawn to the primary. These points are also those of greatest and least distance from the primary. [See APODE and PERIGEE for the moon and sun; APHELION and PERIHELION for the earth or a planet.]

APIS, a town in France, signifying an arrangement in the department of Vaucluse, about nine leagues (twenty-two miles) E. of Avignon according to Reischard's Itinerary, but considerably more (above thirty miles) by measurement on the best maps*. It is a very ancient town, having existed in the days of the Romans, who planted a colony here and gave it the name of Apta Julia. There are some remains of antiquity: the present walls are said to be of Roman origin, but it does not appear to have had an amphitheatre.

APIS is a town on the south bank of the Ceylon or Calavon, a feeder of the Durance, and there is a fine bridge of one arch over this stream. It possesses an old cathedral, (for it was a bishopric before the revolution,) in the subterranean church of the holy and ancient church. The trade of the town is in dried fruits, especially plums. The inhabitants manufacture wax candles, which are considerable; repute, woolen stuffs, hats, and leather; they also spin cotton and silk. The neighborhood furnishes ore of excellent quality, and earth for pottery. The population, according to Malte Brun is 5433. 42° 33′ N. lat., 5° 22′ E. long.

The arrangement of APIS contains 500 square miles, and above 50,000 inhabitants.

APERTAL, a term used in architecture with reference more particularly to a mode of arrangement peculiar to the temples of the ancient Greeks and Romans. It is formed from the word aperture, signifying, or 'with out wings'; and in this sense it is applied to a temple having prostyle, or porticoes of columns projecting from its fronts or ends, but of which the columns do not extend laterally, and run along the flanks from one end to the other, as in the arrangement of the citadels of the ancient cities to be conferred on him. The people of Carthage were so delighted with his eloquence, that they perpetuated the remembrance of it by erecting his statue. Several other cities paid him the same compliment. Some of his works which have been preserved may, with notes, be read hereafter.

The editions of his works are very numerous: that in most general use is the Delphini, in two volumes, quarto.

The *Golden Ass* has been very frequently translated. The *Biographie Universelle* contains the text of the Latin, and several French, besides translations into Spanish, German, Flemish, and English. W. Adlington's English translation, first printed in 1666, was reprinted in 1571, 1592, 1596, 1639, and probably later also. The latest and best English translation is that of Mr. Taylor, London. This volume contains also the treatise on the God of Spirits, and other treatises; with a life of Apuleius prefixed.

APULIA, the name of one of the divisions of southern

though some of them are professedly on the Greek model, are, nevertheless, generally, illustrations of the apertal arrangement, and of these that of St. Pancras in London may be best an example.

APULEIUS (LUCIUS), a Grecian philosopher. He lived in the second century, and was born at Madaurus in Africa. He studied first at Carthage, then at Athens, and afterwards at Rome, where he acquired the Latin language without the help of an Italian master. His prose was clear, his inquisitive disposition, especially on religious subjects; and to gratify this curiosity, he travelled extensively, and sought to obtain imitation in the various mysteries, as they were called, in which was usual among the religious and philosophical sects were veiled. Having spent a few years of his whole fortune on these journeys, he returned to Rome, and was admitted as a priest into the service of Osiris. He practised at Rome for some time as an advocate, and then, taking his son with him, he removed to Africa. Apuleius made a spirited defense; and his Apology, or Oratio de Magia, still extant, is a curious and valuable specimen of the literature of the age. The Golden Ass is a work of Apuleius, a running satire on the absurdities of magic, the crimes of the priesthood, the amorous intrigues of despoils, and the systematic outrages of thieves and robbers. The dope to the research after the philosopher's stone is affected to find authority for their fantastic science laid down, and their hopes of success encouraged, in that work. The episodes are the most valuable portions of the piece; especially that of Psyche. Many persons have taken it that is related in the story: 4t. Apuleius himself had his doubts on this head; and did not feel satisfied that Apuleus had designed this book only as a romance. Some of the antients have spoken contemptuously of this performance. Macrobius makes over the Golden Ass and all such romances to the perusal of nurses and gossips. But whatever may have been his defects, Apuleius was an unwearyed student, and has touched many passages with a masterly hand. He wrote numerous works in verse and prose, the greater part of which have been lost. He is commemorated in the Dissertation de Vita et Scriptis Apulei, prefixed by Wower, to his edition, and adopted into the Delphini. It is probable that Apuleius wrote some books in Greek as well as Latin. His works are, however, the Phaedon, and the Arithmetic of Nicomachus. He wrote treatises of Replioca, De Numeris, and De Musica. Fragments from his Table Questions, his Letters to Cerebeka, his Proverbes, his Hermagoras, and his Lyra, are scattered up and down in Latin literature. Besides his Golden Age and his Apology, his work De Dominae Platonis, containing three treatises, 1. De Philosophia Naturali, 2. De Philosophia Morali, 3. De Philosophia Rationali; his books, De Deo Secretari, De Mundo, which is a translation from Aristotle, and his Florida, have survived. He took great pleasure in declaiming, and was heard with universal applause. The effect produced by his pleading at Ceas was so great, that the people of Delphi gave him the title of a legislator, and citizenship to be conferred on him. The people of Carthage were so delighted with his eloquence, that they perpetuated the remembrance of it by erecting his statue. Several other cities paid him the same compliment. Some of his works which have been preserved have, with notes, been let out in prose. The editions of his works are very numerous: that in most general use is the Delphini, in two volumes, quarto.
Italy in the time of the Romans. Its limits were on the east and north the Adriatic Sea, on the north-west the river Brento, or perhaps the Tiberius, which divided it from the Apulia. In 305 B.C. Italy was divided into the name of Agrippa (see Herod. v. 99.), and was inhabited by

Apu. The whole course of the Apurimac may amount to nearly 350 miles.

It does not seem that either the Apurimac or any of its tributaries is adapted to the transport of commodities. Their rapid course in a stony bed between high rocks, and their rocky banks, render them entirely unfit for navigation. On the contrary, they oppose considerable obstacles to travelling by land, on account of the height and steepness of their rocky banks, and in many places cannot be passed but by bridges made of cords or willow-branches, after the fashion of which they are built.

The valleys through which they flow, though of considerable length, are rather narrow. Near the sources they are mere crevices and ravines, but lower down they widen to an average breadth of two or three miles, which sometimes extends even to five. They are, however, not without cultivation. As the upper parts of the valleys lie between 6000 and 10,000 feet above the level of the sea, no tropical productions can be raised on them, but they produce the grains of Europe, especially wheat and barley, and our fruits, as also great quantity of papas.; In the lower parts, especially towards the eastern plains, sugar, cacao, and cotton are raised in great quantity; the first is very abundant in the province of the Xauxa and Apurimac; and here the gardens are chiefly composed of melons, pine-apples. Indian corn and yams are cultivated for consumption. The mountains which skirt the valleys afford pasture for numerous herds of cattle.

The country drained by the Apurimac and its tributaries is the most important and most populous part of the republic of Peru; it comprehends the three departments of Junin or Tarma, Apurimac or Huamanga, and Cuzco. Its superior cultivation is attributed not only to its being much more fertile than the countries along the Pacific, but also probably still more to the higher degree of civilization which its inhabitants had attained, under the reign of the Incas, before the discovery of America. It is still mostly inhabited and cultivated by the industrious descendants of the ancient Peruvians, and contains many towns of importance, among which we may mention Tarma, Quencua Vélida, and Quamanga, in the valley of the Xauxa, and Cuzco, the ancient residence of the Peruvian monarchs, in the valley of the Vilcamayo. (Alcedo's Dictionary. Humboldt's Maw's Travels.)

APURIMAC RIVER. [See ORINOCO.]

APURIMAC, a river in South America, which carries off all the waters that descend from the eastern declivity of the Cordilleras, the 11th and 12th degrees of south lat. Its source is in the high range which extends to the north of Arequipa, near the 16th degree of lat., under the parallel of the northern part of the lake of Titicaca, to the north-west of that lake, and nearly under the meridian of 71°. At first it runs north; the northern declivities descend to the south-west, descending in that direction in a transverse valley of the range to the meridian of 71°, where it enters into a longitudinal valley, and suddenly changes its course to the north-west, in which direction it traverses 3° of lat., from the 16th to the 13th, and in this space its waters are increased by two tributaries, the Calcamayo and the Vilcamayo. The former joins it from the west, having gathered, in its course of about 150 miles, the waters of many small rivers, which descend from the western range of the Cordilleras in transverse valleys. The Vilcamayo runs to the east of the Apurimac, in a longitudinal valley, nearly parallel to it, from 15° to 12°; and is separated from the Apurimac by a high range of mountains. This stream runs upwards of 220 miles. Near 15° lat., the Apurimac is joined by the Jauja or Xauxa, the largest and most important of its tributaries, which rises between the 10th and 11th degrees of south lat., on the southern declivity of that chain from which, on the north, the Tunguragua and Huallaganga descend, and flows down in a longitudinal valley from north to south, till it nearly reaches the 13th degree of lat. Here it changes its course, running to the east; but it turns to the south, at the 12th degree of lat., and, as a very circular form, afterwards enters the plains, and joins the Apurimac under the 12th degree of south lat., after a course of about 300 miles.

After its junction with the Xauxa, the Apurimac runs through a part of its course in a north-eastern direction till it meets, in 16° 45' south lat., the Pangoa, which brings down all the waters descending from the eastern declivity of the mountain-range skirting the valley of the Xauxa on the east; and at this junction the name of the Apurimac is changed into that of Tumbó, under which name it unites in 19° 31' with the Parobeni, and then takes the name of Queque. The whole course of the Apurimac may amount to nearly 350 miles.

There is no doubt that either the Apurimac or any of its tributaries is adapted to the transport of commodities. Their rapid course in a stony bed between high rocks, and their rocky banks, render them entirely unfit for navigation. On the contrary, they oppose considerable obstacles to travelling by land, on account of the height and steepness of their rocky banks, and in many places cannot be passed but by bridges made of cords or willow-branches, after the fashion of which they are built. They do not mention any fish in these rivers. The only advantage which is derived from them is the fertilizing of a few low tracts along their banks, by the spreading of their waters.

The valleys through which they flow, though of considerable length, are rather narrow. Near the sources they are mere crevices and ravines, but lower down they widen to an average breadth of two or three miles, which sometimes extends even to five. They are, however, not without cultivation. As the upper parts of the valleys lie between 6000 and 10,000 feet above the level of the sea, no tropical productions can be raised on them, but they produce the grains of Europe, especially wheat and barley, and our fruits, as also great quantity of papas.; In the lower parts, especially towards the eastern plains, sugar, cacao, and cotton are raised in great quantity; the first is very abundant in the province of the Xauxa and Apurimac; and here the gardens are chiefly composed of melons, pine-apples. Indian corn and yams are cultivated for consumption. The mountains which skirt the valleys afford pasture for numerous herds of cattle.

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APUS, (Constellation,) from the Greek ἀπός, without, used to signify the bird of Paradise, the ant Indica of Linnaeus, which was formerly believed to have no heart. It is a constellation introduced by Bayer, and lies too near the south pole to be visible in our hemisphere. It is surrounded by Octans, Pavo, Triangulum Australe, and Camæleon. Its principal stars are designated as follows

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AQUAFORTIS. [See Nitric Acid.]

AQUA-REGIA. [See Chlorine.]

AQUARIUS, (Constellation,) the Water-bearer, one of the twelve zodiacal constellations. Its Greek name is Ἐρατός, the Water-pourer. In the Indian zodiac it is simply a water-jug, the name of which, according to Le- lacque, is either Bacet, from the Greek Βακτ, or Beta, an Egyptian, in which case the name of the two rivers of Egypt or Egypt, is the watery season of the year in which the sun was in this sign. Dupuis, who supports the latter opinion, thinks that Aquarius as well as Capricornus and Piscis refer to the months of the year during which the inundation...
of the Nile took place: Legentil, who advocates the latter, imagines that they represent the rainy season which is abso-
olutely necessary for the growth of the rice-crops when the
leaves of the water plants are open. The Nilotes, however,

The constellation Aquarius may be found in the heavens
by producing southward a line drawn through the bright
stars in the head of Andromeda and the wing of Pegasus.
This line passes through the two brightest stars in Aquarius,
a and b. It is continued so far as the eye can follow it,
with the exception of a point between two shoulder stars
that is on the meridian at 15, 10, 8, and 6 P.M. in the months of August, September, October, and November respectively, at an altitude of about
thirty degrees.

A distinction must be drawn between the constellation
and the sign of the zodiac (see Precession). The latter
is the part of the ecliptic which begins at the horn of the
constellation of Capricornus and runs through the middle
of the body of Aquarius, comprising the arc of longitude
between 309 and 339, and forming the sun's path between January
20th and February 20th.

The following are the designations of the various stars
in Aquarius. Those in the column marked Flamsteed, &c.,
in which there are no parentheses or letters, are as marked
by Flamsteed: those enclosed in ( ) were added in Piazzi's
catalogue: those in [ ] were added by Bradley; and the
one marked Z by Baron Zach:

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AQUATIC ANIMALS. The element in which animals
habitually reside, or to which they occasionally resort
for the purpose of procuring food or seeking shelter, is so
intimately connected with, and bears so obvious a relation
to these elements that many, even the truest zoologists, have
been accustomed to refer the outward forms and internal structure, that it is not surprising that those who first turned their attention to the
study of zoology, and sought to introduce the principles of
classification into the animal kingdom, should have
attached such great importance to it.

Animals, says Aristotle (Hist. b. i. c. 1), may be distributed into
different classes according to their manner of living, their
motions, their characteristics, and their relations, according
to their manner of living, their actions, and their
character, they are divided into terrestrial and aquatic.
The aquatic are divided into two classes; the one, as is
the case with the land animals, breathes air; the other
breathes water, breathe that element, and find their food in it; nor
do they ever leave it: the others obtain their food in the
water, and even habitually reside in it, but they do not
breathe it; they breathe air, and bring forth their young on
dry land. Among these latter some are provided with feet and
walk upon dry land, others have wings and fpy, and others,
like the water serpent, have no feet. . . . Aquatic animals
inhabit seas, lakes, marshes, and rivers. These principles of
classification, which decided how the habits of animals take
place by evidence of those modifications in their organic conformation which produce these very habits, have long since ceased to
be adopted by scientific naturalists; notwithstanding which there is perhaps something in the very nature of the
zoologist, more fruitful in extra observations and inter-
esting results, than the consideration of the organic struc-
ture of animals in relation to the element in which nature
has ordained them to live.

Let us consider, in the first place, those animals which
reside entirely in the water, and seek their food and nur-
ture their young in that element. All their organiza-
tion, even to the most minute circumstance, is rigidly
adapted to these purposes. The extremity of progression
is performed in the acts of walking and flying, would be a serious impediment to the movements of
animals residing in an element of the same specific gravity
as their own bodies: these organs accordingly are either
entirely wanting, or are reduced to mere rudiments, which serve
indeed to keep the body steady and preserve its equili-

brium, but are entirely useless in assisting its progression.
Such are the fins of fishes, and the flippers, as they are
called, of cetaceous animals. The extremity of progression
in both cases is the body itself, which is prolonged and atten-
uated towards the tail, compressed on the sides, and pro-
vided with extremely powerful muscles, with which, by
alternately sucking in the water on one side, and expell-

ing it on the other, they propel itself forward with a force and velocity unexam-
pled in any other class of animated beings. It is upon this prin-
ciple that we often see a boat urged forwards by means of a
single oar in the stern. The great majority of these ani-

mals do not only breathe, but actually live in the water;
food there, but likewise breathe that element, and are con-
sequently furnished with an appropriate apparatus for ex-
tracting the vivifying principle from its general mass. These
tribes may reside at any depth of the ocean and for any
length of time; they are not under the necessity of coming
frequently to the surface for the purpose of breathing, and
their organization is modified accordingly. Instead of hav-
ing
the tail broad horizontally, it is broad in a vertical di-
rection, which enables them to turn with astonishing rapidity,
and is no impediment, but rather an assistant to their for-
ward movements. But the case is different in the cetaceous
tribes: those animals, though residing entirely in the water,
breathe air by means of lungs like ordinary terrestrial
creatures, and are consequently obliged to come continually to the
surface.

For this purpose they are provided with a powerful carti-

liginous tail, flattened horizontally, by moving which upwards
or downwards as the occasion requires, they descend or ascend from the greatest depths of the ocean with almost
incredible speed. Fishes, though capable of proceeding
straight forwards, or of turning with great rapidity, are
not comparably provided for changing their direction, and
breathed air, they would frequently be suffocated before they
could arrive at the surface, from the vertical position of the
tail not being adapted to propel them in a vertical direction.

But by a simple change, merely by the direction of the tail
being altered from vertical to the horizontal, the object of nature is accomplished, and the air-breathing cat-

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ocious animals are adapted to all the circumstances of an aquatic life. Another beautiful adaptation is the possession of a pair of flippers for the cetaceans, like warm-blooded quadrupeds, suckle their young; these are situated upon the breast, and when the young animal requires to suck, the mother stands, as it were, upright in the water, with her young, and tucks in the expanse of her flippers, thus supporting herself by means of her flippers or fore-paws. In this position she is enabled to supply her cub with the food which nature has provided, and which she could not have accomplished had the mammon been placed in any other position.

There is another extensive tribe of aquatic animals, which are provided with perfect articulated members, sometimes, indeed, supplied with fringes which convert them into a sort of jointed paws, and are adapted to enable the animals to walk or crawl along the bottom. Such is the case with all the crustaceous tribes, the crabs, lobsters, prawns, &c.; and these animals, as is well known, can walk on dry land with the same ease as at the bottom of the ocean. When they swim, it is by means of the tail, which is always constructed for that special purpose, and is large and powerful.

Now is the modification of structure least striking, when we examine those land animals which breathe air, and resort only occasionally to the water, than when we contemplate the tribes which make it their constant residence. Progressive motion on land and in water are accomplished by means of the aquatic habits of the one, and the nature of the other is exactly the most unsuitied for the one. In the case of the former, the body being much heavier than the surrounding medium, requires to be supported, or raised above the surface; and as the animal is provided with the same organs which serve for supports, it follows that the speed of the animal's course will be proportioned to the length of its extremities: in the other case, the body being already supported by an element in which it floats, the limits of the animal's extremities will be only an impediment to the progress of the animal, and consequently they are, in such cases, either entirely wanting, or reduced to a rudimentary form, at least in perfectly aquatic animals. The manatee is left to one or two fins, or flippers, as they are intermediate in habits, so are they likewise intermediate in structure between these two extremities; and the degree in which their organization is modified, when compared with either of the two types, is exactly proportioned to the difference of their habits and economy. All mammals and reptiles, for instance, which seek their food in fresh-water rivers and lakes, partake more of terrestrial than of aquatic habits; the extent of water with which they are acquainted when compared to the extent of land, and their organization differs but slightly from that of ordinary land animals; their extremities are perfectly developed, and of the ordinary form, the length of the hind foot being that of the front foot, an expanded web or membrane, which gives the paw a broad oar-like form, and thus converts it into a convenient instrument of swimming, at the same time that it seriously interferes with the most perfect freedom of walking and running on land. Of this nature are the extremities of all the vertebrated terrestrial animals which seek their food in fresh water, the otters, beavers, &c. among mammals; the whole order of Notarchi; the duck, swan, goose, pheasants, guinea, sulk, puffin, &c. among the birds; and the crocodiles, alligatoris, fresh-water tortoises, and frogs, among the reptiles. All these animals are, properly speaking, web-footed, and their aquatic habits are less prominent and powerful than their terrestrial; their organs of motion in fact are but little different from those of common terrestrial animals. In those in which frequent the salt water, on the contrary, the aquatic habits greatly predominate over the terrestrial: they live less on land than in water, and the structure of their extremities approximate more to that of purely aquatic than of terrestrial animals. Their legs are short and inserted, or, as it were, buried in the common integuments of the body, so that they do not appear only a short fin-like paw, which is unadapted to terrestrial progression, exactly in proportion to its fitness as an organ of swimming. Their progress on land is consequently slow and difficult; they creep rather than walk, dragging their body along the ground, and leaving a dark mark behind them. Few species possess even this limited power of terrestrial motion; those which do, however, have the structure of the extremities a little less approximated to marine habits; the form of their flippers for the cetaceans, like warm-blooded quadrupeds, suckle their young; these are situated upon the breast, and when the young animal requires to suck, the mother stands, as it were, upright in the water, with her young, and tucks in the expanse of her flippers, thus supporting herself by means of her flippers or fore-paws. In this position she is enabled to supply her cub with the food which nature has provided, and which she could not have accomplished had the mammon been placed in any other position.

Thus it is that the peculiar form of the extremities not only indicates the degree in which an animal is aquatic, but even the nature of the element which it frequents. If it inhabit fresh-water ponds and rivers, its feet are simply webbed between the toes, but in other respects perfectly developed, and its terrestrial habits predominate over its aquatic: if, on the contrary, it inhabit the salt water, its feet are flattened into the form of fins, the hind legs are thrown backwards into the plane of the body, and the animal is thus enabled to swim with ease. The first are, properly speaking, web-footed, the second fin-footed. [See Amphibia.

AQUATIC PLANTS, in horticulture, are those which are naturally aquatic in form and performance, and are fully distinguished by the cultivator from mere marsh plants. The management of them when they are hardy is of the simplest kind, nothing being necessary beyond planting them in boxes with holes in the sides, and sinking them in water for one or two days; after this the boxes lie upon, or among the mud at the bottom.

But for those which demand the protection of the stove or greenhouse, some additional precautions appear requisite. The latter should be left to the sun for a few days, or even weeks, till the temperature is such as to deprive them in some measure of the reposes that they naturally receive from the alternation of seasons; kept constantly in a growing state, their excitability is gradually destroyed, and death ensues as a matter of course. The mode of treating them most successfully may be collected from the following account of their management at Eaton Hall, given in the Transactions of the Horticultural Society.

December, 1822, when the leaves were decayed, I took up the bulbs or tubers out of the stone cisterns in which they had grown for years, and put them into pots according to the size of the tubers, and plunged the pots in water to within an inch of the top. They remained in this situation in the pine-stove till the plants began to show leaves in the April and May following. They were then planted in cisterns and in glazed earthenware pots in which were the following soils,—in the bottom, four inches of strong clay, made solid; above this, six inches of light meadow loam, and at the top, an inch or two of sand to keep the water clear. The cisterns, which are made of Yorkshire flags, are of the following dimensions,—3 feet long, 1 foot 6 inches broad, and 1 foot 4 inches deep. They were placed upon the end flues of pine-pits where the fire enters and escapes, and they were elevated with bricks to within eight and twelve inches of the glass. The glazed pots were from fourteen to eighteen inches in breadth and depth, and were similarly placed, except a few that were plunged in corners of the melon-pits. They were kept constantly full of water, and it frequently was made to run over in order that the water might be kept pure. The temperature was kept under 80°, and in sunshine often above 106° of Fahrenheit. No air was admitted at the lights immediately above the plants. As the plants increased in growth, they put out many runners which, being checked, leave the cistern for the tuber. When the roots reached the clay, the leaves got very strong, raising themselves on the sides of the cisterns.

The Nymphea cordata and N. odorata, under similar treatment, produced abundance of flowers. The first flower of N. vulgaris was seen on the 15th of August, and on the 15th it was fully expanded; and measured over the disk five inches and a quarter. The same plant produced another
flower in September, somewhat larger, and with nineteen petals; many more buds were formed, but they opened very indifferently towards the end of September; in October the plants began to lose their leaves. When this was accomplished the ground for the next season was stumped, the roots put into small pots as before stated. The last was done this day (December 11, 1827).

'The Nelumbo Nucifera, in a glazed pot, with similar treatment of the leaves in the same pot, has flowered well and ripened seeds.'

Various other methods have been recommended; but they all depend for their success upon keeping in view the principle of providing for the peculiar and rapid growth under a high temperature, with but little time during the day, (gazanial),

Some very good practical observations on the management of both hardy and tender aquatics have been given by Mr. Kent, in the 3d volume of the Horticultural Transactions, p. 54.

AQUATINTA ENGRAVING. The word aquatinta is a compound of two Latin words, aqua (water) and tinctor (stained), by which it is implied that this mode of engraving is an imitation of water-colour or India-ink drawings. Its inventor, a German artist named Le Prince, was born at Metz in 1793. His method was to sift the common black resin, when tied up very loosely in a muslin bag, and being served on the plate, the surface was partly covered with the particles; this was fixed in the etcher's acid. It was then fixed by a moderate heat sufficient to make the dust adhere without fluxing or becoming an even varnish; he thus formed a granulated surface on the plate, necessary for the etching, which suffered very little from the action of the diluted acid, yet allowed it to corrode very freely in the small spaces left between the grains of the resin. Mrs. Catherine Prestel, also a German, improved much upon the meager works of Le Prince, and executed several large works with so much success, that little more was found wanting than a ground that would adhere better to the plate, and yield a greater number of impressions; this was effected by dissolving the black resin in the highest rectified alcohol, which suffered very little from the action of the diluted acid, yet allowed it to corrode very freely in the small spaces left between the grains of the resin. When the plate is large, it is necessary to have a broad and shallow tin pan (with a spur at one corner) in which the plate is laid inclining from the upper edge, so that the superfuse ground may be saved; this must be quickly returned to the bottle, and the plate laid, inclining a little, on a table, so that the ground may run to the lower edge, where it is wiped off from the extreme edge with a cloth. When the ground is quite dry, the surface will be of a bright copper colour, and in a few hours will be ready for use. A warm room is requisite for this operation in cold weather, but if hot, it will last several hours. In short, the plate must be most carefully avoided. A small plate may be held on the points of the fingers and thumb of the left hand whilst the ground is laid, and be gently moved about till the ground has taken a half minute, or longer if more than slight. The crystallization of the grain: before a ground is laid, the plates to be well cleansed with dry whitening and a dry linen cloth, it being absolutely necessary that the plate should have a very perfect polish, for without this the granulation cannot be well effected. Any of the resinous gums will, with spirits of wine, make a ground, but the black resin is generally preferred. As the proportions cannot be given, it is usual to have a bottle in which the ground is to be made for use, and add gum arabic or amber, or both, to the ground, in proportion to the gum used, until the mixture is right, when the mixture is right, when this composition is used, it must be thoroughly dry before the varnish is passed over it; the varnish also must be allowed time to dry, after which, cold water poured on the plate will wash off the varnish. The plate is now to be laid flat on the press, and the varnish which has passed over it, leaving the forms perfect and the ground in those places free to receive the acid again—the remainder of the plate being permanently stopped out by the varnish: this varnish is either Canada balsam or turpentine varnish mixed with a little lamp-black and spirits of turpentine; with this also the margin of the plate is to be varnished, leaving a narrow strip of the plate clean. The account then is that the acid has been on the plate, by taking off a small portion of the strip with spirits of turpentine, cleaning the place well, and then rubbing in with the finger a little powdered white lead, which will process the acid and prevent the actual and comparative strength of tints. It is only by these trials that the aquatinter knows what he is doing, for the acid varies so greatly with the weather, that what might be considered very weak in the morning, becomes very strong the next hour; for this reason, if the room be kept at an equal temperature, the work will advance with much greater certainty than when it varies by the changes of weather. The design intended to be engraved is then made on the ground; this is done in the following manner:—The design is first copied on very thin transparent paper, called tracing-paper; between this tracing and the prepared ground on the plate a thin sheet of paper is placed, which has been rubbed over with lamp-black, or vermillion, and sweet oil; every line of the design is then gone over with an instrument called a blunt point, with a moderate pressure, and is thus transferred to the ground so securely that the acid cannot destroy it.

Before the plate is polished, the back of it is put on a board or wall of wax, about an inch in depth, is placed round the margin of the plate. The bordering wax is made by melting together one pound of bungundy pitch, half a pound of bees' wax, and a wine glass full of sand, which are then poured into a pan of cold water and worked into small cakes. When wanted, these cakes are put into lukewarm water and made into small rolls like a sausage, then flattened, and one of the edges being a little melted at the fire, is to be pressed close to the plate with a wet finger, making a spout at one corner; this should be well performed, or the acid will get beneath it and occasion much mischief. In order to make the wax adhere, the plate should be made as warm as the hand of the operator.

The plate being so far made ready, the completion of the design is resumed by stopping out the highest lights on the edges of clouds, water, &c., with a mixture of Canada balsam or turpentine varnish, and the perfectly impalpable oxide of bismuth (bismuth is preferred on account of its weight); these are mixed with a spatula on a slab, and used with a small sable brush, diluting the varnish occasionally with spirits of turpentine. Next pour on the acid, which has been prepared by mixing one-sixth of a pint of the strongest acid to five-sixths of a pint of water; let it remain, according to its strength, from half a minute to a minute, then pour it off, and wash the plate three or four times with clean water, before it is to be touched with the etcher's bellows: the last is the best, if the stopping-out varnish should not be perfectly hard. If on trying the strip the tint is found not to be sufficient, repeat the acid for another half minute; at this time the plate is to be placed in the acid, and left in it a few moments. The varnish must be changed for the second stopping out, by adding a little chromic yellow, vermillion, or lamp-black, or any other colour that is not destroyed by the acid. The colour is to be changed after each application of the acid, that the engraver may remember in what places he has carried forward his work, what tints have been softened at their edges, &c.

It is impossible to give a scale of times for each employment of the acid, but the following may serve as a guide. If the first tint has half a minute, the second may take three-quarters, the third one minute, the fifth one minute and three-quarters, the sixth two minutes and a half, the seventh five minutes, the eighth twelve minutes, &c.

The acid should be strengthened a very little after each application; and it may be so equally done that the above proportions will serve very well as a general rule, depending on the strength of the tints required. When the ground is to be changed to a lighter tint, the acid will be taken off by heating the plate till the bordering wax will lift off; after this, sweet oil is applied to the whole surface, and a brisk heat beneath the plate will bring off all the different tints; then rub the plate over with a woolen cloth, rolled up hard and the end cut off, applied with sweet oil, will take out the stains; tints which are too strong may be softened or even rubbed out. Perhaps it
need not be added, that a single grain of sand or any other hard substance under the rubber will ruin the whole work. Gradations in skies, &c. are sometimes made in this manner, though more generally by pouring the acid on slowly, beginning at the top. If this is not done, the surface will be so rough and uneven that the finishing varnish will not be able to cover it. This is what sometimes happens in pouring the varnish, but fortunately these blemishes are easily remedied by steaming the pane, and then cleaning it with a soft cloth and a little carbon tetrachloride. The process is repeated until the surface is perfectly smooth. When this is done, the design is applied, and the varnish is then finished. If the design is not properly done, it will not be possible to cover it with varnish. The process is repeated until the design is properly done.

The process of the second glass is the same as for the first; re-touching with the acid those tints which require more depth, and stopping out those parts that are sufficiently dark. Another proof must be taken, and the plate then finished with the burnisher, which some use with oil, but others prefer it dry, previously filling the whole plate with powdered white lead, by which it can be seen how much has been burnished down, according to the quantity of colour left in the plate.

It is to be regretted that aquatint engraving has suffered much odium from the facility with which inferior plates can be produced; but it is able to be so well imitated as to be suspected of having been produced at the Hunchback, by W. Daniell, Esq. R. A.; or Mr. Ostervald's work On Sicily; and many others.

**AQUA TOFANA**, a poisonous fluid invented about the middle of the seventeenth century by an Italian woman of the name of Tofana. This woman, who resided first at Palermo, and afterwards at Naples, was one of the most celebrated of a class of persons known under the name of Secret Poisoners. These women were believed to possess the power of destroying life at any stated period, from a few hours to a year; and those, during the sixteenth and seventeenth centuries, were regarded in all the nations of Europe with extraordinary terror. In the year 1659, during the pontificate of Alexander VII., it was observed at Rome that many young married women became widows, and that many husbands, suspected to be not agreeable to their wives, died suddenly. The government used great care to detect the poisoners, but so many of them fell on a society of young wives, whose president appeared to be an old woman, who pretended to foretell future events, and who had often predicted very exactly the death of many persons. By means of a crafty female their practices were discovered, and they were put to the torture, and the old woman, whose name was Spars, together with four others, were publicly executed. It appears that Spars, who was a Sicilian, derived her art from Tofana at Palermo, the latter selling the poison, which from hence acquired the name of Aqua della Tofana, in small glass phials with this inscription, 'Manna of St. Nicholas of Barri,' and ornamented with the image of the saint. Though this infamous woman lived to an advanced age, she was at length dragged from a monastery, in which she had taken refuge, and put to the torture. She confessed that she had been instrumental to the death of no less than 600 persons. The dose of her poison was from four to six drops; yet though, in some cases, it would not have had the effect of producing instant death, it was subsequently discovered to consist of a solution of arsenic; but so little was that age acquainted with the art of chemical analysis, that they had no means of detecting a solution of arsenic so highly concentrated that from four to six drops was a mortal dose, whereas, at present, even when arsenic has been dissolved in the stomach and mixed with vegetable and animal fluids, it may be reduced to its metallic form, and made to exhibit all the physical properties of the metal in the naked eye, with as great distinctness as in any quantity, however large, when only the twentieth part of a grain has been procured. Modern chemistry, therefore, has deprived the poisoner of all chance of escape by concealing the poison under the surface of the vegetable fluids.

**AQUEDUCT, or AQUEDUCT (aqua ductus), as it was formerly more correctly written, is composed of two Latin words, **aqua**, in the genitive case **aques**, and **ductus**, signifying together, a conductor or conduit of water. In this, its more extended sense, the term aqueduct may be applied to all sorts of pipes and channels for the conveyance of water, whether they be constructed of stone, brick, earthenware, or other materials, or made up of various materials, or constructed of constructions of a somewhat peculiar description, which have been formed above the surface of the ground for the purpose of conveying streams of water in a regular manner, to carry them through valleys and over plains, from one comparatively high point to another. The canal or conduit called the New River, by which water is brought into London from a distant source, is strictly an aqueduct, but it is not what is generally understood by the term, because it is not a series of pipes or ducts. In this country an example of the sort of structure which the term designates, though it may be exemplified by some of the canal and railway ducts in the north of England and in Scotland, such as Barton Bridge, in Lancashire, which carries the Duke of Bridgewater's canal over the river Irwell; the bridge which carries the Edinburgh and Glasgow Union Canal over the valley of the water of Leith at Slateford; and the Sankey viaduct in the line of the Liverpool and Manchester railway. The former of these have been sometimes called aqueducts, but this application of the term only leads to confusion, unless bridges be superadded; structures for the purpose of carrying a canal are indeed more strictly visited as aqueducts, and canals by the form and structure of an aqueduct,—a series of pipes equidistant, or nearly so, with arches connecting their heads to form one continuous and nearly level line, on the back of which is the channel best-concealed.

We do not read of any aqueducts, properly so called, till the Roman period, yet contrivances for the conveyance of water from a distant source for the supply of a city are of great antiquity. Herodotus (iii. 60) describes the mode in which Equilampus, an architect of the Persian army, supplied the city of Samos with water. A hill 900 Greek feet high was pierced by a tunnel seven stadia, or 4200 feet long. The tunnel was eight feet high and eight feet wide, and in it there was a channel thirty feet wide (i.e., in the correct) and three feet wide, through which the water was conveyed in pipes (πύργοιμαν ἐκ σωλήνας) from a large source to the city. In translating the word σωλήν (σωλήν) by the usual term 'pipe,' we do not mean either to assert or deny that pipes properly speaking, of wood or metal were used on this occasion: the word may here signify merely channel stones.

Aqueducts were most extensively used by the Romans, and on the lines of many of their most important cities in Asia and Africa, as well as in Europe,—in Greece, Gaul, and Spain, as in Italy and Sicily—parts remain, even to the present day, of extensive constructions of the kind. That of Segovia, for instance, in Old Castile, is perhaps the best preserved. The neighbourhood of the city of Rome itself is pre-eminently distinguished by a long series of these almost imperishable memorials of her ancient magnificence.

The aqueducts of the Romans were built, for the most part, of brick, and consisted, as we have said, of nearly square piers running up to the same height,—the necessary fall of the course being considered—and connected by semi-circular arches, over which the conduit ran. This conduit had a paved or tiled floor, and was inclosed laterally by walls of brick or stone, and covered with a transverse arch, or by a simple flat coping of stone. This species of conduit frequently involved a serious difficulty, for if the conduit became waterlogged, the highest point of water which it was to be delivered, and the distance too short to reduce the flow of water to a proper velocity, the stream had to be carried in a winding direction to expend the height in a greater length. Otherwise the excess of water from the head would burst or blow up the covering arch or coping of the aqueduct, render the work useless, and inundate the country over which it was attempted to carry it.

Some idea may be formed of the extent and importance of the Roman works of this kind when it is stated, that Rome was supplied with water from sources varying from thirty to sixty miles in distance, and that at one period of its history no less than twenty-three aqueducts were in use, each by a separate system of streams of water across the wide plains or Campagna in which the city stands. Great portions of the distance were
of course in every case occupied by artificial channels wind- ing along the sides of hills and mountains; and long tun- nels carried the streams through these natural barriers when occasion required, but nevertheless the arced duct led the streams across the deep valley, which was sometimes so great as to require to carry it onwards from the hills over the wide plain to the doors of the eternal city. These: these aqueducts were of various lengths, accord- ing to the distance in which they came, but in one of them the series of arches is calculated at nearly 7800, their height being in many places more than a hundred feet. There is nothing more interesting or more really beautiful in the existing ruins of antient Rome than the remains of these splendid works, which radiate, in almost every direc- tion, and give a life and a life, an interest to the almost level plain on which it is seen rising in long arced series, whose simplicity and un- broken continuity produce a degree of grandeur unmatched by the more labourd and more pretenting works within the walls.

Sextus Julius Frontinus, who was inspector of the aqu- ducts of Rome under the Emperor Nerva, has left a treatise on this subject, which contains much curious information. [See Frontinus.] Some of the more remarkable aqueducts will be noticed under the names of the cities to which they belong, or the individuals whose name they bear. The modes in use, both in antient and modern times, for distrib- uting water through a large city when brought to the great reservoirs will be noticed under the head of water and water-pipes.

Modern Rome is abundantly supplied with water by three of the antient aqueducts, which have undergone repairs and restorations. The most important woark is that of the pope's reformer, Sixtus V., from whose conventional name of brother Felix (Prae Felix) one of the streams so delivered is called the acqua Felice.

Aqueducts have been constructed in modern times, and of these the most celebrated are that of Caserta in the king- dom of Naples, of Maintenon near Versailles in France, and that of Bemfica, called Aguas Ilievres, near Lisbon in Portugal.

AQUILA, ΑΠΟΛΙΤΙΣ, or Aikibah ben Joseph, called by

Epiphanius and Hieronymus Barakiba, lived at the end of the first and at the beginning of the second century A.D., and was president of the academy at Lydda and Tabae, as disciple and successor of rabbi Gamael, and one of the most famous doctors of the Mishnah. The Jews assert that things which were unknown to Moses were revealed unto Aquila. According to Josiah, the greatest part of the Mishnah originated from the verbal and written-instructions of Aquila. According to Zakat, the whole of the Mishnah came from Aquila, who lived 120 years. When he had foreseen love in the world, there was great love of Kalkm Shua, in whose service he lived as herdsman. She promised to marry him if he became a rabbi. Aquila studied forty years with great zeal, and had 24,000 disciples, among whom was Rabbah the son of the great Talmudic authority Chronicon. He joined the pseudo-Messias, Bar Cocheba (Coioba), who raised disturbances in Judea. The Emperor Hadrian, in whose time the insurrection took place, after taking Bitter or Bethura, put many Jews to death, and ordered Aquila to be killed by iron combe, with which his skin was taken off. Aquila was buried in Tiberias, where his tomb was annually visited by his admirers between Easter and Pentecost. The book Zechariah (777), which some ascribe to

Adam, and others attribute to Aquila, is the chief book of cabalistic doctrines. The two last editions of this famous book of prophecy have been given like every of the three men- tary, Astm. 1642, 14; and lately, by Friederich von Meyer at Frankfurt on the Main, with a German translation, 1832, 4to.

AQUILÀ (the Eagle), a constellation situated above, so as to rest on, Capricornus and Aquarius. It may be readily found by means of the head of Draco and the bright star a Lyrae, since a line passing between β and γ Dracoris, and through a Lyrae, passes through a bright star of the first magnitude, a Aquilae, cutting also two stars of the third magnitude, β and γ, situated directly above and below a. This constellation is on the meridian at 8 o'clock p.m., in the middle of September, at about 40° of elevation. Its principal stars are here given, as in preceding con- stellations. The number inclosed in a parenthesis is that of Piazzi.
commanded in the name of Charles, iritated by the disaffection of its inhabitants, laid enormous contributions on them, in order to pay which all the plate and the treasures of the churches were taken. Numbers of the citizens were imprisoned, and many outrages committed by the soldiers on the inhabitants. This occurred in 1566, which broke out soon after, completed the desolation of the city, which never after recovered its former prosperity. It was long considered the first city in the whole kingdom next to Naples, and it could muster 15,500 armed men at the sound of the alarm-bell. Charles V. built the castle, which is situated in the highest part of the city, and was considered very strong at the time. Aquila is on the slope of a hill, at the center of the river flats of the Torrens. It commands the view of a fine valley about sixteen miles in length, watered by numerous springs, and productive in corn, fruit trees, flax, and especially saffron. The hills are covered with vineyards, and the lovely Appennines, which rise behind on both sides, afford pasture in summer to numerous herds of cattle and flocks of sheep. The chain to the north-east of Aquila is overtopped by Monte Corno, and that to the south-west by the mounts called Della Duchessa, which divide the valley of the Aterno from that of the Salto, a branch of the Velino. [See ABRUZO.] Aquila has manufactures of linens, paper, leather, and woolen cloths: its comfits or sweetmeats have a great reputation. Its population, according to the Italian itineraries of 1836, is 13,857. Aquila is about 130 miles from Naples, and the great portion of the enclosed space is now occupied by gardens. It has once twelve gates, eight of which have been blocked up. Aquila has declined, while Chieti, Lanciano, Teramo, and Scanno, of Abruzzo, have increased.

The province of Aquila, which once occupied the largest part of Abruzzo, has been of late years divided into two intendence or divisions, the chief towns of which are Aquila and Teramo. Aquila is the residence of the intendant, and also of a military commandant: the civil and criminal courts for its division are held here. It has also a leucem. The streets, though generally narrow, are straight, and it has two squares ornamented with fountains. The palace of justice and the church of St. Michael and St. Demetrius are its principal buildings. It reckoned once above one hundred churches, and numerous monasteries, besides twelve nunneries; many of the churches, however, had fallen to ruin already in the last century. Others have been since suppressed.

Aquila is the residence of many families of the provincial nobility. Its inhabitants speak Italian, like their neighbours of the Roman state, and not dialect, as the rest of the kingdom. It lies in 42° 29′ N. lat., 13° 52′ E. long., and is 186 miles N.W. of Naples, and 57 N.E. of Rome. There is a post road from Aquila to Sulmona, 32 miles distant, and from thence to Naples. A mountain road leads from Aquila over the passes to Greccio, to Rapino, and thence to Rome. (Bernardino Cirillo, Ammali della Città d'Aquilà.)

AQUIA, Αὐκία, 〈אָקִיָּה〉, was, according to Ephraimius, Desurius, and Menecrates, cap. 15, a native of the emperor Hadrian, and converted from idolatry to Christianity, but afterwards excommunicated on account of his idolatrous astrology. He embraced Judaism, was circumcised, and translated the Old Testament literally into Greek. (Iren. iii. 24; Kaseh. Demon. Eclog. vii. 1.; Hieronymus, episc. Paemamm. Opp. ed. Mart. t. v. p. i. p. 255.) Aquila adhered so strictly to the Hebrew text that he translated γαροσια in εναλοσια, γαρατοσια, γαρατοσια, γαροσια, γαροσια. The word γαροσια, &c. in the Jerusalem, Ps. ii. 89, is omitted; and consequently the Jews preferred his translation to the Septuagint. It appears also from Irenæus, iii. 24, that the Ebionites used the translation of Aquila in order to support their Judaizing tenets. The remains of this translation have been preserved by bromonti Marthianus, and others, in the Hexapla of Origen. [See HEXAPLA.] Aquila's interpretation of Hosea in Opuscula Dantii ed. Rosenmüller, Lips. 1748, 8. Schloenouser, Opuscula Critica ad versionem Græcis Vetus Testamenti, Lips. 1812, 8; Cap. P. Crelieri Sacri, ed. Scharschern, l. v. e. c. 3. t. p. 503. The translators of the Old Testament, in the Telbun of Jerusalem, is called in the Telbun of Babylon יָדַע, Onkelos. [See ONKELOS.]

AQUILE/GIA, literally the Watergatherer, because the leaves collect water in their hollow, is a small genus of plants, commonly called Columbines, belonging to the crow-foot tribe, of which several species are cultivated in gardens. They are known from aconitum, and similar plants, the leaf of the calyx being all of the same form and size, and by the petals having each a long curved horn or spur at the base. All the species are handsome perennial, easily propagated by dividing the crown of their roots; the common, hence named Aquilegia vulgaris, is found in woods and thickets in this and all other parts of Europe; it has produced many varieties, differing in the colour of the flowers, and in the multiplication of the petals, for the sake of which a new species of Aquilegia has been raised. Three species are found either in the north of Asia, or in North America. They are all acid plants, but so much inferior in virulence to aconite, that no attention has been paid to their qualities.

AQUILEIA, a town of the ancient Veneti, whose origin is lost in the obscurity of the ante-Roman ages, was made a Roman colony in the year 181 B.C., and became the first city in the Venetia, and the bulwark of Italy on the side of Illyricum and Pannonia. It stood on the western bank of the river Sontius, now Isoneo, in a low and fertile plain, watered by numerous rivers. It was a place of great trade, for, although several miles distant from the coast of the Adriatic, vessels could reach it through channels which had been excavated by man, and which still flow near it. Its walls were twelve miles in extent, and the city was adorned with an amphitheatre and other splendid buildings. The Via Aemilia, a continuation of the Flaminian road, terminated at Aquileia. Large vessels sailed from Pannonia to Aquileia. Augustus, Tiberius, and other emperors occasionally resided in this city. The poet Cornelius Gallus was born here. Aquilea distinguished itself for its Meilicy to Rome. When the Thracian Maximi, after the death of Alexander Severus, was proclaimed emperor by the legions of Pannonia, and afterwards outlawed by the Roman senate, he marched against Italy to avenge himself. The citizens of Aquilea boldly opposed his passage, and sustained a siege, during which the emperor and his army were destroyed by a unexpected resistance, and the delay thereby occasioned to their intended march upon Rome, revoluted and killed Maximus and his son, a.d. 241. The Roman senate, relieved of its fears, voted thanks to the Aquilenes.

Aquitaine, from its situation, was exposed to the first attacks of Avaric and the other barbarians who successively invaded Italy from the north-east. The famous Atilla at last stormed the town after an obstinate defence, pillaged, and destroyed it by fire, after butchering the greater part of its inhabitants, in the year 452. Some of those who escaped took refuge in the neighbouring island of Grado, where they built a town; this town was called Aquilea Grado, and thence Aquileia came to be known in Italy.

Aquitaine was afterwards restored by Narses, the general of Justinian, but it never recovered its former splendour. The see of Aquilea was one of the oldest in Italy; its first recorded bishop, Hermagoras, is said to have lived under Emperor Nero. There is also a tradition that St. Mark the evangelist was the first bishop of Aquilea, and that he wrote there his Gospel, a MS. of which, pretended to be an autograph of the original, was given by the saint to Venetia, and deposited in the treasury-room of the church of St. Mark. During the first three centuries the chronology of the bishops of Aquilea exhibits several curious facts, from the year 181 of the birth of Christ, the date of its foundation, to the death of St. Mark, which continued for two centuries, during which we find often two bishops for the same see, one orthodox at Grado, and the other schismatic at Aquilea. It was then that the
Aquinas, Thomas, that is, Thomas of Aquino, in Naples. This famous theologian was of very distinguished birth, being a younger son of Landulf, count of Aquino, and lord of Loreto and Belcastro, who was nephew of the Emperor Frederick I, the celebrated Barbarossa. He was born in 1227, some authorities state in the town of Aquino, others in the castle of Rocca Seca, the seat of his family, near the monastery of Monte Cassino. Having been sent at an early age to the neighbouring country to receive the rudiments of his education, he remained there till he was nearly thirteen, when he proceeded to the university of Naples, which had been founded in 1229 by his relation, the Emperor Frederick II, grandam of Barbarossa, and had already acquired great reputation. From his earliest years he had shown a love of study; and the circumstances of the time were, in various respects, such as naturally tended to encourage remains on the part of the student for study, literary, or at least a meditative life. His native country was distracted by civil dissensions, in which if he was to mix, the trade of arms alone offered him any chance of distinction. On the other hand, a fervent excitement had been recent, and it was one of those years that attracted the esteem and admiration of intellectual sages. Kings, popes, emperors, learned bodies, and great cities, contended for his presence during his life; and as soon as he had ceased to live, the order to which he belonged, the monks of the abbey in which he had been reared, and the University of Paris, of which he had been alumnus and graduate, disputed the right to the possession of his body. It was not till nearly a century afterwards that this latter controversy was terminated by the removal of his body to the famous church of St. Dominick, in the convent of Toulouse, where a magnificent tomb erected over them still remains. Before this he had been canonized by Pope John XXII, by a bull dated the 18th of July, 1323. Pope Pius V. also declared him a doctor of the church in 1567. The piety and devotion of his contemporaries received the warmest commendations from his contemporaries. His religious sincerity and fervour appear to have been accompanied by unaffected humility, and also by a
mildness of temper that has not always been the grace of eminent theologians. The popularity of his writings was for
merly so great that there have been at least five or six edic
tions of them. The first, in 1567, was dedicated to be printed at Rome, and the second, in 1576, again dedicated to
being printed at Rome. His Commentary on the Four Books of St. Paul (called the Master of Sentences) is another
performance that was long in high esteem. He has also left Commentaries on several of the writings of Aristotle,
which, however, have not been very much noticed. The theological opinions that he maintained, the most memorable
is his assertion of the supreme and irresistible efficacy of
divine grace. This doctrine was afterwards opposed by
Duns Scotus; and it formed for ages a matter of violent
controversy between the Thomists and the Scotists, as the
followers of the two doctors called themselves. The writings
of Aquinas are not likely to be very fairly appreciated in the
present day; but though we had no other evidence than that
recorded above to show his own personal learning, it
would be impossible to doubt his extraordinary genius. His
talents, too, appear to have been as various as they were
powerful.

He wrote in verse as well as in prose; and some of the
Latin hymns still used in the service of the Roman church
were inscribed in his name. They have been celebrated for
his ready and pointed repartees. One which has been
preserved is, his reply to Pope Innocent IV. when that pontiff,
or some money being brought in one day when they were
together, remarked, "You see that the age of the church
was past when she could say, Silver or gold have I none;-
'Yea, holy father,' answered Aquinas, 'and the day is also past
when she could say to the paralytic, Take up thy bed and
walk.' There are other stories of the absence of mind which
he sometimes showed in his talk, and when absorbed in some
of his profound speculations. One day, while dining with Louis
IX., king of France (St. Louis), he suddenly, after a long
silence, struck the table with violence, and called out, 'A
debatable argument! The Manichæans could never answer it!'
Rabelais alludes to another anecdote of this kind. (See Panta-
grugiel, liv. iii. chap. 2, and the note of Duchat on the
passage.) The titles of Aquinas, in the list of the scholastic
departures, appear at first sight to be those of a preacher.
Detlev, history of the monastic Schools. (See a few remarks on Aquinas in the notes to the translau
ation of Richard de Bury's Philosbion. Lond. 1832.)
AQUI'NO, an antiquit long since decayed town in the
province of Territorial, in the kingd of Naples. It was a Roman colony, and a large and populous
city in the time of Strabo: the Via Latina passed through it. Juvenal, the Roman satirist, was born at, or in the
neighbourhood of, Aquinum. Pescennius Niger, one of the
competitors for the empire after the death of Antoninus,
as also a native of this place. Aquinum suffered greatly
by the various invasions of the barbarians after the fall of the
empire. It was at last utterly destroyed during the wars of
Charles of Anjou against the king of Sicily, Frederic II. of
Naples. The chroniclers of the following centuries speak of it as a place in ruins, and containing 'but a
few hundred inhabitants. It retained, however, its bishop's seat and the feudal title of county. The famous St. Thomas
was sometime a Bishop of Aquino, and was born at Rocca
Socca in the neighbourhood. At present Aquino contains
hardly a thousand inhabitants; the ground is covered with
ruins of buildings of various ages and styles, among which
the cathedral, dedicated to St. Thomas, is the most
lofty wall of square stones united without cement, which
formed part of a magnificent Doric temple. Several columns
about four feet in diameter lie prostrate around, as well as
a large part of the whole aqueduct. near the town, and
ornament. From a hasty measurement taken by Sir R. C.
Hoare, this temple appears to have been 190 feet in length,
and above 60 in breadth. An old ruined church, which is
still called II Vesuvato, (although the see has been long
since transferred to Pontecorvo, where the bishop resides,) is
built on the site, and partly with the materials of another
ancient temple. Adjoining it is a triumphal arch of a
magnificent structure. The church of St. Thomas of Aquino
stands on the site of the ancient basilica, and is surrounded
by the remains of a wall which was once the house of the
arch, and, after supplying a neighbouring mill, runs to join the Liris. A native of the place, the nephew
of the Canonic Bianchi, has collected copies of all the in
scriptions on the door of the temple, and has published the
same in a catalogue. Aquino lies six miles west of the town of San Ger
mano, the ancient Cassinum, in a plain between the rivers
Melfa and Liris, bounded on the north-east by the mountain
on which the monastery of Monte Cassino is built. The
temple of St. Thomas of Aquino, at the village of St. Thomas of
Aquino, six miles distant, enjoys a better air. (See Monte
Cassino.)

AQUITANIA, one of the great divisions of ancient Gaul.
The limits of Aquitania are stated by Caesar to have been
the river Garumna, the Pyrenees, and the Ocean. The
Garumna divided it from Celtic Gaul. The original Aquiti
nians are supposed to have been of Iberian race, distinct
from the Celt. Caesar did not go into Aquitania, but his
lieutenant, the younger Crassus, made an incursion into it.
The country, however, was not of any importance until
the year 28 b.c., when Augustus sent Marcus Valerius Messala
to conquer it. The poet Tibullus accompanied Messala
in this expedition, which he has commemorated in his poems.

Augustus, the limits of Aquitania were extended north
wards as far as the river Ligeria (the modern Loire), and
eastwards to the Mount Cebenna, which formed the limits of
the Narbonese province. By this extension, Aquitania
became a part of Gaul, such as the Santones, Pictones or Pictavii, Bituriges,
Arverni, Lemovices, &c. In the following subdivisions of
Gaul under the later emperors, we find the Aquitanians of
Aquitania divided into three provinces, viz., the Novempopula
nians, which comprised the greater part of the original Aqui
tania, between the Garumna, the Pyrenees, and the Ocean;
its principal towns were Chimbernas, afterwards Augasta,
Beneharnam, Illuro, Aquae Tarbellicae: the Aquitania prima
bordered on the Liguria, and was comprehended in the
provinces afterwards called Bituriges (now Bourges), and the
Aquitania secunda, situated between the other two, and whose
principal city was Burdegala (Bordeaux). Under the reign
of Honorius, the Visigoths, after ravaging Italy, passed into
Gaul and took possession of Aquitania; which they kept till
Clovis, king of the Franks, defeated them in a great battle
near Poitiers A.D. 507, and killed their king Alaric II. Auri
tania then became part of the monarchy of the Franks; but
under the second successors of Clovis it was detached from it
again, and given as an assignment to Chilperic, a younger son
of Clovis II. We find in the beginning of the eight century,
Eudes, duke of Aquitania, and a descendant of Chilperi,
leaves his son, having the king of the Visigoths, and
having invaded the country and pillaged Bordeaux, Eudes
was glad to make his peace with Charles, and to join him
against the Mohammedans, who were utterly defeated by
Charles at Poitiers in the year 732. Eudes, after the death of
Waifer, Eudes's successor, was attacked by Pepin, who con
quered the whole of Aquitania and reunited it to the French
monarchy. But Aquitania had undergone another change in
its southern limits. The Vascones, a Spanish people,
finding themselves pressed by the Visigoths, crossed the
Pyrenees and settled in the southern part of Aquitania,
which from them took the name of Vasconia or Gascony,
which it has retained ever since, whilst the more northern
part was called Aquitania, and afterwards by corruption, Guienne. The Vascones were conquered by Pepin and Charles, which revolted again,
and formed an independent state, having their dukes, until
the eleventh century, when they became united to the
apathy of Aquitania, which, under the successors of Chilperic,
had become one of the great fiefs of the French monarchy,
and virtually independent of the crown. Eleanor, the
heiress of William, last count of Poitou and duke of Auri
tania, married Henry, Duke of Normandy, who was
instructed by his wife, the heiress of France, to become the protector of Guiene, and afterwards Henry II. of England, who thus became pos
essed of Guienne, Poitou, Gascony, Anjou, in short, of the
whole Aquitania. (See the origin of long wars between the two kingdoms. At last?

Charles VII. conquered Guiene and the other districts
above-mentioned, and took Bordeaux in 1451-2, and reunited the
whole to France. The name of Guiene continued after
wards to be used as that of one of the provinces of the old monarchy, though restricted to a very small portion of the former Astatine, until towards the revolution, when the whole country was divided into departments, and the old denominations became obliterated.

ARA (the Altar), a southern constellation, not visible in our northern latitudes. It is situated near Lupus, above Pavo and Triangulum Australis, in such a manner that the Centaur appears to be placing the Wolf upon the Altar. One mythological account explains it as the altar upon which Chiron sacrificed a cony, or as an altar constructed by Vulcan, upon which the gods swore fidelity to each other during the war against the Titans.

The principal stars are as follow:—

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ARA (Macrocerus, Vello.) See Macaw.

ARABESQUE. This term is applied to any Mongoloid ornament, or form of enrichment on flat surfaces employed in works of architecture principally. The name is intended to mean simply 'in the Arabian manner,' and is a French form of that expression. The mode of enrichment which it refers to, was practised in the decoration of their structures by the Moors, Saracens, or Arabsians of Spain, for they were called by all those names by their Christian but less civilized neighbours, and from them particularly the species of work was said to have been taken. As far as the Mohammedan conquerors of Spain were concerned, they appear to have borrowed the idea from the hieroglyphical engravings of the monuments of Egypt. The design of their religious code, however, forbade the representation of animals, in order to avoid the very semblance of idolatry, they employed plants and trees in a similar manner, and with stalks, stems, tendrils, foliage, flowers, and fruit, produced an endless variety of forms and combinations, with which they painted and sculptured the surfaces of their buildings. Hence fanciful combinations of natural objects to form the continuous ornament of a flat surface came to be called Arabesque, which, to the Arab, belongs so naturally to the Arabian or Mohammedan compositions as to be filled with representations of animals of every variety, and with combinations of plants and animals, as well as combinations of animal forms. All this is to be found in the sepulchres and other monuments of the Abbasid period. The name, indeed, has become so general as to be applied to the fanciful enrichments found on the walls in the ruins of Heraclea and Pompeii, as well as to others of the same and earlier date, which were formed and forgotten long before the sons of Ishmael learnt to draw. The most celebrated Arabesques of modern times are those with which Raphael ornamented the piers and pilasters of the adorned gallery of the palace of the Vatican, which bears his name. This gallery, or those galleries rather, for it is in three lengths, are always distinguished as Raphael's galleries ('Le Logge di Raffaele'), because of the Arabesques and of the illustrations of the Bible history in the ceilings, though, indeed, but one of the three still exhibits the decorative practice of the artist in his own great art itself.

The term Arabesque is more applied to painted than to sculptured ornament, though it is not restricted to the former; but Arabesque ornament in sculpture, if not kept very low in relief, is apt to be grotesque, as is the case with many or most of the sculptured enrichments of our pointed architecture.

ARABIA. It is intended in the present article to offer a correct and natural sketch of Arabia, and a brief survey of the history, state of cultivation, language, and literature of its inhabitants. Further information concerning particular points connected with each of these departments is to be found by referring to works, such as Mecca, Koran, Mohammed, Arabia, &c.

The entire surface of Arabia is calculated to be about four times that of France. It is considered as consisting of two parts: Asia, though, from its position and peculiar physical character, it would appear rather to belong to Africa. If the Red Sea did not interpose a narrow interruption, one almost continuous tract of sandy deserts would extend from the shores of the Atlantic to the Persian Gulf.

Arabia presents the form of a vast peninsula, connected with the south-western extremity of the continent of Asia by an isthmus of sandy deserts, the breadth of which, from the northern end of the Gulf of Akaba to the mouth of the Shatt-el-Arab, is estimated to be about 100 miles. It is surrounded by water on four sides. The Red Sea is estimated at about 800 English miles. It is situated between 12° and 30° N. lat., 32° and 59° E. long., partly between, and partly to the north of the tropical region: the tropic of Cancer lies two degrees from it to the south. It is bounded on the N. by Syria and the Euphrates, on the E. by the Persian Gulf; the Indian Ocean (called here the Arabian Sea and the Sea of Oman) washes the 'long extent of coast along the Persian Gulf, the Red Sea, and the Persian Gulf form the western boundary.

Cape Rasaglate or Ras-al-Had is the most easterly projection of the peninsula; cape Russendon (cape Meketia of the ancients) on the north-eastern direction towards the straits of Ormuz; cape Aden, near the south-west angle of the peninsula, is discovered between fifteen and twenty leagues off at sea, as a steep and rocky rock; Bab-el-Mandeb, or the 'mouth of the Red Sea,' is a dangerous passage from the Indian into the Red Sea, is the point of the peninsula which is situated farthest to the south-west; and cape Mohammed marks the projection of the Sinai mountains between the Gulf of Suez and Akaba, the two northern branches or gulfs of the Red Sea.

The name Arabia, by which the Greeks introduced this vast country to the knowledge of Europeans, is derived from the name which has for ages been used by the inhabitants themselves. The word arab, as a collective noun in the singular, is used as the common name of the Arabic nation; its plural, arabis, is restricted to signify the wandering, nomadic tribes of the Arabs of the desert. Beldib-el-Arab, i.e. the land of the Arabs, and the Soudan, i.e. the peninsula of the Arabs), are the usual native designations of the country; besides these, we may also notice the Persian appellation of Arabistan, by which name Arabia is often called among the Persians and part of their modern name. The derivation of the word Arab is doubtful. Pocock has adopted the notion of several oriental writers, that the country and its inhabitants were so named from Arabs, a district in Yemen, to which Yar had reference, the father of the antient Arabs, gave his name. But the real existence of an individual referred to by the name Yar, like that of several others of the primeval forefathers mentioned in the book of Genesis, is remote from the historical truth; the Arabs, as far as we can judge from Homer, were subject to the same historical doubts, as that of many of the reputed founders of states in antient Greece. The very form of the name Yar, shows a peculiarity, observable also in the names of other nations (see Etern, Sion), the second part, in the name of the Arab, belongs to the general item in the name of a city, or is the same as the name of a city. The proper name, however, is the second, which is derived from a geographical term, as is the name of Yar, which means the 'eastern,' and is generally derived from the Arabic name Yar, 'east,' and is generally the name of a city, or is the second part of the proper name of a city.
Palmum (pointed out by Gibbon), which expresses the western and southern position of the Saracens.

The name of Arabia, in its geographical extension, comprehends the territory of the two great deserts, the limits which runs from the northern extremity of the Gulf of Aksab to the mouth of the Shatt-al-Arab. In a more extensive sense it is made to comprehend also a large tract north of the ishámus, reaching as far as the confine of the orphants in the interior of the southern Mediterranean on the west.

Some of the antients have extended the limits of Arabia considerably north of the ishámus just defined. Fíny (Nestorius), and a portion of the Saracens of the state of Khabir or Khabir, state that Arabia, which is the physical features of the country, of which he gives the following lively description, will, perhaps, justify him in assigning this tract to the definitory of the country. Having crossed the Arazis, Cyrus marched along through Arabia, having the Euphrates on his right for five days’ journeys through the desert, a distance of thirty-five parasang. In this region the soil was a plain, perfectly level like the sea, but full of absinthium; whatever else grew with it, were of greater height; a great place of fruits, were the grases like spicis; yet no tree was found. There was also a vast variety of animals, among which wild asses were the most numerous, and not a small quantity of ostriches; there were also several species of birds.

The whole peninsula of Arabia, as far as it is at present explored, consists of an elevated table-land, declining on the north towards the Syrian desert, and encroaching along the western part of the coast. The mountainous country, beginning at Sues and extending round the whole peninsula to the mouth of the Shatt-al-Arab, is called Gaur or Téfarna, i.e. the ‘Low-land’, from which the mountainous regions in the interior are distinguished by the appellation of Gaalal, ‘the Hills’, or Nejd, the ‘High-land’. The width of the Téfarna varies: near Mokha its breadth is about one day’s journey, near Hodeida and Lohesia about twice as much, and near the coast, in the province of Oman, through Ras-al-Had up to Cape Musseudon, it is much narrower between the villages of Sib and Sohar, indeed, its width extends to about a day’s journey; but in the remaining part of the north, as far as the Gulf of Aksab, it is much greater.

The soil of the Téfarna, from its regular inclination towards the sea, as well as from the large beds of salt and marine coccis with which it is interspersed, appears to have once been a part of the bed of the sea. It is observed that there is a very great dearth of trees and woods, except the rare fronds of madrepore and corall which abound in the Arabian Gulf, and in some parts rise ten fathoms above the sea, are increasing and coming nearer the earth; and as the intermixture of fine yellow sand contributes to the fertility of the land, it is on that side constantly extending its limits. Murs are mentioned by Arrian (Periplus of the Erythraean Sea, e. 5) as a sea-port of Arabia Felix; we now find it at a distance of several miles from the sea. The harbour of Jidva is described by Lord Valentia as being formed by innumerable reefs of coral, which extend to about four miles from the shore, leaving many narrow channels between, in which there is a good bottom at six to twelve fathoms, and where the sea is perfectly smooth even when it blows the heaviest gale. In the southern part of the Arabian Gulf these banks of coral are less numerous.

Arabia is occasionally for many years entirely destitute of rain; but sometimes it is scantily watered by the falling of slight showers during the months of March and April. The dews in the most arid tracts are said to be of moderate height at regular rains of the summer season, which begins about the middle of June, and continues till the end of September. Springs also abound in the loither mountains, which, when fed by the copious annual rains experienced in Palestine, descend towards the Téfarna: some of them are described to issue before they leave the mountainous region; others, which are more abundant, rush into the Téfarna, where the fertility of the soil mainly depends on irrigation. Most of the larger streams, as soon as they enter the burning plains, spread out into shallow lakes, and are lost in the sand; only a few reach the sea. These temporary currents of rain-water and the small verdant valleys, but a few feet below the general level, which intersect the arid Téfarna, constitute an important and characteristic feature in the aspect of the country: they are called saddas, an expression which we frequently meet with, though variously written, as a complement part of the names of rivers generally, on the maps of other countries also into which Arabian settlers have penetrated. The adopted Greek word oastas or awasas appears to be the same as sádás. The Wadi Zeibid and Wadi Mentam are the two largest rivers of Arabia, one emerging near Beila and the other near Badr. The former reaches the sea near the town of Zebib on the Arabian Gulf; the latter, taking a southerly course, pours its waters into the Indian Sea. In the province of Oman, the rivers Masara and Widaa, which rise in Muscat, and which, after a journey of nearly five years, reach the coast of Yemen, and both reach the Indian Sea. Arabia is entirely destitute of navigable rivers.

In the Téfarna, the heat during summer, owing to the sinkant of rain, is very insufferable. In the height of the summer, it is more intense. Niebuhr states, that during his residence in the low-land of Yemen, in the month of August, the thermometer rose to 98° Fahrenheit, and at Lohesia, during the month of January to 60°; at Sana, in the high-land, it usually reached 80°, and sometimes 90°. Niebuhr heard it asserted, that, in the last district, it sometimes freezes. At Músca, the thermometer varies, according to Frazier, from 92° to 110° of Fahrenheit during summer. Niebuhr was struck with the extreme drought in the coffee country near Beila-el-Fakhil, where he found the air much fresher and cooler than in the parched plains of the Téfarna: yet he had then scarcely reached half the ascent to Kusma and to the summit of the range of hills which separate the boundary between the Nejd and the Téfarna. The inhabitants of Yemen, he observes, are dwelling, as it were, in different zones; and within the limits of a comparatively small territory, he found the animal and vegetable kingdoms, such as in other countries can only be seen when brought together by man from distant regions.

The point of the coast known by the names of yam, samum, or uamiel, seldom blow in the southern parts of Arabia. They are chiefly experienced in the tract between Basra, Bagdad, Haleb, and Mecca; but even here they are only dreaded during the hottest months of the year. These winds seem to derive their noxious qualities from the parching over the great sandy desert when accelerated by the intense rays of the tropical sun; and accordingly, Niebuhr was informed that at Mecca the samum blows from the east, at Bagdad from the west, and at Basra from the south-west. The nature of winds generally seems to differ according to the tract which they have passed over. All Bay observes that, at Jidva, the north-west, traversing the arid country, is agreeable, as it assists to revitalize the rare fronds of madrepore and coral which abound in the Arabian Gulf, and in some parts rise ten fathoms above the sea, are increasing and coming nearer the earth; and as the intermixture of fine yellow sand contributes to the fertility of the land, it is on that side constantly extending its limits. Murs are mentioned by Arrian (Periplus of the Erythraean Sea, e. 5) as a sea-port of Arabia Felix; we now find it at a distance of several miles from the sea. The harbour of Jidva is described by Lord Valentia as being formed by innumerable reefs of coral, which extend to about four miles from the shore, leaving many narrow channels between, in which there is a good bottom at six to twelve fathoms, and where the sea is perfectly smooth even when it blows the heaviest gale. In the southern part of the Arabian Gulf these banks of coral are less numerous.

Arabia has long been celebrated for the abundance of its odoriferous plants. The frankincense of Saba is situated to the north of the desert which separates the Arabian Gulf from the Persian Gulf, near Bulgos or Beila-el-Fakhil, and exported from Mokha, still maintains its superiority over the coffee produced in the European colonies in all other parts of the globe. The frankincense deposit called manna, familiar to all readers from the use made of it by the Israelites during their wanderings in the desert, is now, according to Niebuhr, chiefly, if not exclusively, found on the leaves of a species of oak called bulbul or qaf: according to others, it is a pelliculose substance.
THE PEARL-FISHERS OF ARABIA.

The pearl-fishers of the Persian Gulf are celebrated. The pearls, which pearl-shells are principally found extends from the Bahrein islands to very near the promontory of Jurf. The northern extremity, near the isles Karak and Bahrein, is distinguished as particularly rich in pearls. The pearl-fishers in this whole country has time noted the Desert Arab, the former occupying the southern, and the latter the northern part of the peninsula. The triple division into Arabia Felix, Arabia Petraea, and Arabia Deserta, was given by the ancient geographers. Arabia Felix was the most fertile part of the peninsula, as far as the isthmus already described; Arabia Petraea, so named from Petra, the ancient capital of the Nabathaeans, was the country between the Red and the Dead Sea, bordering upon Palestine and Egypt; and Arabia Deserta comprehended the whole extent of the Syrian desert, as far as the Euphrates, where we find Palmyra.

By some contemporary Christian writers on the history of the Crusades, the territory around Bostra, or the Auron- nos of the ancients, is called the desert of the east of the Jordan had the same name Arabis Secunda or Arabia Petraea (in allusion to its capital Krak or Kar- rak, also named Petra Deserti, which was erroneously sup- posed to be the same as the city of Petra, in the dead of the desert, much supplied by the desert is sufficient for its food. It carries a weight of a thousand pounds and upwards, without being unloaded for weeks. A hint from his lord directs its motions; a song renuws its strength, a hair is manufactured for garments and tents; its milk, like that of the cow, is nutritious and sweet; its flesh, when young, is in taste similar to veal.

Arabia is noted for its horses, of which there are two distinct varieties; the one is called kadas, i.e. of unknown descent, is in no higher estimation than the common horses in Europe; horses of this breed are employed to carry loads, or as draught-animals. The other, called kholas or kholed, i.e. of ancient and noble pedigree, is reserved for riding only. The best horses are bred in the desert bor- dering on Syria; they are here educated in the encampments of the Beduins with a careful tenderness which trains them to habits of attachment to their masters. It is for size, quality, and for their amazing speed, that they are valued, more than for their size or beauty.

There is also in Arabia a spirited kind of ass, which is useful for riding as well as for burden; some of the best are found in the province of Lahab. The Arabian oxen and cows are distinguished by a hump over the shoulders. Ho- rodotus (ii. 113) mentions two kinds of sheep with fat tails as being indigenous in Arabia. The rock goat, too, is fine, the monkey of Arabia is a species of the palmigrata. The jackal, the wolf, the hyena, and the panther, roam around the tents of the Beduins, or follow the track of the caravans through the solitary desert. The gazelle seeks pasture and shade in the isolated sands. The woods of Yemen and Aden are inhabited by troops of monkeys. The lion, from the frequent allusions to it in antient Arabi poetry, and from the number of names which the language has for it, must at least have been very common.

Among the birds indigenous in Arabia, we find men- tioned several large birds of prey, such as the eagle, the vulture, and several kinds of hawks. The carrion-vulture frequents the mounds and anthills of the Beduins and the sea- gull. The ostrich and other birds valued for their plumage live in the deserts. Tame fowls, pheasants, and different sorts of pigeon, are frequent in Yemen. Along the coast of the Red Sea, pelicans and various kinds of sea-fowl are found.

The locusts of Arabia, whose devastations are so often alluded to, are dried, and roasted or boiled, and in this state eaten by the Arabs. Nibbiyar states that they are strung on cords in the market places of all the Arabian towns from Bab-el-Mandeb to Basra.

The sea, on the eastern coast of Oman, is so abundant in fish, that not only asses, cows, and other domestic animals are fed with them, but they are also spread on the fields, to improve the soil, as manure. The pearl-fisheries of the Persian Gulf are celebrated. The pearls, which pearl-shells are principally found extends from the Bahrein islands to very near the promontory of Jurf. The northern extremity, near the isles Karak and Bahrein, is distinguished as particularly rich in pearls. The pearl-fishers in this whole country has time noted the Desert Arab, the former occupying the southern, and the latter the northern part of the peninsula. The triple division into Arabia Felix, Arabia Petraea, and Arabia Deserta, was given by the ancient geographers. Arabia Felix was the most fertile part of the peninsula, as far as the isthmus already described; Arabia Petraea, so named from Petra, the ancient capital of the Nabathaeans, was the country between the Red and the Dead Sea, bordering upon Palestine and Egypt; and Arabia Deserta comprehended the whole extent of the Syrian desert, as far as the Euphrates, where we find Palmyra.

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chiefs in frankincense, is bounded on the south-east by the Indian Ocean, on the north-east by Oman, on the north by the Arabian high-land, and on the west by Yemen. The trade in frankincense and myrrh, which the coast of the Persian Gulf always is, is the time of Niebuhr's visit, subject to the chief of Keshin.

III. Oman extends along the coast of the Persian Gulf and the Indian Ocean, and is about 600 miles long, and 150 miles wide, with the Arabian desert which fills the interior of Oman. The country is in some parts fertile in wheat, barley, Turkey corn, lentils, grapes, dates, and garden fruits; it also has lead and copper-mines. Rostak is the residence of the Imam of Oman. The harbour of Muscat is important as an emporium.

IV. Independent States on the islands and borders of the Persian Gulf,—Almost all the sea-ports in the Persian Gulf, occasionally even some on the Persian coast, are in the possession of Arab tribes, who for the most part depend on navigation, fishery, and diving for pearls, for their livelihood. Dates, durra-bread, and fish, are their principal articles of food. Each little town has its own sheikh. In time of war, all their fishing-boats are made battle-ships; and as with a navy of this description decisive battles cannot easily take place, the internal contests between the little states continue and increase. Sometimes Meccas are sent against them, they leave their settlements on the coast, where they have but little to lose, and retire in their boats to some uninhabited island till the troopers are withdrawn. Gombroon, or Bender-Abbas, and Abusheber, or Bushire, are the principal sea-ports on the Persian coast. The island of Kharaj, or Kark, in the northern part of the gulf, nearly opposite Abusheber, is, through its situation, an important station for the commerce. The little island of Hormuz, or Omora, in the straits which separate the entrance from the Indian sea into the Persian Gulf, is celebrated from the importance which it possessed while the Portuguese trade with India was flourishing. At no very great distance from Omora, and Yemen in general, is carried on by sea; Dates, wool, and cereals are exchanged for the European and Turkish goods, and for the garments and dress of the Arabs and Persians. The island, or rather the group of islands called Bahrein, near the western coast of the Persian Gulf, is the scene of occasional piratical attacks. It is said to have been very populous formerly, and to have contained upwards of thirty and fifty towns and villages. The principal island of the group is known by the name of Arad. The ancient harbour of Geurra is supposed to have been some where along the coast of Arabia. (See Strabo, xvi. c. 4, p. 776, Cusab.)

The country of Lahas, or Hajar, lies along the western shore of the Persian Gulf; the part immediately along the coast from Bahrein to the Bahreins on the latter island is under Oman, on the west on the Arabian high-land, and on the north on the territory of the Beduin tribe Kaab, near the Siut-el-Arab. The greater part of the country towards the interior is occupied by Beduins; the inhabitants along the coast subsist chiefly by the pearl-fishery, or the cultivation of date-trees. The principal towns are Lahas, the residence of the sheikh, and Katif, a sea-port opposite the Bahrein islands, perhaps near the ancient Geurra.

The country of Najd occupies nearly the whole extent of the high-land of Arabia, from Yemen and Hadramaut in the south to the Syrian desert on the north, and from the Persian Gulf on the west to the Red Sea. It is inhabited almost exclusively by wandering tribes of Beduins. The hilly tracts are fertile, chiefly in dates; but rivers, and even the temporary tracts, are scarce, and to obtain waterless and barren. The greater part of the country consists of arid deserts. The climate is excessively hot, but the air is pure and salubrious. Besides the moveable tents of the nomadic Arabs, the traveller meets with towns or Socotra, famous for the fish which it produces, populous, and agreeably situated on the declivities of hills, or in the midst of verdant valleys.

The country of Najd is at present subject to the Wahhabites, a religious sect, which not long ago threatened by its extreme severity and bigotry, the neighboring nations. The founder of this fanatic sect was Abd-al-Wahhab, a native of Najid, who lived several years at Baas, and, after visiting Bagdad and Persia, returned to his native country. Here he began to propagate his religious opinions, which were soon embraced by many of the independent Beduin chiefs. We are still without an authentic and detailed account of the faith of the Wahhab, the sect which has been so excessively severe and bigoted as the Musulman faith to a pure deism, by representing Mohammed and his predecessors, Moses, Jesus, &c., not as inspired prophets, but only as wise men, and benevolent men; the capital of the Wahhabite dominion, and the principal city of the whole Arabian high-land, is Derizay, a town of about 2200 houses, picturesquely situated along the borders of the Wadh, or Wadi, which extending itself from west to east, is several hundred miles in length, and about one and a half in breadth; during part of the year it is watered by a torrent of rain from the mountains; during summer, the want of irrigation is supplied from the copious springs and large underground reservoirs, surrounded by twenty-eight mosques, (but, contrary to the Musulman fashion, without minarets and cupolas,) and thirty schools, in which the children receive instruction twice every day, except Fridays. The gardens and fields around Derizay are fertile in dates, pomegranate-trees, apricots, peaches, grapes, melons, &c., also in wheat, barley, and millet. (See Rousseau, in the Mimes de l'Orient, II. p. 155, &c.)

VII. Hejaz borders on the east on Najd, on the north on the Syrian desert and the Gulf of Akaba, on the west on the Red Sea, and on the south on Yemen. It is the holy land of the Mohammedans, on account of the two sacred cities Mecca and Medinah, which the former native town of Mohammed, the latter the place of interment of the prophet, is so long as the Grand Seignior of Constantinople, in his character of Protector of the Holy Places, maintained his sovereignty over this important province, he used regularly to appoint a secretary, who during his absence governed the affairs of Mecca, with a Turkish guard, and divided the receipts of the custom-house with the sheikh of Mecca, who was considered as his vassal. The dominion of the Grand Seignior of Constantinople was, however, little felt; the power of the Wahhabite sheif might very easily have made himself independent long ago, if the existing relations with Constantinople had not been advantageous to the Hejaz, on account of the rich presents which the Shah made it annually. The power of Meccah, or the Meccan sheikhs, who are the descendants of the prophetic family throughout the Hejaz, and almost every inhabitant of that town, were allowed, as servants attached to the temple, to partake. But when the power of the Persians in the African and Asiatic provinces became weakened, and when the increasing ascendency of the Wahhabites cut off the communication between Constantinople and the sacred cities, the sheik of Mecca became disinclined to remain tributary to the Sultan.

The sheikh of Meccah was no longer a mere vassal of the Shah; he attacked the Turkish pasha at Jidda, destroyed his citadel, and got rid of him by poison. Soon, however, the sheikh found himself besieged by the Wahhabites; and the latter, when the news of the impending visit of the Shah to the Arab countries, who had been made Meccah, were frequently intercepted, and exposed to constant annoyance from the followers of the new religion. Mohammed Ali, the present viceroy of Egypt, at length succeeded in checking the power of the Wahhabites; he made himself master of the Hejaz, and assumed the protectorate of the holy towns.

The number of pilgrims, says Niebuhr, "who annually assemble at Mecca is very great. One great caravan comes from Damascus, consisting chiefly of pilgrims from the Turkish empire. Another, coming from Egypt, brings along the Mogrebi or African pilgrims; both meet at a few stations on the way, where the ships are unloaded. A third comes from Bagdad, with which most of the Persian pilgrims travel. Two smaller caravans come from Lahas and Oman, besides a separate company of pilgrims from Yemen, and numberless stragglers. The pilgrims from the southern and eastern parts of Arabia and the adjacent islands, from India, the Arabian colonies on the west coast of Africa, &c. Only a few pious Mohammedans perform the pilgrimage by land, and are paid poor for their sacred journey for others, who are prevented from discharging this religious duty personally."

The principal towns of the Hejaz (Meccah, Medina, Jidda)
have already been alluded to. Besides these, we may mention Yanbo, the sea-port of Medina; Tayef, which is agreeably situated and of a body of united towns, about which natives and merchants have excellent fruits; Ghunfude, and Taif.

VIII. The desert of Mount Sinai, including the Arabia Petraea of the antients, once the seat of the Nabathanian dominion, is now nearly desolate, affords only few towns; the fertile valleys of its hands of the independent Sheikhs of the Beduins. The group of the Sinai mountains is the last considerable elevation towards the north-west of the mountains which form the high-land in the interior of Arabia. It may be seen from Jidda, where the road of merchants of Mecca to the town of Serat, and from the Gulf of Akaba on the east, and that of Suez, called also the Gulf of Kolum, on the west. At the northern extremity of the eastern gulf is situated the ancient town of Aila, the name of which is mentioned by Ptolemy (Civ. v. xvi, 6), now commonly called Akaba. At the northern extremity of the western gulf lies the town of Suez, one of the few safe and spacious harbours in the Red Sea where ships can be repaired: it is now of secondary importance, as the traffic by sea between Egypt and the Hejaz is chiefly carried on from Kosseir; yet the trade in coffee and Indian goods still passes by Suez to Kairo. On the eastern side of the gulf of Suez is another good harbour called Bender-Tenger, where the ships trading between Jidda and Suez are in the habit of anchoring to take in fresh water, which the neighbouring mountains supply of excellent quality. In the Sinai mountains we find the wells mentioned by Baron G. von Strack, quoted by Runge (De orig. orig. ii. p. 14, ed. Michaelis) states its dimensions, from the headland at forty parasangs in length, and as much in breadth, the soil being partly rocky and hard, and partly sandy, with now and then a well of brackish water. This account is fully confirmed by Burckhardt, who tells us that he met with this the most defenceless and barren of all the desert he ever met with.

Towards the north of the group of Sinai is a desolate tract, called by the Arabs El-Nahal, or Tiah-Bani-Irall, i.e. the desert of the children of Israel. Abuflida (Descript. Arab. ii, p. 14, ed. Michaelis) states its dimensions, from the headland at forty parasangs in length, and as much in breadth, the soil being partly rocky and hard, and partly sandy, with now and then a well of brackish water. This account is fully confirmed by Burckhardt, who tells us that he met with this the most defenceless and barren of all the desert he ever met with.

To the north of the Gulf of Akaba, in the hilly district of Jebel Shera, at a distance of about seven hours from Shobak, or Kerak-al-Shobak, its capital, the road continues itself, which leads to the Zusammen of Ain Musa. In this vale below the village of Eliday, Burckhardt discovered the magnificient ruins of a town which he, no doubt correctly, supposed to be the ancient Nabathanian capital Petra. The remains of the Nabathians: says Strack, quoted by Runge (De orig. orig. ii. p. 403, ed. Taunhtz; Casaub. p. 775) 'is a town called Petra.' It is situated in a place which itself is smooth and level, but which is all around fenced by a circle of rocks, and on the outside consists of precipices cliffs, while towards the interior it has copious springs for the watering of fields and for horticulture. Pliny (N. H. vi. c. 28) describes Petra as situated 'in a valley somewhat less than two thousand parasangs square, on inaccessible mountains, with a stream running through it.'

IX. Tribes of Beduins, or Wandering Arabs.—The word beduin is a corruption of the Arabic badari, which is derived from the substantive badari and emulates the Hebrew word for desolation, i.e. that signifies an inhabitant of the desert. The Arabs who live in towns, Niebuhr observes, especially those near the sea-coast, have through their commerce had so much intercourse with strangers, that they have long since lost but few ancient manners and customs. But the true Arabs, who had always valued their freedom higher than wealth and luxury, live in detached tribes under tents, and still adhere to the primitive form of government, habits, and usages of their ancestors. Their main occupation is the raising of the sheep, the goats, and the camel, their principal food. They keep no stock of cattle, nor do they pasture them upon the hills over his family, and all their servants. If they are unable to separate their defence property against a hostile neighbour, several petty sheikhs unite, and choose a chief from among themselves. Several chiefs, with the assent of the petty sheikhs, submit to one still more powerful, who is called sheikh-al-kebir, or sheikh-al-aboyuk, and the entire body of united sheikhs is thus named. The title of a supreme sheikh. The Beduins are all, as it were, born soldiers, while at the same time they attend to their cattle. The sheikhs of the great tribes have a large number of camels, partly for use in time of war, partly to transport the goods of merchants to the towns, and partly to sell. The smaller tribes, which are less wealthy and independently, principally tend sheep. Agriculture, and other descriptions of hard work, they commit to their subjects, the common tribesmen, or slaves; the Beduins have neither tents. Being accustomed to an atmosphere of great purity, the scent of these Arab's of the desert is uncommonly nice. It is said, they are able to live for five days without drinking water, and are familiar with the use of very small tents. The smaller sheikhs: among the sons or nearest relations, not the oldest, but who appears the best fitted, is chosen. They pay little or nothing in the way of taxes to their superiors. Every little sheikh is not only the protector, but also the leader of his family; he is, accordingly, looked upon by the greater sheikh rather as a confederate, than as a subject. If one of the little sheikhs is dissatisfied with his sheikh-al-kebir, and is nevertheless unable to depose him, he will remove with his cattle to another tribe, which is usually glad to strengthen its party. Every sheikh, however small he may be, must therefore endeavour to govern his tribe well, for the fear of being deprived of the common desert by other tribes, once possessing great power, have thus fallen into oblivion; and small families, unknown before, have raised themselves to importance.

The Beduins have no further subdued by foreign conquerors: only the tribes who live near the large towns of Bagdad, Mosul, Orfa, Damascus, and Aleppo, are in some degree subject or tributary to the Grand Seignior. The several tribes are often at war with one another; but their conflicts are more religious than serious, and the Beduins never commit an act of bloodshed. Whenever any tribe is attacked by a foreign enemy, all the neighbouring chiefs unite in defence of the common cause. Every sheikh considers himself as sovereign in his own territory, and only acknowledges the authority of the travelling sheikhs passing through it. The Turkish sultana even used to engage themselves to pay annually a fixed sum of money, besides a number of garments, to the Beduins tribes on the road to Marya, for not destroying the wells along the way, and for conducting the pilgrims through their respective territories. Nevertheless, disputes frequently arose between the sheikhs and the haughty Turkish leaders of the caravans, in consequence of which the pilgrims were often attacked and plundered.

The sheikhs are daily mounted on horseback or on their dromedaries, to inspect their subjects, to visit friends, or to enjoy the pleasures of the chase. The horizon in the desert near as operating in a closed manner, the sheikh is never surrounded by more than a solitary wanderer from afar, who rides towards him, and orders him to undress. In such cases, the Beduins are real robbers; yet it would be incorrect to say that they live chiefly from robbery. They seldom kill those whom they plunder, unless the vidual resistance is offered; the robber is sometimes even kind and hospitable to the forlorn traveller whom he has plundered, furnishing him with provisions and old clothes in exchange for his own, and conducting him part of his way, that he may not perish in the desert.

The tents of the Beduins are made of a coarse kind of dark coloured cloth, woven by their own women, which is drawn over several wooden poles fixed in the ground, the middlemost being the highest. The larger tents consist of two or three compartments, so as to have separate rooms for the men and women, and for the domestic animals. The pockets and the back are to the north, and the south is to the east. The doors of the tent are spread a piece of cloth, as large as they can get, near a tree, or take shelter in the caves of rocks from heat or rain. There is but little furniture in a Beduin tent: a mat of straw is used for the table, chairs, and the beds, which are of the usual kind. We keep for a pot or two, a few spoons, knives and forks. A round piece of leather serves them as table-cloth, in which the remains of the meal are preserved. Their butter, which the heat soon melts down, they keep in leather bottles. Water is kept in goats
Admixing copper-cup, carefully tinned over, serves as a drinking-vessel. Whole mills and water-mills are unknown; all grain is ground in a small hand-mill. There are no ovens in the desert; the dough is either kneaded into a flat cake, and baked on a round iron-plate, or it is formed into large flat cakes which are baked in large wooden boxes until they are sufficiently baked. Among the great sheikhs of the desert, who require nothing but biluva—i.e. boiled rice—for their meals, a large wooden dish full is served up, around which one party after another sits down, till the dish is emptied or nearly so. (Borchardt, Alexandria, p. 379, &c.; also Reise nach Arabien, vol. i., p. 233.)

Ancient Arabia, as known to the western nations—The history of antiquity is without traces of an early influence of the Arabs on the condition of the neighboring nations. The book of Genesis (x. 10) mentions Nimrod as the founder of the Babylonian empire—and the beginning of his kingdom was Babel and Erech, and Accad and Calneh, in the land of Shinar. We think we recognize in Nimrod, the mighty hunter, an Arabian chieftain, like the modern sheikhs of the Beduins; in the passage quoted from the Hebrew, Erech is, according to several of the ancient versions, the modern Orfa (Edessa); Accad is supposed to be Nisibis; and Calneh corresponds to the situation of Ctesiphon on the Tigris.

Egypt seems at an early period to have been infested by invasions from Arabia; for we cannot hesitate to consider the Egyptians, as the earliest Arabians to have occupied the Delta, and even to have penetrated as far as Memphis: the king of Thbes, Thutmose, at last succeeded in expelling them. Their dominion over Egypt is said to have lasted 284 years—from the eighteenth till the sixteenth century before the Christian era. Sesostris is said to have built a wall, 1500 stadia long, from Pelusium to Helopolis, to protect Egypt from a repetition of such invasions; but this story about the wall is open to several serious objections.

Among the nomadic tribes in the northern tracts of Arabia, the Midianites seem to have early applied themselves to traffic with the neighbouring nations. It was a custom of the Midianites to whom Jeremiah was sold (Gen. xxxvii. 26, 36). Arabia was the country of frankincense; and so essential a requisite of religious worship in all the temples of antiquity would soon give great importance to the trade of foreign countries with Arabia. Gerra, probably situated near the present El Katif or Lahsa, was, according to Strabo, a Babylonian colony, founded by Chaldaean emigrants. The exact period of its foundation is unknown; but the conquests of Alexander the Great found it as an opulent town (Strabo, xvi. c. 3:p.766, Cassubas), and it must have been long prosperous as an emporium. The advantages for an extensive commerce by land and by sea, possessed by a body of people so well informed on the sea-coasts of the Mediterranean, are striking. From Gerra the productions of both Arabia and India were shipped to Babylon, and farther up the Euphrates to Thatapacis, whence they spread by land all over western Asia.

Considerable variety of opinion prevails concerning the situation of Ophir, the country whence the ships of Solomon, conjointly with those of the Phoenicians, brought gold, silver, gems, sandalwood, and other precious articles (1 Kings ii. 9; x. 22). Hoehard, Reland, and other critics sought it in India. Modern historians are inclined to think that it was situated in Arabia. The name is, in the book of Genesis (x. 29), enumerated among Arabian tribes descended from Japhet (probably the name of a town named Perin, a name found on the coast of Oman. (Bodleian Indica, ii. p. 137.)

In the history of ancient commerce generally, Arabia is of importance not only on account of the export of its own productions, but as an intermediary in the commerce of other countries with India. Herodotus (iii. 107) calls Arabia the only country where frankincense, myrrh, cassia, and ladanum are to be found: Strabo (xiv. c. 4, tom. 3. p. 385, ed. Tauchert) mentions the province of Catabania in particular as the country of frankincense and ladanum. (Chaldaean) as the place of myrrh. Gold and precious stones are also often alluded to by the ancients as indigenous productions of Arabia Felix. Gold-mines are not at present known to exist: some precious stones, such as the rubies, the topaz, and a kind of ruby called the Mocha-stone, are common in Yemen and Hadramaut. In enumerating cinnamon among the productions of Arabia, Herodotus probably confounded the real productions of the country with the other foreign articles, which, like ivory and amber, the western nations might procure from Arabian emporia.

Antiquity abounds in proofs of the early trade of the Phoenicians with India, which must in a great measure have been carried on through Arabia. One of the earliest and most important proofs is that the gold-weights of the Phoenicians with several towns or countries and tribes of Arabia, occur in the eley of the prophet Ezekiel on the fall of Tyre. We insert a literal translation of the passage, leaving the proper names in their Hebrew forms, and subject to parenthesis, the probable modern or classical equivalent.

Ezek. xxvii. 12. 'Tarsish (Tartessus) was thy (Tyre's) customer, on account of the variety of all [thy] treasures: silver, iron, tin and lead, copper and iron: they purchased of thee and thy merchants, on thy markets.

13. Yavan (Greece), Thubal (the Tibareni in Pontus), and Meshech (the Moschi between Armenia, Iberia, and Colchis) dealt with thee: souls of men (slaves), and copper vessels did they bring on thy markets.

14. Those from the house of Togarma (Armenia) brought on thy markets horses for draught and horses for war, and mules.

15. The sons of Dedan (according to Bocchart, a town on the Persian Gulf; according to Heeren, one of the Bahrein islands; why should it not be here, as elsewhere, the tribe in the neighbourhood of Idumea?) dealt with thee; many kinds of arrows and hunting spears did they dispose of with thee: with ivory and ebony did they repay thy gifts.

16. Aram (Syria) was thy customer on account of the variety of thy manufacture: (in exchange) for gems, and for fine purple clothing, composed from the finest red of purple, and for fine sapphire, and for crystal (which Aram brought) on thy markets.

17. Juda and the land of Israel dealt with thee: wheat of Minaim (a town in the land of the Ammonites), and sweetmeats, and honey, and oil, and balms did they place on thy markets.

18. Damesek (Damascus) was thy customer, on account of the variety of thy manufactures, and on account of the variety of all [thy] treasures: (in exchange) for wine from Chebon (the purple grape) and shining wool [which Damesek brought in return].

19. Vedan and Yavan (both here Arabian towns or tribes not yet ascertained) brought weavings on thy markets: wrought iron, casata, and calamus hadath thou for sale.

20. Dedan (a tribe in the neighbourhood of Idumea) dealt with thee in carpets that are spread to sit upon.

21. Arav (Arabia) and all the chiefs of Kedar (the Arabs of Cedrini of Pinxy) were trading business with thee: they were thy customers with their lambs and rams and he-goats.

22. The trademen of Sheba (Saba in Arabia Felix) and of Seba (Saba in Arabia Deserta) brought gold, and spices, and gold; and of the purest grain, and of the choicest of all spices, and all [sorts of] precious stones, and gold did they bring on thy markets.

23. Haran (Carinae, the modern Haran in Mesopotamia) and Canaan (let Calne, i.e. Ctesiphon?) and Eden (probably the Median or Syrian writers, in the province of Diarbekir), the trademen of Sheba, Sabr (Asyria), and Kilman (not yet ascertained) dealt with thee.

24. They dealt with thee in rich garments, in crimson and variegated cloth, and in chests full of many-coloured weavings, tied with ropes, and firm, (which they brought) on thy markets.'

Professor Heeren, in his valuable work on ancient commerce, vol. ii. part ii. p. 162, &c., fourth edit., has adopted the interpretation of J. D. Michaelis, according to which, by the first three names in verse 23, three great Arabian harbours on the coast of the Indian Sea are to be understood, viz., the Arabian Gulf, or the Persian Gulf, or the Indian Ocean: many of the names mentioned by the Hebrew writer, is perhaps the more hopeless, as it is clear enough, from the context, that the Phoenician merchants (in the same manner as the Nabathians afterwards) did not resort to the Arabian Gulf, as the places named, but most probably went directly by foreign caravans: thus the name and situation of the countries whence the several articles came would be less attended to than if the case had been the reverse.

Besides this caravan trade with the Phoenicians, the inter-
cours of the ancient Arabs with the western world seems to have been but scanty, and, accordingly, the accounts of Arabia given by the classical writers are incomplete, and in consequence among the Greeks and Romans. The body of the nation has escaped the domination of the most powerful monarchies that have arisen and fallen in its immediate neighbourhood. Of the ancient Persian empires the Persians are the former depositaries, but in consequence of some Arabs, who engaged to supply the Persian army with water during its march through the sands of Arabia Petraea. (Herodot. ii. 79.) If Phthai, the conqueror of the new Assyrian empire, is said to have invaded the Nahtahains, if Saeb, or Sahah, the Arab, is generally understood to be the father of Petrus, which was subsequently, in alliance to the name of their capital Petra, called Arabia Petraea. Diodorus describes them as a valiant nation, safe like the men of Wathel; even during the war between them, the knocking of their ships was heard. Like other Beduin tribes, they subsisted in a great measure by predatory excursions; but they seem at an earlier age than their neighbours to have applied themselves to agriculture. Their territory was repeatedly invaded by the states arising out of the Macedonian empire. Demetrius, the son of Antigonus, and afterwards Antiochus the Great (224-187 B.C.) invaded the country of the Nabataeans, and it seems that the Nabataeans maintained their independence, and their trade flourished even more than previously. After Syria had become a Roman province (64 B.C.), its governors Scaurus and Gaius reputedly threatened Petra with an invasion. In the reign of Augustus, Julius Gallus is recorded to have conducted an expedition into Arabia Felix, in which Obodas, then king of Petra, assisted him with a thousand Nabataean Arabs. The Roman army landed at Laeke-koume (Yambol), and, after a fatiguing march of several months reached Marsabye (Strab. xvi. c. 4, p. 407, Tauchnitz), the capital of the Sabaeans. But want of provisions, and the bad effects of the climate, compelled them to retreat. A few Carthaginian traders did enter the country, and, passing over the Red Sea to Egypt. It is to this expedition that Propertius (i. 8) alludes in the lines:

1 Isis qua, Ausone, tu dedit alta triumpha,
Et obliterauit te mundi petra clausa
3 In the reign of Trajanus, Arabia Petraea became, through the victory of A. Cornelius Palma, a Roman province (A.D. 107), and the northern countries, towards the east of the river Jordan, formerly in the possession of the Nabataeans, continued to be subject to the Romans even after the death of Trajanus. A Roman legion was stationed at Bostra, and the Emperor Philippus, who was born here, hence received the surname of Bostricianus, in the days of Hadrian, he could not leave it: the west, such as the inhabitants deserted it, and sought the freedom of their deserts; even the place where it had flourished was forgotten; till, in our own time, Burchardt discovered the ruins of Wadi Musa.)

History of the Arabs.—Of the internal history of Arabia before Mohammed, our knowledge is very imperfect. Prior to the beginning of the third century of the Christian era, all that has been transmitted to us by Arabic writers amounts only to some genealogies or lists of kings, without any fixed chronology, and interspersed with but a few facts unsatisfactorily recorded. Of those in the annals of the Arabian tribes, especially in the days of their own writers, (Abulpharag., Hist. Dynast. p. 100) distinguished into two classes, the old and the modern tribes. As belonging to the old Arabians, which are now entirely extinct, we find enumerated the tribes of Ad, Thamud, Jadda, the (entire) tribe of Jorbam, and Amalek. The names of these tribes now only survive in vogue traditions; thus Shaddad, of the tribe of Ad, is said to have founded the magnificent city and the delicious gar- dens of Imm, or Petra, the capital of the Nabataean tribe, and fainted by some to be still extant, though now largely hidden from view in impassable deserts. The present or modern Arabians are, by their own historians, divided into pure or genuine, and inoffensive or naturalized Arabs. (From Kraft, Gesch. d. Arab. p. 29.) From the time of the Old Testament, Gen. x. 28), and the latter from Adnan, a descendant of Ismael, the son of Abraham and Hagar. These Lanneseke Arabs seem to have settled chiefly in the south of the country. The Sabaeans (founded by Phthai) possessed the country between the Red Sea and the Persian Gulf. The Sabaeans, sons, two of whom, Himyar (pronounced by some Homer) and Khablan, had a numerous progeny. The family of Him- yar, it appears, had, during 2040 years, the general government over all the descendants of Sabaeus who were settled in Yemen, whereas the name of the Himyarides (or Homerites) was sometimes taken by foreign nations as synonymous with that of Sabaeus. Himyar was, according to Arabian annals, the first king of the family of Khablan, to whom the crown was transmitted. From the fact which we find recorded of him, that he expelled the tribe Thamud from Yemen into Hejas. Various reports exist as to Himyar's successor: according to some it was his brother Wathel; according to others, his brother, or probably Wathel succeeded him in Yemen, and Khablan in Hadramaut. Similar variations in the lists of kings given by different authors (Abulfeda, Hamza of Jafsahan, Nuweir, and many others, 332) are found in the annals of Yemen. Among the succeeding rulers, Al-Hareth-al-Rayesh is distinguished as the first conqueror among the kings of Yemen; he also first received the title of Toobs, i.e. successor, a title which became hereditary in his line. Amanar Aabra and his son Daul-adar are reported to have made conquests in Nigritia and other parts of Africa. The next sovereign but one in succession after Daul-adar is believed to have been Balkis, who is said to have converted the Sabaeans who visited Solomon (1 Kings x. 1, seq.; 2 Chron. ix. 1, seq.). Many generations after Balkis, in the reign of Akran, an event occurred which forms an important epoch in the history of the Saba. Impetuous mountain-torrents used frequently to destroy the labours of agriculture in the plains of Yemen, till some antient king (according to some, Lokman, according to others, Himyar himself) opened channels which brought the waters to the sea, constructed an immense dike or mound between two hills just above the capital Mareb (or Saba), which prevented sudden inundations, and from the reservoir thus formed, supplied the gardens and fields with water, which, in time, increased the prosperity of the country; while the torrent, which from time to time threatened to be torrential, caused a great change in the whole peninsula. Amru ben Amer, surnamed Mosaikiya, one of the nobles of the country, perhaps the chief of the Khablanids, had been previously warned of the imminent danger; he sold his estates, and with a number of families quitted Yemen and went into the country of Acre. After the death of Amru, the emigrant families separated, and settled in different countries. The family of Amru, which first established itself in Syria, and founded the kingdom of the Ghassanides in the desert S.E. of Damascus, which embraced the Christian religion, and formed part of the Roman or Gothic dominions, till, in the reign of the caliph Omar, it was incorporated into the Alem- median empire. The tribes of Aus and of Kharase, descended from Amru by his son Thalaba, went to Yatreeb (afterwards called Medina). The descendants of Aus settled near the Sina, and the Amran, which is now the name of the country of the Saba, is divided into two great tribes, the Amran and the Amlak, who now form the greater part of the inhabitants of the Saba. Malek ben Fahm, also of the family of Aml, established himself in Irak, and founded the kingdom of Hira, which was governed during 597 years by a succession of twenty-five kings, who at last became vassals to Persia; till, in the caliphate of Abu Bekr the country was subjected to
the Mohammedan dominion. The tribe of Ta‘i, which had left Yemen soon after Amru ben Amer, settled in the Nejd, between the mountains of Aja and Solma, since called the mountains of Ta‘i. The family of Rebis, grandson of Amru, settled at Jamas, and the black stone in the ancient temple of Mecca, called the Caaba, had, from immemorial time, been regarded by the Arabs as national sanctuaries. (The modern) Jorhamdes, descended from Jorham the son of Kahlan, had established themselves in Hejaz about the same time that Ye‘a, settled in Yemen, and had for many ages been the hereditary protectors and keepers of the Caaba; when Amru ben Lohes of the tribe Khorsa, with the Yemenean emigrants from Ace, and assisted by the tribe of Bekr, availed himself of the opportunity of a dispute between the Jorhamdes and the neighbouring Ismaelides, to expel the former from Mecca, and take possession of the sanctuary. Soon, however, the tribe of Bekr felt indifferent at being excluded from the government over the Caaba, which honour, after the services they had rendered, they considered due to themselves. They entered into a treaty with Kosai of the Ismaelide tribe of Koreish, and by his assistance compelled the Jorhamdes to sign the charter which gave them the Caaba. But the tribe of Bekr was again excluded from the guardianship of the temple, which came through Kosai into the hands of the tribe of Koreish. It is calculated that this happened about A.D. 464.

Abd-El-Motalleb, who was Hashem, who is reported to have availed himself of the treasures. His son Abd-al-Motalleb is famous for his victory over Abraha, an Ethiopian ruler of Yemen, and a Christian, who invaded Mecca with a large army and several elephants, intending to destroy the Caaba. A miracle is said to have preserved the sanctuary, and to have destroyed the army of Abraha. The year of this victory is in the calendar the year called the Years of the Elephant, in allusion to the elephant on which Abraha was mounted, which suddenly refused to proceed farther when the army was approaching the sacred city; it is the year 571 of our era. Another event rendered it still more universally memorable; for in it Hashem’s grandson, Abdallah, became the father of the Arabian prophet Mohammed.

Yemen had since the Seil-al-Arîm become temporarily subject to foreign power. The Jews, who since the destruction of the tribes of the Medeir, had made proselytes of several Arabian tribes, particularly those of Kenana, Kenda, and Hareth ben Kaaba, and had already gained considerable power in some parts of the peninsula, who occupied the country, were of old, as they still are, the accomplishments on which Arab valued himself most.

With respect to the religion of the ancient Arabs, our information is very imperfect. As they were ranging their trackless domain, unacquainted with the arts of civilization, they seem to have been early led to the worship of the heavenly luminaries. The tribe of Himyar is said to have chiefly worshipped the sun; Kenana, the moon; Ta‘i, the fixed stars; and Abd-al-Motalleb; the Sabaeans, the ancient capital of Yemen, had a temple built in honour of the planet Venus; the temple of Mecca, as according to some, originally consecrated to Saturn; and Abd-al-Motalleb, of the tribe of Harmash, a temple several times in the fragments of Ante-Islamic history. The Koran alludes to three female deities: Allat, (see He- rod. iii. 8,) adored by the tribe of Thakif, whose temple, at Khidr, was destroyed by Mohammed in the ninth year of his reign, after his return from Mecca; Al-Uzza, adored by the tribes of Koreish and Kenana, under the form of a tree; and Menat, the goddess of the tribes of Hudsail and Kenana. Two other deities, Asaf and Nails, were adored by the tribe of Koreish, the one under the form of a man, and the other under that of a woman. Five more are noticed, which were worshipped under various human and animal shapes, besides a number of inferior idols, belonging to particular families. Among the Sabaeans, the worship of Venus was paid to a demon named Yathrib, and the worship of Thubur, or Thubur, is said to have been introduced. The idea of goblins and fairies, some of a terrific, some of a mild and placid character, was early associated with the loneliness of the desert. The Sabaeans, however, were early acquainted with astrology, and sorcery, were early at home in Arabia.

Such was the condition of the Arabs about the beginning of the seventh century. A few small provinces in the north had, like the neighbouring countries of Syria, Palestine, and Egypt, become subject to the Grecian empire, while those bordering on the Euphrates acknowledged Persian supremacy, and an Ethiopian dynasty ruled temporarily in the south of Yemen. So far, however, as could be collected from ancient authors, the dominion of the Sabaeans, and probably even ignorant of these slight encroachments of foreign dominion. The Arabs, long celebrated for their valiant and intrepid character, had never yet been united by a common tie into one mass. Their wandering tribes, without fixed mutual relations, scattered over a vast extent of land, and often engaged in transitory feuds among each other, continuing to enjoy unlimited independence. The union of these tribes into a nation, and the great- est events, dates from the promulgation of the Islam by Abu-l-Kasem Mohammed. The noble inspiration, the firm belief in the truth and divinity of the new religion, and the intrepid courage with which the 8th century, and his successors, the natural inclination of the Arabs towards war and perilous undertakings, the weakness of the neighbouring governments, and the precept of the Koran, which enjoined the propagation of the Islam, and war against the unbelievers as a religious duty, —spread within a century.
the dominion of the Arabs attained its widest extent, Julienus, the governor of Centa, incensed, it is said, against his sovereign, king Roderic of Spain, who had disgraced his daughter, sought the protection of the Muslims (Algeria to the Green Island,) into the hands of the Arab Tarik ben Ziad, who, at the command of the African governor Musa ben Nossair, landed at the promontory which still bears his name (Gibraltar), and took possession of the northern coast of Africa, as far as the Straits of Gibraltar, was in the possession of the Arabs. In the reign of Walid I. (705-715),

Mohammed was born in the tribe of Koriekh, at Mecca, according to some on the 10th of November, 570, according to others on the 21st of April, 571, P.C. In his twentieth year he took part in an expedition against the Meccan tribes. In the thirty-fourth year of his age (A.D. 610) came the LASTAL- alical event in Mohammedan history, a proof in which the Mohammedans believe, the angel Gabriel called him to become the prophet of God. Khadija his wife, his cousin Ali ben Abi Taleb, and his father-in-law Abu Talib were among the first divines of his mission. Twelve years had elapsed, when a revolt at Mecca threatened the life of Mohammed. The day of his flight to Yathrib (since called Medina or Medinat-al-nabi, i.e. "The Town of the Prophet"), the 16th of July, 622, has become the era from which the Mohammedans count their years. With it commenced a war against the oppressors of the new religion. When Meccan was conquered, when the tribes of Arabia joined in the profession, that "There is no God but Allah, and Mohammed is his prophet," the prophet commanded to spread the Islam over all countries, and to unite into one community, by conquest or by faith, all the nations of the earth. Mohammed died at Medina, the 8th of June, 632, at the age of sixty-two years. The Muslim empire now stretched from the Gulf of Oman to the borders of Africa.

The Byzantine empire had just then been engaged in a long conflict with Persia. The despotism of its rulers, frequent though inefficient revolutions, and constant efforts for the repression of foreign enemies, the loose state of the finances, notwithstanding an oppressive taxation, and the discord of contending religious sects, had exhausted its strength. The Persian empire had sunk still lower: the superannuated doctrine of Zoroaster could no longer account for the sovereigns of the neighboring empires, and for the new nation with all the vigour and enthusiasm of youth. This weakened state of the two principal neighbouring empires favoured the quick progress of the Arabian conquests. Whoever adopted the Mohammedan faith became embodied in the new state, and was no longer regarded as a stranger. Jews and Christians were tolerated, but required to pay a tribute; death awaited the followers of other religions. The supreme pontificate and worldly command were united in the person of Mohammed's successors, the caliphs. Many of these were individually weak; but their authority and the might of the empire were supported by the popular belief which was rooted deeply in the mind of the nation.

The history of the first century of the caliphate exhibits an almost continuous series of conquests. In the reign of Abu- Beker, the valiant Khalaf ibn Abu-Talib, of Syria and Mesopotamia, and in that of Omar the victories of Amin and 'Abd Allah ibn Zaid were decisive and extensive. As added Egypt to the Arabian empire; after a siege of fourteen months, Alexandria was taken; Memphis fell, and Amru laid in the neighbourhood of its ruins the foundation of Fustat, the present Old Cairo. The conquest of Egypt was soon followed by that of Cyrenaica and the other states along the coast of the Mediterranean; congenial habits united the Berber hordes of Africa with the sons of the Arabian Desert. The victories won by Saad ben Abi-Wakkas over the Persian forces near Cadesia (638), Jalula (637), Holwan and Nehawund (642), decided the fall of the Persian throne. Under Omar, the island of Cyprus was plundered (648); Africa had now extended as far as the Pillars of Hercules, as far as Balhik. The reign of Ali ben Abi-Taleb was spent in the quelling of internal commotions, which ended in the murder of the caliph by the hand of the fanatical Abdorrahman ben Moljam, and the accession of the Omisiamides to the caliphate.

Mowaiya, the first of the Omisiamide caliphs, removed the residence of the empire from Kufa, near the Euphrates, to Damascus. In his reign Oaksa ben Nafl laid the foundation of Ngorwan (673), and penetrated as far as Tangier and the Atlantic. Oaksa was murdered when he was preparing to pass over into Spain, in consequence of which many of the provinces conquered in these distant regions were lost again. In his second reign (685-69) the northern coast of Africa, as far as the Straits of Gibraltar, was in the possession of the Arabs. In the reign of Walid I. (705-715),

Under the Abbasides, who fixed their residence at Bagdad, but few additions were made to the Mohammedan empire: the banks of the Nile, and Sicily, became subject to the Arabs of Spain and Africa. The sovereigns of the House of Abbas generally distinguished themselves as much by their love and zeal for the arts and literature, as their predecessors had done by their warlike achievements. The names of Mansur, Harun-al-Rashid, and Mamun are for ever entitled to an honourable place in the history of letters, and their reigns form the brilliant epoch of the Mohammedan power. But their love of mental refinement, and their fondness for a quiet and luxurious life, withdrew the attention of the Abbaside caliphs from the affairs of government; internal disturbances soon became frequent; the authority of the court of Bagdad became imperceptibly diminished, at first under the distant emirs of the empire. By establishing an independent Omisiamide dominion in Spain, had set an example which the prefects of other countries soon followed. The caliphs were obliged to assemble a life-guard of Turkish mercenaries around their throne, and surrender the management of the great departments into the hands of ministers of unlimited authority, the Omer al Omara. Through these arrangements, and through the encroachments of the Seljukides Turks, the caliphate had long since become a mere nominal dignity, when Huilaku took Bagdad (1258), and put an end to the dominion of the Abbasides. [See Abbasides.]

The history of the several Mohammedan states which arose out of the caliphate from the ninth century, does not, strictly speaking, belong to the history of the Arabs; we shall, however, here briefly enumerate the principal dynasties.

I. In Spain, the Omisiamides reigned till 1038. Among their small group of descendants there was no real successor of the line of Oomar, and the Morescides were put in their place by the Christians. The kingdom of Granada kept up afterwards, that of Granada maintained itself till 1492.

II. In Africa, 1. in Egypt, Ahmed ben Tulun established in 868 an independent dominion, which remained in the possession of his family, the Tulunides, till 905, when Egypt returned to its allegiance to the caliphate. From 935-969, the Khedives or Akhshids, the family of Abu Bekr Mohammed, a descendant of the ancient kings of Fergana, ruled over Egypt. They were in 969 followed by the Fatimides, or Mandriades. Among them was Fatima, the daughter of Mohammed: they dominion lasted for two centuries, and extended from the Euphrates to Kairwan. In 1171, the Fatimides were succeeded by the Ayyubide dynasty, which was in 1550 followed by the dominion of the Bokhiides Mamluke. In 1517, Egypt became a Turkish province.

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the Mohammedan faith. Soon the Arabs penetrated to the Indian islands, Ceylon, Sumatra, Java, Celebes, and even to China. Arabian caravans proceeded over land as far as Tartary and Siberia in the north; in Africa they came to the Niger, where, since the tenth century, the Mohammedan states of Ghana, Wagaarum, and Serer employed those of Senegar, Darfur, Burnu, Tumbuctt, and Meli, were founded. On the coasts of Africa they came through the Straits of Bab-el-Mandeb to Zanzibar, estab-
lished the ports of Mohamado, Jeddah, Bokh, Aden, and Mozambique, and went over to Madagascar. It is even probable that Lusitanian Arabs were in the eleventh century, the first discoverers of America. (See Notices et Etudes des MSS. de la Bib. royale des BNJ (1828), p. 42; Veenhoven, Beschrijving der boevenmiddelen de Mohammeds, Ebn Butta, Juin 1818, 4to.; Rasmussen, Etat sur le Commerce et les Relations des Arabes et des Persans avec la Russie et la Sandwichine dans le moyen age, in the Journal Asiatique, vols. v. and vi., Paris, 1824, 1825, 1vo.)

Arabic Language.—The Arabic forms, with the Hithio-
pie, the southern ramifications of the great stock of languages commonly, though improperly, called the Semitic; the other
principle branches are, 1. the native branch, indi-
genous in Syria, Mesopotamia, and Babylon, comprising
the Syriac and Chaldean languages; and 2. the Hebrew, once
the language of Palestine and Phoenicia. These dialects
have flourished at different epochs. Of the Hebrew, we
possess the text as it stood when it ceased to be a living language, the Chaldee makes its appearance. Whatever we possess in Syriac is of a still more recent date. The literature of the Arabic language in Persia is so ancient that we find traces of it even in the present most of these Semitic languages are extinct, or
survive only in small districts. The Arabic alone has out-
lived all its sister-tongues, and has spread not only as the
vocalic tongue over Syria, Egypt, and Northern Africa, but also as the language of religion throughout Persia, the Turkish empire, and all countries into which
the Mohammedan faith has been introduced.

Various dialects prevailed among the Arabian tribes previous to the rise of Mohammed, among which that of the tribe of Koreiah has, through the Koran, become the
classical tongue. Ebn Khaldun thinks that the reason of the elegance and purity of the Koreishite dialect is to be
found in the seclusion of that tribe from intercourse with
foreigners. Next to Koreiah, the neighbouring tribes of
Thakif, Hudseil, Khozaa, Kenana, Assud, Tenim, and
Ghatfan, are by native writers distinguished for the correctness of their language; last of the Yemenite Arabs, and the tribes
of Reba, Lakhm, Jaddah, Ghassan, Iyjed, and Khodha.
Nieberob observes that the Arabic is at present spoken with
the greatest purity in the district of Bahan. The Arabic
language is rich, not only in words (especially in such as
refer to nature and trade); the Arabic poet is reared in
metaphors, but also in grammatical inflections, particularly in the verb, where certain general modifications of the meaning are
briefly and energetically expressed by slight changes in the
form of the verb: the purity of the Arabic language had among the Arabs long been an object of national pride. When, after the first conquests of the Mo-
hemmadas, its genuine correctness seemed to become
endangered through the frequent and unavoidable
intercourse with strangers, grammarians arose to fix its rules
and secure it from corruption. Abu'l-Award al-Duli is
mentioned as the first author on Arabic grammar: he
flourished under the caliph Ali ben Abi Taleb. Among
the subseveunt, the most renowned in Persian were"
had broken out between him and Mamun, in which Theo-
philus was unsuccessful. He was, like his antagonist, a
frequent contributor of poems and essays, some of which
celebrated scholarly Joannes Grammaticus as ambassador to
the court of the caliph. The assistance and advice of this
enjoy of great value in the scientific undertakings then
encouraged by Mamun; and Joannes was so much in favour
at court that he was rewarded with a residence at Bagdad.
In the midst of the negotiation.
In the subsequent times of the caliphat, the Emira al-
Omara and his wife, the beautiful Ithibiah (sultana) encouraged
literature; in almost all the dynasties which sprung out of
the caliphate, there were some sovereign, at least, who loved the
sciences and patronized scholars. The dynasty of the Fatimids,
under which the caliphate had reappeared, had as its
minister, the great scholar Al-Ashf, the founder of the Aglabide dynasty, made
Kairwan a seat of learning; and Zeiri encouraged litera-
ture in the town of Abyah, which he had founded in the
territory of the present Algiers.
In Spain, the Ommane caliphs followed the example of
Al-Mansur and his successors. An exchange of learned
ambassadors took place between Abdorrahman III (912-961)
and the German Emperor Otto I. His son Hakem founded
the university of Cordova, and many colleges and libraries
in Spain; his own library is said to have contained not less
than 6,000,000 volumes. Gerbert of Aurillac, who
afterwards ascended the papal throne as Sylvester II., studied at
Cordova, and wrote his life of the pope in the same system of
numerical notation, for which the Arabs themselves were
indebted to the Hindus. Several English scholars, Adelard
or Adelard of Bath, in the eleventh, and Robert and
Daniel Morley in the twelfth century, also visited the Arabic
universities of Cordova and Saragossa, passing through Spain
and Sicily on their way to the Arabic countries, that the attention of the schoolmen
was first drawn to the writings of Aristotle.
Among the Arabic philosophers, Poccace (in a note pre-
fixed to the Colloquy of the Sibyls and the Devil by his successor in
the college of the Sibyls, the following is the most distinguished:
Abu Názr Mohammed al-Farabi
(died A.D. 942), Abu Ali al-Hossein ben Abdallah ben Sinai,
called Avicenna (born A.D. 980), Abu Hamed
Mohammed ben-Gazzali (1111), Abu'l-Walid Mohammed ben
Yahya ben Baja, commonly called Averpace (d. A.D.
1129 or 1139), Abu'l-Walid Mohammed ben Ahmed ben
Mohammed ben Rossid, commonly called Averroes (d.
A.D. 1156), and Abu'l-Kasim al-Jonad (d. A.D. 910).
Some of the most celebrated Arabic writers on mathe-
matiques and astronomy are the Sahib Thabat ben Korra,
The earliest historical writer of the Arabs, of whom we have
any knowledge, was Hesham ben Mohammed ben Shoaib
(d. A.D. 826). In the same century lived Ibn
Kotbeh, Abu Obeida, Mohammed ben Omar Al-Wakidi,
Abu'l-Abbas Ahmed ben Belasdi, and Alaraki.
Since the beginning of the tenth century, history became a
favourite study of the learned Arabsians. Masudi, Tabari,
Hamza of Lafiab, and the Christian patriarch of Alexandria
Eutychius, also called Sald ben Battrig, were among the
earliest authors of works on universal history. They were
followed by Abu'l-Faraj, George Elnak, Ibn al-Amid, Ibn
al-Ashir, Mohammed Hemou, Abu Sa'id, Jaleiadexi,
Ibn Shokna, Abu'l-Abbas Ahmed ben-Dineshki, &c.
Abu'l-Kasim Khafei ben Abdalmalek ben Baskwal of
Cordova (d. A.D. 1089), Temimi, Ibn Khatib, Ibn Alabar, Ahmed
ben Yahya ben-Doubi, and Shabeddin Ahmed ben-Mokri
(d. A.D. 1261) wrote a chronicle of the
Arabian dominion in Spain; Kotbedin in the sixteenth, and Abu'l-Hassan Bekri
in the eighteenth century, composed histories of Mecca;
Omar ben Ahmed Kemaleddin (d. 1261) wrote a chronicle
of the surface, the thickness, and the distinctedness of the
Erythraean and the black of Egypt; Behesbed and Emededdin
wrote biographies of the
Sultan Saladin; Ibn Arabshah described the life of Timur;
Ibn Khaldun, besides various other works of high interest,
Ibn Khaldun, besides various other works of high interest,
wrote a history of the Berbers; Haji Khaitb composed a
bibliography of the history of literature among the
Arabs, Persians, and Turks.
Darimi, Ibn Beitar, and Karwini, left books on natural
history; the latter is also the author of a work on geology.
Peculiar to the Arabic geographers is the division of the
Earth (the Arabic world) into many regions, which are
counted from the equator towards the north pole, and are measured by the increase of the
duration of daylight at the summer-solstice. Among the Arabic writers on
geography we must mention the famous Al-Khwarizمي, Istakhri,
Abu Is'hak al-Faresi and Ibn Huski, who flourished in the
ten century; the Sherif Edrisi (often called Geographus
Nubensis), who lived in the twelfth century in Sicily under
Roger II.; Qadi Sirri, and many others. More information than from the
professors geographers of some of these writers, may perhaps still
be obtained from the accounts given by Arabic travellers of the
countries which they had visited.
Al-Hassan ben Mohammed
al-Wasstan al-Rasi, of Grenada, commonly known under the
name of Leo Africanus, travelled through Asia and Africa;
Ibn Waseh and Abu Zeid al-Hassan visited India and
China in the ninth century; Selam al-Tarjeman visited
central Asia during the reign of the caliph Wathik; Abu
Al-Risak travelled in the fifteenth century as ambassador
from Persia to India; Mohammed Ibn Batuta wandered in
the fourteenth century through the interior of Africa, India,
Java, China, Borneo, the Gulf of Siam, &c., and
Nicoll's catalogues of the MSS. in the Bodleian library, the
Mines de l'Orient, the Bibliothéque Orientale of D'Herbelot,
&c.
ARABIAN GULF. [See Red Sea.]
ARABIAN NIGHTS. [See Arabia, p. 210.]
ARAB BIBLIOTHEQUE, according to St. Augustin (Hares. c. 83),
as a sect of Christians in Arabia, who believed the human soul
to be mortal, and that it is dissolvent by death together
with the body, but will be restored to life at the resurrection.
Mosheim (in Commentariorum de Rebus Christianorum ante
Constantinum Magnum, ed. 1753, p. 716, seq.) thinks,
that the materialism of Epictetus had some influence on the ori-
From this arises the opinion that those days of the mortality of the human soul
occasioned their heretical inferences. The Arabi were
converted and converted by Origen in a synod held in Arabia,
A.D. 246 (Mani, Concilia Concilia
ABRIL, as the word adre to plough, is that part of the land which is chiefly
cultivated by means of the plough.
Land in general is divided into arable, grass land, wood
land, common pasture, and waste. The first of these is by
far the most important in agriculture. In this article we
shall briefly explain the principles on which are founded
the most improved methods of cultivating arable land,
by which the natural produce of the soil is greatly increased,
and many productions are obtained in perfection which are
foreign to the soil and climate.
We shall, first, consider the nature and properties of
various soils.
2. The best modes of preparing and improving the
natural soil, so as to increase its produce.
3. The most advantageous succession of crops, so as to
obtain the greatest returns, with the least diminution of fertility.
Of Soil.—When the surface of the earth is penetrated,
we generally find that the appearance, texture, and colour
vary at different depths. There is a layer of earth, the
thickness of which...
with animal and vegetable substances, in different states of decomposition, as to these, in a great measure, it owes its colour, which is generally darker than that of the sub-soil. Except where iron, peat, coal, or slate abound in the soil, a dark colour is an indication of corresponding fertility. The rich soil of gardens, long cultivated and highly manured, is more of this character. Where these materials are not present, and where the vegetable productions are to be reared, and in which they are to find their proper nourishment, its texture and composition become objects of great importance to the cultivator; and, without a competent knowledge of these, no practical rules can be laid down or depended upon.

All soils are composed of earth,** metallic oxides, saline substances, vegetable and animal matter, and water. The earthy part is the siliceous, aluminous, and lime compounds. Magnesia, barytes, and other earths are occasionally met with, but in so few instances that they may be omitted in the list.

Of the metals, the most abundant is iron in the state of pyroxide. The other metals are rarely found near the surface.

Saline substances form a small part of a soil, but an important one.

Potassa exists in almost every vegetable, soda in a few, and ammonia is produced by the decomposition of animal matter, but from its volatile nature it is not long retained in the soil, except when it forms a fixed compound with other substances.

The vegetable acids, as a general rule, are perhaps limited to small portions of acetic acid in combination with some base, as lime or potash.

The mineral acids are found united with earths and alkalines, in the state of neutral compounds.

These saline substances have a powerful effect on vegetation, and a knowledge of their proportions in the soil and of their various qualities, is indispensable in order to modify or correct their action by other substances for which they have an affinity.

Water, in a state of combination, or of mere mechanical diffusion, is essential to the growth of all plants: without it, and atmospheric air, there is no life either animal or vegetable.

Of the Earths.—Clay or alumina, so called because it is obtained in its purest state from alum, in which it is combined with the sulphuric acid, is the basis of all strong and heavy soils. When it is infinitely divided, it is easily suspended in water; when dried slowly, and stirred while drying, it becomes a fine powder soft to the feel, and when suspended with water, a tough ductile mass easily moulded in hollow vessels, which retain liquids. This property, of being impervious to water, gives the specific character to clay as an ingredient of the soil. In a pure and unmixed state it is absolutely barren. When clay is heated to a great red heat, it loses a part of its water, and is then said to be baked, as we see in bricks. It is no longer fusible in water, and differs little from silica or sand in its effects on the soil.

Silica, or the earth of flints, suffers no change in water. It consists of crystals, or fragments, of very hard stone, forming gravel or sand according to their size; and the finest silicious sand, when examined with a magnifying glass, has the appearance of irregular fragments of stone without any cohesion between them.

Silicious sand holds water in its interstices by simple cohesive attraction in proportion to its fineness. It heats and cools rapidly, letting the water pass through it readily, either by absorption or diffusion. Its use in the soil is to keep it open, to let the air and water, as well as those other substances on which the growth of plants depends, circulate through it. Unmixed, it dries so rapidly that no vegetation can exist in it; unless a constant supply of moisture be given by irrigation. A small portion of this will much improve light sands; it takes a large quantity of sand to correct the tenacity of clay.

Lime in its pure state is familiar to every one as the basis of the vegetable creation in building. Its use in the soil is to keep it open, to let the air and water, as well as those other substances, in which the growth of plants depends, circulate through it.

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in contact with the atmosphere, by the process of culture, than an action begins. Part of its carbon unites with the oxygen of the atmosphere, and the leaves contain which the green parts of plants readily absorb; while its hydrogen with the same forms water, without which plants cannot live; and in very warm climates, where this process goes on, the moisture keeps up the vegetable life, when rains and dew fail. The residue becomes a soluble extract, and in that state is taken up readily by the fibres of the roots. But the changes still go on; the extract absorbs more oxygen, and becomes more and more insalubrity, in the form of a sugar, which Fourcroy calls vegetable albumen, and which contains a small portion of nitrogen, readily accounted for. By bringing fresh portions of humus to the surface and permitting the access of air to it, more carbonic acid, extract, and albumen are formed, and give a regular supply to the plants, which, by their living powers, produce the various substances found in the vegetable kingdom of nature. Hence we see the great importance of frequently stirring the surface of the earth between cabbages and other vegetables.

It is to the patience and perseverance of the chemists above-named that we owe this insight into the wonderful process of vegetable growth. What we here state is on their authority.

We can now readily understand the great importance of humus, and of those rich manures which are readily converted into it, when not immediately absorbed by plants. But it has still another property, highly important to fertility: it renders stiff clays porous, and consolidates loose sands. It does so more than lime, or any other earth. Hence a soil with a considerable proportion of humus is much more fertile, in the quantity of potatoes, or of other roots in its composition would lead one to expect, as we shall see when we come to the analysis of soils of known fertility; and we see the great advantage of animal and vegetable manures, not only as nourishment to vegetables, but as mechanical looseners of the texture of the soils.

The greatest enemy of humus is stagnant water; it renders it acid and astringent, as we see in peat; and soils abounding with vegetable matters, from which water is not properly drained, are sour, as is very unjustly said, and produce only rushes and other useless and unpalatable plants. The remedy is simple and obvious; drain well, and neutralize the acid with lime; by these means abundant fertility will be restored.

In very light soils humus is seldom found in any quantity, being too much exposed to the air, and rapidly decomposed; the extract is washed through them by the waters, and as they waste manure rapidly, they are called Hungry. Such soils are very unprofitable, until they are improved and consolidated by clay or marl, which makes them retain the moisture.

With calcareous earths humus acts well, provided they are pulverized and of sufficient depth. Some chalky soils are rendered very fertile by judicious culture and manuring. In order to ascertain the probable fertility of a soil, it is very useful to analyze it and find out the proportion of its component parts. To do this with great accuracy requires the knowledge of an experienced chemist; but, to a certain degree, it may be easily done by any person possessed of an accurate balance and weights, and a little spirit of salts, or muriatic acid.

For this purpose, take the soil, taken at different depths, not too near the surface (four to eight inches, if the soil is uniform in appearance), is dried in the sun till it pulverizes in the hand, and feels quite dry; the small stones and roots are taken out, but not minute fibers. A convenient size for this is about a cubic inch; it is then heated in a porcelain-cup, over a lamp, or clear fire, and stirred, till a chip or straw put in it turns brown. It is then set to cool, and weighed; the loss of weight is the water, which it is of importance to notice. Some soils, to appearance quite dry, contain a large proportion of water, others scarcely any. It is then pulverized and sifted, which separates the fibres and coarse parts. The remainder, again weighed, is divided into five or six times its weight of pure water; after standing a few minutes to settle, the water is poured off, and it contains most of the humus and soluble substances. The humus is obtained by filtration, well-dried over the lamp, and weighed. The soluble substances are obtained by evaporation of the water; but, unless there is a decidedly saline taste, this may be neglected. The humus may be further examined by heating it red hot in a crucible, and stirring it with a piece of the stem of a tobacco-pipe, when the vegetable part will be consumed, and the earths remain; but thus the exact quantity of pure vegetable humus is found. Some muriatic acid, diluted with five times its weight of water, is added to the deposit left after pouring off the water containing the humus and soluble matter, and more acid added gradually, as long as effervescence takes place, and until the mixture remains decidedly acid, which indicates that all the calcareous earth is dissolved. Should there be a great proportion of this, the whole may be boiled, adding muriatic acid gradually, till all effervescence ceases; what remains, after washing it well, is silicious and argillaceous earth. These are separated by agitation, allowing the silicious part to settle, which it does in a few seconds. The alumina is poured off with the water, filtrated, heated over the lamp, and weighed,—the same with the silicious sand. The loss of weight is calcareous earth. In this manner, but with greater care and more accurate tests, various soils of known fertility have been analyzed, of which we will give a few examples.

A very rich soil near Drayton, Middlesex, examined by Davy, consisted of 3% of silicious sand and 3% of impalpable powder, which, analyzed, was found to be composed of:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>92</td>
</tr>
<tr>
<td>Siliceous earth</td>
<td>6</td>
</tr>
<tr>
<td>Alumina</td>
<td>19</td>
</tr>
<tr>
<td>Animal and vegetable matter</td>
<td>100</td>
</tr>
</tbody>
</table>

This is a rich sandy loam, probably long and highly-manured, fit for any kind of produce, and, if deep, admirably fitted for fruit trees.

Another good turnip soil, by the same, consisted of 3% parts of coarse silicious sand, and 1% of fine earth, which being analyzed, consisted of:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>63</td>
</tr>
<tr>
<td>Silica</td>
<td>15</td>
</tr>
<tr>
<td>Alumina</td>
<td>11</td>
</tr>
<tr>
<td>Oxide of iron</td>
<td>3</td>
</tr>
<tr>
<td>Vegetable and saline matter</td>
<td>5</td>
</tr>
<tr>
<td>Water</td>
<td>3</td>
</tr>
</tbody>
</table>

This is a very light sandy soil, and owes its fertility to the fine division of the carbonate of lime and the vegetable and saline matter. It may probably have been limed or manured at some time or other.

The best loam in France, according to Mr. Tillet, consists of:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine silicious sand</td>
<td>41</td>
</tr>
<tr>
<td>Coarse ditto</td>
<td>25</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>37 5</td>
</tr>
<tr>
<td>Alumina</td>
<td>16 5</td>
</tr>
</tbody>
</table>

A loam at Chamart, highly prized by gardeners about Paris, as the basis of their artificial soils, consists of:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argillaceous sand</td>
<td>57</td>
</tr>
<tr>
<td>Finely divided clay</td>
<td>33</td>
</tr>
<tr>
<td>Siliceous sand</td>
<td>7 4</td>
</tr>
<tr>
<td>Carbonate of lime, coarse</td>
<td>1</td>
</tr>
<tr>
<td>Ditto, fine</td>
<td>6</td>
</tr>
<tr>
<td>Woody fibre</td>
<td>5</td>
</tr>
<tr>
<td>Humus and soluble matter</td>
<td>5</td>
</tr>
</tbody>
</table>

100

The argillaceous sand is composed of fragments of soft stone, which retain moisture, and do not blind hard; the small proportion of humus is of no consequence where manure is to be had in any quantity.

A very rich heath or bog earth found at Meudon, and in great request for flowers and in composts, consists of:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gritty silicious sand</td>
<td>62</td>
</tr>
<tr>
<td>Vegetable fibres partly decomposed</td>
<td>26</td>
</tr>
<tr>
<td>Humus</td>
<td>16</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>9</td>
</tr>
<tr>
<td>Soluble matter</td>
<td>1 2</td>
</tr>
</tbody>
</table>

100
This soil, like our bog earth, would be very unfit for the growth of corn; but, from the quantity of humus and vegetable matter, it is highly useful in composts and artificial soils; mixed with lime, it would make an excellent top-dressing for moist clay soils.

Mr. Taer has given a classification of soils of known qualities, which, we think, worthy of notice. It is as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Clay</th>
<th>Sand</th>
<th>Lith.</th>
<th>Humus</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>14</td>
<td>10</td>
<td>114</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>4</td>
<td>10</td>
<td>68</td>
<td>98</td>
</tr>
<tr>
<td>3</td>
<td>40</td>
<td>22</td>
<td>36</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>30</td>
<td>2</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>8</td>
<td>2</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>20</td>
<td>6</td>
<td>2</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>50</td>
<td>30</td>
<td>2</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>60</td>
<td>8</td>
<td>2</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

Below this are very poor rye-lands.

In all these soils the depth is supposed the same, and the quality uniform to the depth of at least six inches; the subsoil is, and clays are wet nor too dry.

Nos. 1, 2, and 3, are alluvial soils, and from the division into the intimate union of the humus, are not so heavy and stiff as the quantity of clay would indicate.

No. 4 is a rich clay loam, such as is found in many parts of England, neither too heavy nor too loose,—a soil easily kept in heart by judicious cultivation.

No. 5 is very light and rich, and best adapted for gardens and orchards, but not for corn; hence its comparative value can scarcely be given.

Nos. 6, 7, 8, are good soils; the quantity of carbonate of lime in No. 8 compensates for the smaller portion of humus. This land requires manure, as well as the others below. In those from No. 3, downwards, lime or marl would be the greatest improvement. Nos. 15 and 16 are poor light soils, requiring clay and much manure. But even these lands will repay the cost of judicious cultivation, and rise in value.

The last column, of comparative value, is the result of several years' careful valuation of the returns, after labour and seed had been deducted.

Few soils in England contain more than 4 or 5 per cent. of humus, even when it is very good heart; and 2 per cent., with a good loamy texture, will render a soil fit for corn with judicious cultivation. The texture is of most importance, as may be seen by comparing Nos. 7 and 8 with No. 6. If the soil is of good quality, dung will soon give the proper supply of humus.

The depth of the soil and the nature of the subsoil greatly affect its value. However rich it may be, if there is only a thin layer of good soil over a hard gravel or a wet clay, it can never be very productive: in the first case, it will be parched in dry weather; and in the latter, converted into mud by every continued rain. If the subsoil be loam or chalk, six inches of good soil will be sufficient. With a foot of good soil, the subsoil is of little consequence, provided it be dry, and the water can find a ready outlet. The best alluvial soils are generally deep, the chalky shallow.

The exposure, with respect to the sun, and the declivity of the ground, are very important circumstances, and equivalent to an actual difference in the climate. A gentle declivity towards the south, and a shelter against cold winds, may make as great a difference as several degrees of latitude; and in comparing the value of similar lands in different climates, the average heat and moisture in each must be accurately known. A soil very fertile in the south of Europe may be very unproductive in England; and a light soil of some value in the west of Scotland might be absolutely barren in Italy or Spain.

Of the Cultivation of the Soil—The better the soil, the less cultivation it requires to produce tolerable crops; hence, where the land is very rich, we find in general a slovenly culture; where the ground is less productive, more labour and skill are applied to compensate for the want of natural fertility. The simplest cultivation is that of the spade, the hoe, and the rake,—and on a small scale it is the best; but spade husbandry cannot be carried to a great extent without employing more men than can be spared from other occupations. The plough, drawn by oxen or horses, is the chief instrument of tillage, and has been so in all ages and nations of which we have any records. Its general form is familiar to every one, and requires no minute description. The various kinds of ploughs in use at different times, and the improvements which have been made, and are attempted daily, will be noticed in a separate article [see Plough]. Suffice it to say, at present, that a plough should as much as possible imitate the work done with a spade. It should cut a slice from the land by its coulter (a) vertically, and by the share (b), horizontally lift it up, and turn it quite over by means of the mould-board (c); and the art of the ploughman consists in doing this perfectly, and with such a depth and width as suit the soil and the intended purpose.

In rich meadow soils a ploughed field should differ little from a garden dug with the spade. In tenacious soils, the slices will be continuous without breaking, especially if bound by the fibres and roots of plants; the whole surface will be turned over, and the roots exposed to the air: it is of great consequence that each slice be of the same width and thickness, and the sides should be precisely straight. The plane of the coulter must be perfectly vertical, and that of the share horizontal, in order that the bottom of the furrow may be level, without hollows or baulks, which are irregularities produced by the raising or sinking of the plough, or inclining it to either side. The articles were very particular in this respect, and recommended sounding the earth with a sharp stake, to ascertain whether the ploughman had
done his duty. There are various modes of ploughing land, either quite flat, or in lands or stiches, as they are called in England, and, in Scotland, riggs; that is, in portions of greater or less width, with a double furrow between them—somewhat like beds in a garden. Sometimes two rigges are set up against each other, which is called rigging or butting; the land then is entirely laid in high ridges and deep furrows, by which it is more exposed to the influence of the atmosphere and kept dryer; this is generally done done to winter, especially in stiff wet soils. Sometimes two or more ridges are made on each side, forming narrow stiches. When the ground is to be ploughed without being laid in lands or stiches, and all the rigges inclined one way, the mould-board of the plough is shifted at each turn from one side to the other. The plough which admits of this is called a turn strect plough, and is in general use in Kent, and in many parts of the continent, where the subsoil is dry and the land not too moist. In most other situations the ground is laid in lands, and the mould-board of the plough is fixed on the right side. When grass land or stubble is ploughed, care must be taken to bury the grass and weeds completely, and the slice cut off by the plough must be turned over entirely, which is best done by making the width of the furrow greater than the depth. When the grass and weeds are rotten, and the ground is ploughed to pulverize it, a narrow deep furrow is best; the earth ploughed up is laid against the side of the preceding ridge, which forms a small furrow between the tops of the ridges, well adapted for the seed to lodge in and be ready covered with the harrows.

Nothing has divided both practical and theoretical agriculturists more than the question whether the land should be ploughed deep or shallow; but a very slight attention to the purposes for which land is ploughed, and to the nature of the soil, will readily reconcile these apparently contradictory opinions. A deep, rich, and stiff soil can never be moved too much nor too deep; deep ploughing brings up rich earth, admits the air and water readily, and gives room for the roots to shoot, whilst the rich compact soil affords moisture and nourishment. Whichever trees are to be planted, the ground should be stirred as deep as possible, even in a poor soil: for grass and corn, this is not always prudent; their roots seldom go above three or four inches deep, and if they find sufficient moisture and humus, they require little more depth. Whenever the soil below a certain depth is of an inferior quality, there can be no use in bringing it up; and where the soil is light and porous, the bottom had much better not be broken. Norfolk farmers know this well, and are very careful not to break the pan, as they call it, in their light lands: this pan is formed by the pressure of the sole of the plough and the tread of the horses, and opposes a useful bank to the too rapid filtration of the water; it lies from five to eight inches below the surface. If it is broken, the manure is washed down into the light subsoil, and the crop suffers, especially when sheep have been folded, their dung being very soluble. In such soils an artificial pan may be formed by the land-presser or press-drill. This instrument consists of two very heavy cast-iron wheels, a, a, with angular edges, set on an axle, at a distance from each other equal to the width of the furrows, and a lighter wheel, b, to keep the instrument vertical. It is drawn by a horse immediately after the plough, pressing two furrows at once, and going twice over each furrow. It leaves the land in regular drills, and the seed sown by hand falls into the bottom of the drills, and is covered by the harrows. When the plants come up they appear in regular parallel rows. The great object in ploughing land is to divide it, expose every part of it to the influence of the elements, and destroy every plant or weed but those which are sown in it. To do this perfectly requires several ploughings, with certain intervals, and during that time no crop can be upon the land. This is the real use of fallows, and not, as was once supposed, to allow the land to rest; on the contrary, it ought then to have the least repose.
Where the soil is good, with a porous subsoil, the greatest care should be taken not to go too deep; but where the subsoil is compact and impervious to water, but not wet for want of outlet or draining, it is useful to stir the soil to a great depth, but without bringing it to the surface, which may be done by a plough without a mould-board following a common plough in the same furrow. This is an excellent mode of draining, and at the same time keeping a reservoir of moisture, which in dry weather ascends in vapours through the soil and refreshes the roots.

The mode in which the soil is prepared most perfectly for the reception of the seed is best shown by following the usual operations on fallows. After the harvest, the plough is set to work, and the stubble ploughed in. The winter's frost and snow mellow it, while the stubble and weeds rot below. In spring, as soon as the weather permits, it is ploughed again, the first ridges being turned over as they were before: this completes the decomposition of the roots and weeds. It is then stirred with harrows, or other instruments, which tear up the roots which remained, and some of these, not being easily destroyed, are carefully gathered and burnt, or put in a heap to ferment and rot, a portion of quick lime being added. Another ploughing and stirring follows, at some interval, till the whole ground is mellow, pulverized, and free from weeds; manure is put on, if required, and immediately spread and ploughed in; the land is then prepared for the seed.

This has been the method universally followed by all industrious husbandmen from the oldest times. The Romans had names for each of the ploughings: the first was fringere, the next wearere, the third regerere, and the fourth reperere; more ploughings were often given, and in modern agriculture the direction of the third ploughing is sometimes changed across the old furrows, at a right, or acute angle, as Virgil recommends (Georg. 1. 98), by which the earth is still better divided and mixed.

Various instruments have been invented to stir the earth and mix it, without so often using the plough, and also to loosen and separate roots and weeds; of these the principal are, the cultivator or scarifier, which enters but a few inches into the ground, and moves a great surface by means of tines, or iron teeth of various constructions. The whole instrument is made of iron: a is the frame; b, the beam; c, rods by which it is drawn, the horses being attached by a hook at the point d; e e, the handles; f f, different shaped shares and tines to be used according to the state of the soil; g g g, contrivances by which the teeth are fixed to the frame at any required distance from each other, and lengthened or shortened; h h, three wheels to regulate the depth of the ground moved. By raising the beam and fixing it higher or lower on the piece (i), by means of an iron pin passed through the different holes, the whole instrument is raised or depressed in the ground.

This instrument divides the soil, but does not turn it over; it is well calculated to destroy roots and weeds, and let in the air; but, evidently, is only adapted to tolerably loose and mellow soils, where there are no large stones.

An ingenious harrow or cultivator has been invented by Finlayson, which rakes the weeds out of the ground, and throws them on the surface without clogging the instrument; it is excellent in light soils.

When the soil turned up by the plough is in large hard lumps, a roller, sometimes with spikes in it, is drawn over the land to break the clods, or mallets are used to break them by hand; but this is seldom necessary except where very stiff soils have been ploughed when too wet, and the ridges have dried, and been ploughed again in dry weather. Deep wet clay soils should be carefully watched, to know when is the proper time to plough them; nothing pulverizes them like frost, and if they are kept from wet by
careful draining and numerous water furrows in autumn, they will be loose and friable in spring; they had better not be touched than worked when too wet. On light soils the plain roller is used to advantage to produce firmness, without which the plough cannot so well turn the ground over completely, but merely pushes it to the right and left.

The great expense of teams for the plough has led to expedients and inventious to lessen the labour, but, in general, a more imperfect cultivation has resulted from it. Columella mentions one Callas, whom he blames, because, to save the expense of a stronger team, he only scratched the ground with small shares and toothed instruments (exiguita some-

...
the manure should have been ploughed in before, or, except in planting potatoes, which are not a seed, but a bulb, the manure should always be deeper, and not in contact with the seed. When the seed is ploughed in, the furrow should not be more than about 8 inches deep, and this is the same with two rows, or with three rows, in one inch, one in each hand, having an oval ring for a hand, or a band to hold the other, and an inverted cone three inches in the axis, and one and a half inch diameter at the base, which he pushes and turns with his hands in the ground to prevent the earth adhering, and makes the holes rapidly going backward along the furrows; two or more children follow and drop three or four grains in each hole; a busb-harrow is drawn over the ground, and fills the holes with loose earth; when the corn comes up, it looks like a regular plantation.

The proper season for sowing each kind of grain, the choice of seed, and other particulars, will be given under the name of the different seeds usually sown. As a general rule, it may be observed, that the smaller the seed, the less it must be covered, and clover or grass seed are not usually harrowed in, but only pressed in with the roller.

Of the succession of crops or rotations. — It has been found by experience, that besides the general exhaustion of humus produced by vegetation, especially by those plants which bear oily or farinaceous seeds, each kind of crop has a specific effect on the soil, so that no care, or manure, can make the same ground produce equal crops, of the same kind of grain, for any length of time without the intervention of other crops. Whether this be owing to any peculiar nourishment necessary to each particular kind of plants, or because plants not indigenous degenerate in a foreign soil, the fact is certain with respect to most crops usually raised, and particularly red clover. This points out the advantage of varying the crops, according as they are found to succeed best after each other. In general, all kinds of grain succeed best after a crop which has been cut before the seed has ripened, or the stem is dried up. Those plants which have a naked stem with few leaves thrive best after leguminous plants, which have more succulent stems and more leaves, and which bear their seeds in pods. As a general rule, there are two kinds of succulent roots, which strike deep into the ground, as carrots, parsnips, beet-roots, and turnips. From this circumstance, confirmed by universal experience, the different systems of rotation have had their origin, taking the nature of the soil into consideration.

The simplest rotation, and one which can only be adapted to the richest strong alluvial soils, is that of wheat and beans, alternately, and without any intermission. It is in use in some parts of Kent and Essex, and in a few places in Germany. The land is well prepared and manured for the beans, which are set or drilled in rows, so as to admit of horse-hoeing between, as in Tull's method, till the beans get to a considerable height; besides this, careful hand hoeing and weeding are practised, by which the land is cleaned and stirred as in a regular fallow. The beans being cut, the ground is ploughed once, and the wheat sown. It is the practice in some places to scarify the land immediately after harvest, to cut up the stubble. It is done in Kent with a plough without a mould-board, and with a very broad share, hence called broad-sharing, but most usually by the scartier mentioned before: the stubble and weeds, if any, are raked up and burned: this is an excellent practice. Another equally simple rotation, on very poor light land, is that of turnips and barley alternately, which is mentioned by Arthur Young as being in use in the county of Durham, with the simple variation of clover occasionally. The turnips are always fed off by sheep fed on them. Where winter food for the sheep is scarce, this rotation may answer, but otherwise cannot be very profitable.

The oldest rotation known, and which was almost universal in Europe, from the time of the Romans, wherever any regular system of agriculture prevailed, is the triennial rotation of fallow, winter corn, and summer, or lent corn; that is, wheat, or rye sown in autumn, and barley or oats sown in spring. This was called the three-field system; and on every farm, the arable land was divided into three parts, one of which was in fallow in winter, and one in summer and one in summer corn. When properties were much intermixed and subdivided, the whole of a considerable tract was divided into three fields, and it was almost impossible for any individual to devote from the established course; especially as a right frequently existed of pasturing all the sheep of the parish, or district on the fallow field in summer, and on all the others after harvest. In England, this impediment was removed by the legislature passing acts of enclosure; but it is still felt in many parts of the Continent. This rotation had its advantages, or it could never have been so long in use. Where a sufficient quantity of manure could be collected by means of cattle fed on pastures and commons in summer, and in the strawyard in winter, to give a regular dressing to the fallows every third year, good crops were produced, and the fertility kept up. The labour was very equally divided throughout the year; and such was the regularity of every operation, that a large quantity of land might be cultivated with a small proportion of hands, and with a short distance, with only occasional inspection, without an overseer or bailiff, provided he had honest servants. But, when pastures came to be broken up, and converted into arable land, and cattle consequently diminished, the land could not be manured on every fallow; the crops suffered; less straw being grown, the quantity of manure was diminished, and the land became gradually less and less productive, till, from necessity, a portion was left uncultivated, and returned to natural and inferior pasture; this gave the idea of laying the land down regularly to grass by sowing seeds, and gradually introduced the alternate and convertible system, of which we will take notice hereafter. The apparent loss of a third part of the land by the fallows introduced various crops, which were supposed not to exhaust the soil, but rather to enrich it; of this kind, one of the first was clover, introduced by the Flemish; and afterwards turnips, which have been found of such importance in light soils and moist climates. By substituting turnips for an entire fallow, or, more properly, sowing them early on the regular fallow, and interposing the clover between the summer and winter corn, the highly-porosity of Norfolk rotation has been obtained, viz. 1. Turnips, well manured. 2. Barley. 3. Clover. 4. Wheat, by which a sufficiency of food for sheep and cattle is obtained, without natural pastures, and the land, manured every fourth year at least, is kept in a regular state of progressive improvement. The advantages of this rotation have made it a condition in many leases of light land, under heavy penalties in case of deviation. The first and principal inconvenience
found in it was the failure of the clover in most soils, if sown every fourth year; this obliged the farmer to have recourse to other means besides grass, clover, lucerne, or tares, which, in light lands, are not equal to broad clover as a preparation for wheat. Where the soil is firm and rich, and at the same time mellow, a rotation may be introduced which will increase manure, especially in a liquid state, which is carefully preserved in reservoirs, without loss or waste, till wanted for the land. This system is also followed in Switzerland, which, on account of its climate, is one of the best cultivated countries in Europe.

We observed before, that the want of a sufficient supply of manure on the old three-field system led to the laying down arable land to pasture for a time and then breaking it up for further cultivation. This led, according to Holstein and Mecklenburg, and raised these countries rapidly amongst agricultural nations.

In Holstein, on moderately good soil, they adopt the following course:—1. Oats, on newly broken up grass land. 2. A fallow to destroy grasses and weeds, and accelerate the decomposition of their roots. 3. Wheat with or without manure, according to the state of the land. 4. Beans, barley, or oats. 5. Wheat, manured, unless it has been done for the beans the year before. 6. Grass seeds pastured for three years or more, when the rotation begins again.

A Mecklenburg rotation, not unlike the Scotch, consists of,—1. Beans well manured, or potatoes. 2. Wheat or oats. 3. Barley or oats. 4. Grass seed pastured, or white clover and grass, which were sown among the wheat the year before, and are kept in pasture the 8th and 9th. There is no fallow, and in a medium mode of farming; beans, barley, oats, and potatoes, manured and hoed. It might, however, easily be introduced, as in the Holstein rotation.

Another rotation is,—1. Oats. 2. Beans well manured. 3. Wheat. 4. Tares. 5. Clover. 6. Clover and grass seeds mown for hay and green fodder; 7 and 8. dittos, fed. All these are excellent for a moderately good soil well managed. If the soil is very rich, the following is the most profitable of any:—1. Rape seed well manured. 2. Wheat. 3. Barley. 4. Barley. 5. Clover. 6. Wheat. 7. Oats with white clover and grass seeds pastured two or three years. The principal object in this convertible system is to lay the land down in good heart, and as clear of weeds as possible; the grass will then be abundant, and continue good for several years. Liquid manure, carried upon it in spring, will so enrich it as to admit of making the crop into hay, or cutting it green for use as cattle food. A fair amount of sheep and cattle is of great use; in heavy, wet soils, they would do harm. No wet land will bear this rotation.

We have now given a brief outline of the manner in which arable land may be cultivated and improved. If we should be in the same situation as to weather, a land upon which proper management and a good state of the land, will pay by the value of the produce, after deducting the portion due to the landlord, or to the state? shall answer, without any hesitation, in the affirmative, provided the farmer is possessed of knowledge, judgment, and experience, and devotes all his time to the superintendence of his farm. The calculations on which this opinion is founded cannot be introduced here; some ideas of them will be given in the article Farm. Agriculture is so healthy, so agreeable, and so moral an occupation, that it can never be extremely profitable: the competition for land will always prevent this. The butcher and cattle-dealer, as they are the middlemen, have greater profits than the farmer; and a decent livelihood, with a moderate interest on the capital laid out, is the most that a farmer can expect, even with the greatest assiduity. If the neglect his business, and leaves it to others less interested in the result, he must be a politician, who cultivate for pleasure, and employ bailiffs, are fortunate if they get a moderate rent after paying expenses. For careless farmers, the simplest system alone can prevent great loss; and grass land in general, especially of the productive hills, is carefully collected, and carried on and distributed over the poor light soils, by means of water-carts, before sowing, and again when the crop is come up. By this means, some land of the kind is sold in the country, which is sold away (in this country), chiefly the urine of animals and drainings of ditches. A farmer who would probably be ruined if his land were all arable and in his own hands.

Our limits will not permit us to enter into the important subject of these improvements in farms; it would require small farms, as most beneficial to the community: these and various other branches of the subject will be found under proper heads; such as Barren Land, Farm,
It is bounded on the east by a range of mountains, which separates it from the Burmese empire, from which it is also divided on the south by a small mountain-river. On the west it extends to the bay of Bengal, and on the north to Chittagong, a province of Bengal, and to the mountainous and woody tract which extends between Chittagong and Munnepoor. It is separated from Chittagong by the river Naf, or Nauf.

This country, which in 1826 was acquired by the East India Company from the Burmese, contains three districts, Proper Aracan, or Akyab, Sandoway, and Ramree.

Aracan Proper consists of a valley stretching nearly parallel to the shore, between a range of mountains and a ridge of hills. It extends from the coast to the town of Arakan, on the east from Aya is called Yeomadong by the Aracanes, and Anapetomus by the Burmese: it extends from Cape Negrais (10° 2' N. lat.) to the Tipperah Hills lying east of Deaca in Bengal, which, together with the hills bounding Sillit on the south, may be considered as the northern extremity of this range. Its mean elevation is about 3000 feet above the level of the sea, though, in some parts, it attains the height of 5000 feet. On the east, towards the Irrawaddy in Aya, it declines by a succession of ranges; but towards Aracan its descent is steep and abrupt. Several passes conduct over these mountains to Aya, but only two can be passed by carriages.

The heights which extend along the Bay of Bengal at no great distance from the shore and separate the valley from the sea, do not, probably, rise to more than 700 feet. They generally assume a conical shape, and do not form a continuous range; their summits are isolated, and terminate in long, low ridges, but all are scattered in an irregular manner and separated by many ravines, valleys, and confined level spots, each occupied by a stream, a lake, or a marsh. On the shore they are bounded by many rivers, creeks, and inlets of the sea, so as to form a series of peninsulas, isthmuses, and islands, by which the land communication is completely interrupted. The coast is fringed by numerous islands, moderate in height and thinly inhabited.

The valley, which lies between the two ranges, varies in breadth: in some parts the hills advance from the shore so far to the east as to narrow it to 10 miles, and even less, whilst in other places they leave a space of 40 miles between them and the mountains. The valley is so little above the level of the sea, that the tide, which in the straits, rivers, and harbours rises 14 feet at full and change, inundates the flat borders of the rivers to a considerable extent, and its ebb converts them into a noisome swamp. With the exception of this swampy ground, the soil consists of rocks, crumbling on the surface, and covered by a thin layer of loose black soil. Where this layer has not been washed away it can easily be ploughed in a manner resembling the jungle-shrubs. In July, when the periodical rains become very abundant, the whole valley is inundated, and resembles a channel of the sea, in which the few towns and villages appear like islands in mid-ocean.

The small rivers which intersect this valley are so numerous as to form a complete labyrinth, one winding creek leading to another, so as to form an inland water-communication between the villages and towns for the greatest part of the year. Most of the small streams run to the northward, where the valley is lowest and broadest, and where the hills on the shore terminate, or rather leave a wide opening. Here they fall into a kind of bay full of islands of considerable extent, which appear to be partly uninhabited. This bay receives also the principal river of the country, the Keladune or Hurting, which rises in the mountainous tract between Chittagong and Munnepoor, and may be compared to a large river. Behind which, farther to the south, intersect the hills, as the Talak Keon and the Yanaway Keon, are small, but commonly navigable for boats eight or nine months in the year.

Many causes render the lower part of the valley extremely unhealthy—the heat, the inundations, and the general moisture. Even in the dry season, in November, December, and January, occasional and sometimes heavy, frequently descend from 20° to 40° on the 24th, averaging between 18° N. lat., and lies between 29° and 29° E. long. Its extreme length from N.N.W. to S.S.E. may amount to upwards of 230 miles, and its average breadth to about 50 miles. Its surface is estimated to contain 11,500 square miles, and exceeds the principalities of Wales by more than 3000 miles.

ARAB'S GULF, a bay on the north coast of Africa, lying between Alexandria and some point west of Alexander, which is not well defined. Rus-el-Kanya, 115 miles west of Alexandria, is the first very salient point as we advance westward.

ARABS, or PLINTHÏNITES (Herod. ii. 4) corresponded to, or formed a part of, the Arab's Gulf.

ARACAN, or RAKHAIN, is a country of Asia, lying on the eastern shore of the bay of Bengal, and forming the westernmost part of the Peninsula of India. It is bounded on the east by the Burmese empire, from which it is also divided on the south by a small mountain-river. On the west it extends to the bay of Bengal, and on the north to Chittagong, a province of Bengal, and to the mountainous and woody tract which extends between Chittagong and Munnepoor. It is separated from Chittagong by the river Naf, or Nauf.
thick fog prevails during the nights even in the dry season, and great heat in the day-time. The thermometer rises to July 89°, and in August to 94°, and is never under 77° in these months.

The cost of this country is very great, and its soil fit for the culture of nearly all tropical productions; but in the actual state of agriculture rice only is cultivated to any great extent. Indigo, cotton, and tobacco, as well as hemp, are cultivated, but arsenic is not so as to produce any for exportation. Sesamum and mustard-seed are cultivated, on account of the oil which is extracted from them and largely used. The sugar-cane grows very luxuriantly, and might be cultivated to a great extent. In Katura, good and abundant wines are made from the common wild Aegon, but it is nowhere cultivated. Fruit is plentiful and of excellent quality. The pine-apples and plantains are, perhaps, the finest flavoured in the world, and are produced in the greatest abundance. Mangoes, jack-fruit (Artocar- pus integrifolia, Linn.), sweet limes, and cocoa-nuts are also plentiful, but oranges are scarce. Of the vegetables raised, the principal are onions, garlic, and turmeric; but bananas, red pepper, cucumbers, water-melons, papyrus, and raktalus are also abundant. No forest-trees grow in the valley, nor, as it seems, on the hills along the shore; but extensive forests of teak abound in the mountains at the sources and along the upper course of the Huritum; their growth is most luxuriant, but, however much we want of rice, we should not prevent the people from bringing them to the more inhabited part of the country. This timber, therefore, is imported from Rangoon in Aras, or from Bengal. Other forest-trees abound in the hills, and on the borders of the villages.

The zoology of this country is very little known. We learn only that the jungles abound in tigers and wild elephants, and that the latter are much more dangerous to the cultivated fields, than the former to the cultivators themselves. Of domestic animals only poultry and buffaloes are mentioned. The latter are most esteemed from their being docile and useful in cultivating and tending rice. Silk is raised, but not enough for the consumption of the inhabitants. Bees abound in the country near the mountains. Fish is so plentiful that it not only supplies the principal food of the inhabitants, but also, when dried, an article for exportation.

Still less is known of its mineral riches. Silver, it is said, has been ascertained not to exist in the mountains, but there is iron-ore in abundance, and this is all we know. Salt is made in a great many places, and is an important article of exportation.

Aras, 29° 43' N. lat. and 93° 31' E. long. the ancient capital, is built on a plain entirely surrounded by hills, and intersected by several streams, which occasionally join each other or fall immediately into the river Huritum. Its seinen passes off into two branches, just as it divides it into two parts connected by strong but clumsy wooden bridges. This stream ebbs and flows with the tide, and at high-water boats are able to navigate it. During the period of high water, part of the stream runs on this course, and on this account here, as well as in the villages on the plain, the houses are raised upon piles or strong posts of timber, little more than four feet above the ground, that the water may have a free course under them. These houses, or rather huts, are miserable structures, only one story high, and thatched with straw or mats. They are ranged with considerable regularity in streets, the chief of which skirts the stream on each side. This town is about four miles in circumference, and consists of a quadrangular form. Before its occupation by the British troops (in 1824) it is said to have contained 15,000 houses and 93,000 inhabitants. Its actual population is not known, but it is certain that it has much declined since it has ceased to be the seat of the government of the country, which by the Company has been transferred to other places; and it is probable that at present it does not contain one-fifth of the number of inhabitants thereby assigned to it.

Within the town is a fort, a very ancient building; the date of its erection is unknown. It is surrounded by three quadrangular concentric walls, each about 20 feet high and of considerable thickness. Thus, about in the center of the town on a hill about 100 feet high, and inclosed by a quadrangular wall. They contain numerous images of Gaudamus, from one inch to twenty feet in height; but what renders them especially remarkable are some ancient sculptures found in and about them, among which some sphinxes are observed, which confirm the striking analogy between the hieroglyphics of Aras and Egypt observed by Sirjones. Except the fort, the pagodas are the only stone-buildings in Arabac.

The herilooms of the country surround the town are covered with pagodas, the gilt spires of which, shooting up like pyramids from every pinnacle around and glittering in the sun, contribute greatly to the singular and picturesque appearance of this place. A great number of these temples, of various forms, may be counted at once.

Abyab, the capital of the district which comprehends Arabac Proper, has a good harbour, but is little frequented, on account of the danger and tempestuosity of the sea. It is about 10 miles north of Aras, on the river Taluk, on the Taluk Kon, and Aens, on the Yangway Kon. Both are places of some commerce, and owe this advantage chiefly to their being situated where the roads traversing the mountains terminate, and on the banks of rivers navigable for boats from June to April. The country along these rivers is improving in cultivation.

The district Sandoway comprehends chiefly the mainland between 19° and 18° N. lat., and is a mountainous country, interspersed by valleys running east and west. Not being exposed to inundations, nor subject to fogs, it is tolerably healthy, and enjoys a cool sea-breeze, with temperate nights, nearly through the year. Agriculture is increasing, on account of the neighbourhood of the River Pysow. The town Sandoway, 18° 38' 52" N. lat., and 94° 27' E. long., lies on a navigable river, and is a thriving town.

The district Ramree contains the two large islands of Ramree and Cheduda, and several smaller ones. The coast is the level land of its own, and in many places it is divided from the main land by a narrow but navigable channel. It consists of hills, intermingled with much level ground, and has generally a very fertile soil. Besides the common productions of the country, allent oranges are raised; horticulture is improving, and the cinnamon tree, which lately has been introduced, promises very well. On the southern extremity of the island is a ridge of hills, among which are several volcanoes, reported to discharge flames occasionally and a quantity of iron sand. In their transit, they only a greeny mud babbles up, mixed with a little petroleum.

Kypow Pysow (meaning the white stone, because small white pebbles are washed on the beach during the S.W. monsoon) is at present the capital of Arabac, and begins to be a place of some trade. It is situated at the northern extremity of the island of Ramree, on a beautiful plain, with much high land in its vicinity, which is covered with forest trees, yielding timber of superior quality for masts and yards, and perhaps for other naval purposes. The harbour is spacious and good, free from fogs, with abundance of water and fire-wood. Lately a few cargoes of rice and dried fish have been shipped from this place to the Mauritius.

At the east of the island Ramree is a safe harbour, called Ramree, or Amherst Harbour.

The island of Cheduda is divided from Ramree and the main land by a channel some miles broad, and navigable, and in this channel there is no safe landing place. At the east the island extends about twenty-one miles, by about fifteen miles in breadth. It is of moderate height, with several hummocks on it; its soil is excellent, and well watered by hill-streams, on the banks of which rice, tobacco, cotton, red pepper, hemp, and sugar-cane, are cultivated. But the larger part of the island is still covered with jungle. In 1827 it contained about 3200 houses, and 12,000 inhabitants. There also are several volcanoes, mostly of the description called mud volcanos, strongly intermingled with the hills. They are worshipped by the inhabitants, who think them occasioned by the great naga or serpent which supports the world, and takes this method of giving vent to its agony.

The actual population of Aras has been estimated to about 200,000 inhabitants, but it seems somewhat under-rated, if it be true that 400 square miles of the country are under cultivation. The aborigines, who to all appearance are exclusively of the Negrito tribe, are the Muge by the inhabitants of Bengal, but their national name is Yukain, or Ma-ran-ma. They are short, squat, robust, and fleshy, and differ in features greatly from Europeans. They wear their hair in two or three bunches, which hang about the head and chin being sharpened, but the face at the cheek-bones very broad. Their eyebrows project very little, and the eyes are very narrow, and placed rather obliquely in the head, the external angles being the highest. Their nose is very small, but has not, like that of the negro, the appear-
ars of having been flattened; the hair is shorn, lank, and black. Though living in a very hot climate, they have not the deep hue of the negro or Hindu. From this description, it is evident that they belong to the same race as the Chinese.

Their language is one of those which may properly be called monosyllabic, like the spoken dialects of China. They have borrowed a considerable number of terms from the Pali, which exists among them as the language of learning and science; but in adopting these polysyllables, they suit them to their peculiarity of accent by pronouncing every syllable as a distinct word. Though monosyllabic, their language is quite distinct from that of China, but exhibits a very great affinity to that spoken by the Burme-
ses, who occupy Aracan, the most antient and original dialect of the Burman language.

According to Dr. Leyden, their literature is not scanty, for he enumerated twenty-nine different Rakhain compositions, of which, however, the greatest number are translations from the Sanscrit.

Though far from being civilized, according to our notions, they do not neglect education. A person rarely is met with who cannot read and write. Their records are kept on palm-leaves, beautifully lacquered in Japan and red, generally on a gilt ground with dark letters. Their common accounts are written with a chalk pencil, resembling tale, on folds of paper made of the bark of a tree, and then covered with gum, smeared with the same substance. They have thirty-six letters in their alphabet, written from left to right, and in writing they hold the pen or pencil as we do, the lines being as fine and characters as beautifully formed as if made with a pen and ink.

their religion is that of Bhudda; their priests seem entirely occupied in the education of the children. In every village are two or three, and their schools are open to all. Their only remuneration seems to be a sufficient quantity of food, and the erection of a house, which answers as a resi-
dence, temple, and school-room, with generally a small pagoda annexed to it, having a number of poles and pend-
ding inscriptions, which is found in many temples on common china-ware. Indeed all their habits, as well as their persons and dress, resemble those of the western parts of China.

The Mugs are distinguished for their simple honesty and indefensive disposition; they are perfectly free from the servile hypocrisy of the Hindoos, and equally unlike them as to probity— their word being generally trustworthily. In dealing, they ask the price which they think the article to be worth. They are, however, very jealous of their treasures, and that when detected after the commission of any felonious act, however serious, they almost invariably, and with the utmost frankness, confess the crime, and deal with the goods; and the article of food, or other article, which was the subject of the theft, is immediately returned. Their religion enjoins them not to take away an-
imal life; but they do not seem very bigoted to this part of their creed, as they have no objection to part with their cows, buffaloes, and to eat every part when dead, even to the offals usually given to dogs.

The women dress much after the Chinese manner; but they are by no means secluded, having a full share in the common intercourse and transactions of life. As they are not precluded from instruction, they are often shrewd and intelligent. A peculiar usage of this nation is, that when a man wants to raise money, he pays his wife for a certain period, or until the debt is liquidated.

The chief occupations of the people are farming, and trade; and men from the Burmese empire are inhabited by a nation called the Burmese Kyain, but who term themselves Koloun, and whose language is peculiar, having little or no affinity to either Rakhain or Burma. They have preserved their independ-
ence, not by resisting the invasion, but by their more powerful neighbours, but by withdrawing themselves to other places in the interior of the range. They are a harmless and industrious race, cultivating rice in the valleys, fishing in the creeks and bays. The honey and wax of the wild bees, and fabricating a sort of cloth, called pujung, of the cotton of the wild cotton-tree, which abounds in the mountains. Dried fish, bees' wax, honey, and pujung are exchanged by them in Ava, Aracan, and other places. They seem to be not to adhere to the doctrines either of Brahma or Bhudda.

A considerable traffic was formerly carried on between Aracan and Ava, the first exporting Hindostannee and Eu-
ropaean goods, such as velvets, broad-cloths, matches, mus-
lins, beest-nut, salt, tea, and receiving in return iron, silver, copper, sugar, tobacco, oil, and lacquered ware. It seems that this commerce has been considerably reduced since the occupation of the British, but no later statement informs us to what extent the trade is carried on by the passes over the mountains. The commerce of brass is not important; a few boats coasting along the shores to Chinagong, and from thence through the Sunderbunds to Calcutta, are sufficient for all their trade to the northward. About the same number goes to Rangoon in Ava, whence they bring back silk and other articles manufactured in that country, which are much superior to those made by themselves, and more valued than any yet brought by Europeans.

This country is especially noted for its fine Betel-nut of Calcutta. Each of the three districts, Akyab (Aracan), Sandoway, and Ramree, is governed by a civil judge or superintendent, under the immediate inspection of a commissioner, who usually resides at Chinagong. The revenue derived from it does not exceed three lacs of rupees and a half (900,000£), produced principally by the rental of the land, the Company, as sovereign, considering themselves the proprietors of the soil. This revenue barely suffices to defray the ex-
peses, though the garrison only consists of eight companies of sepoys, two at Akyab, two at Sandoway, and four with the head-quarters of the regiment at Kyukh Phyoo. (See Symes' Emb. to the Court of Ava; Francis Buchanan, Life of Mr. Dr. Leyden, in the Asiatic Journal, N. S. 1823, VoL 1.; and the Journal of the Lond. Geog. Society, vol. 1.; Anatol Journ.)

A'RACHIS, in Botany, the generic name of a kind of pulse, called the Earth-nut, which is much cultivated in the warmer parts of the globe; it belongs to the pea tribe, to which and the bean it is botanically allied. The substance by which the arachis hypogaea is particularly remark-
able is in the manner in which its fruit is produced: instead of hanging down from among the leaves in the manner of other plants, it is inserted itself in the earth, in which it is deeply buried at the period when it becomes ripe, a pheno-
menon which happens thus:—The young fruit, instead of being placed at the bottom of the calyx, as in other kinds of pulse, is found crowned by the leaf, and partially enclosed in a slender tube, which looks like a flower-stalk. When the flower has withered, and the young fruit is fertilized, no-
thing but the bottom of this tube with its contents remains. At this period, a small point projects from the summit of the young fruit, and gradually elongates, curving downwards tow-
ards the earth. At the same time the stalk of the fruit lengthens, until the small point strikes the earth, into which the now half-grown fruit is speedily forced, and where it is entirely insinuated. When mature, it is a pale yellow, wrinkled, oblong pod, often contracted in the middle, and containing two or three seeds the size of a hazel nut. These are considered a valuable article of food in the tropical countries of Central and South America. In flavour the nuts are as sweet as an almond; and they yield, when pressed, an oil in no respect inferior to that of olives.

The plant will only grow in a light sandy soil, in which its pods can readily be buried, and it requires a climate as hot at least as that of the south of France. Its stems grow from one to two feet high; its leaves are composed of four broad and blunt leaflets: and its flowers are small and of a pale yellow colour.

A'RA'CHINDA, a class of animals including spiders, mites, and scorpions, all ranked by Linnaeus under Insects, but which are very separately separated from them, on account of external form, structure, and mode of breeding. It was first made, we believe, by Fabricius, who, looking chiefly at the structure of the mouth, characterized the greater number of the animals now ranked under arachnida, by the jaws (maxillae) being horny and furnished with a claw (Urogastrae). M. Lamarck afterwards made the division into two distinct classes; but we owe to M. Latreille and Dr. Leach the establishment of characters more precise and extending to a greater number of genera. Much has been done in per-
fec ting the knowledge of their structure, manners, and numerous species by Clerck, De Geer, Walckenaer, Tre-
virinus, Leon Dufour, Herold, Straus-Dürckheim, Black-
wall, and others. We shall condense into as short a compass as we can the most important points investigated by these naturalists.

The arachnida (A'ra'cha'nia, Virox) suffer from insects in having no antenna; in the eyes being in most species eight,
and, even when only two in number, never being placed laterally on the head; in the legs being usually eight, though in some species six, and in others ten; and in their respiratory apparatus consisting of radiated tracheae, communicating with the lungs by long tubes, the soft parts not being united, and only by muscles, the legs being jointed upon, and radiating from, a common breast-plate ( sternum ) externally while, according to Straus-Dürckheim, there is also an internal breast-plate ( sternum internum ) in form of a horseshoe, the two ends of which are directed forwards.

The greater number of the arachnida are carnivorou s, and are furnished with appropriate organs for their predatory life. Some species of the Limnetidae, like that of the gaily (Tubanus), in other species, may be distinguished a pair of upper jaws ( mandibula ), a pair of under jaws ( maxilla ), carrying jointed feelers ( palpus ), and between them a sort of tongue formed by a projection from the breathless back part of the body. The equal parts which the air enters, the air texture, which Sambon, Latreille, and Audouin term the pharynx, forming the entrance into the gullet. The gullet, together with a bulbous on the fore part of it, termed the stomach, as well as the intestines, are all lined with a smooth texture. Near the upper portion of the gullet are found salivary vessels, whose exterior aperture is in the first joint of the upper jaws. The saliva secreted by these vessels appears to be poisonous. Lower down are the biliary vessels, which resemble those of insects.

In the greater number of arachnida, there is a complete and very distinct circulatory system. The heart, which differs materially from the dorsal vessel, by some termed the heart itself, occupies its place. It may be distinguished externally. It is a thick longitudinal vessel, giving origin to a certain number of arteries, and receiving veins by which the blood returns from the respiratory organs in other parts of the body.

The respiratory organs have two striking peculiarities, upon which M. Latreille founded his two great divisions of arachnida.

The first division furnished with air-pipes, similar to those of insects, comprises harvest or shepherd spiders (Philangia), mitites, and several other genera. 'The presence of air-pipes ( trachea ),' says M. Latreille, 'excludes all complete circulation, that is, the distribution of blood to different parts, and its return by the respiratory organs to the heart.'

The other division of the class comprises the numerous species of spiders, and the scorpions which M. Straus-Dürckheim and Leon Dufour place first. Their respiratory apparatus consists of small cavities formed by the union of a great number of triangular white lamina of extreme thinness. The number of these is usually two, but in some species there are four, and in others eight. The external apertures of these, termed spiracles, and, as M. Latreille well remarks, objections by Neumann, are transverse chinks, corresponding in number with the pulmonary pouches.

The nervous system of the arachnida is ganglionic, consisting of nerve-knots (ganglia). In man and the larger animals a ganglion is composed of two such masses similar to the cerebral and medullary parts of the brain, but differs from nerve in being firmer in texture, and covered with a membrane of closer tissue. In the arachnida these nerve-knots are more concentrated, if the term may be used, than in the vertebrate, being uniform, not a chain of ganglia equal separated. Thus in the harvest spiders (Philangia) there is a pair of nerve-knots in front of the gullet, and at the back of the gullet a medullar mass, apparently consisting of three ranges of nerve-knots united.

We know nothing of the organ of hearing in arachnida, though it is certain enough that they do hear. Their eyes are all simple, not compound, like those of many insects. They are externally formed exactly in the same manner, and are smooth, glittering, and without divisions; and are as much dispersed as those that are disposed at random over the body. The wolf-spiders, which catches its prey by leaping on it, has its eyes placed in the same manner. In the greater number of spiders they are eight in number, but in some six (Atrax, and Segestria) in others two (Philangia). The arrangement of the eyes, when more than two, varies considerably in the different genera, and is taken advantage of in arranging them systematically, on the principle first, we believe, pointed out by Dr. Lister, and improved by M. Latreille, that the thorax is the first, and the legs appendages to the other. Figures of various arrangements of the eyes in spiders may be seen in Insect Miscellaneies, pp. 125, 126, after Audouin.

With regard to the sexes, male spiders are always much smaller than the females, and this is more marked in the Phalangium than in any other. This is the same with the females of the order, so that in the male, the head and thorax are much smaller than the abdomen, and the female, the feet being smaller, the abdomen is much larger; the male is accordingly to the female ( philanthrope ), as we see dew-drops and globules of quicksilver formed from the same cause.

The eggs of spiders, it is worthy of remark, are in most cases, though not in all, disposed in the form of a cup, and this cup with the spider's body, squeezed together in a flat manner; and only come into a globular form after they are laid, partly in consequence of the weight of the eggs, and partly in consequence of the spider's tendency to the form of its nest. The spider first spreads a thin coating of silk as a foundation, taking care to have this circular by turning round its body during the process. It then, in the same manner, spins a raised border round this till it takes the form of a cup, and at this stage of the work it begins to attach the eggs in the cup, not only filling it with these up to the brim, but piling them up above it into a rounded heap as high as the cup is deep. Here then is a cup full of eggs, the under half covered and protected by the silken sides of the cup, but the upper still bare and exposed to the air and the cold. It is now the spider's task to cover these, and the process is similar to the preceding, that is, she weaves a silken web for round them, and, instead of a cup-shaped nest like some birds, she builds a whole nest, which is much larger than the body of the spider that constructed it.

There is a singular mechanism for the purpose of placing the eggs in the proper position. The eggs, different from what takes place in birds, are excluded from a cavity just behind the breast. Here there is an organ placed somewhat in form of a hook or a bent spatula, which the spider can move in such a manner as to direct every individual egg which it lays to the exact nook, where it wishes it to be placed. The sense of touch in this organ must of course be very acute as by touch it must be wholly guided, for its eyes, though eight in number, and very piercing, are situated on the upper part of the head, and cannot be used within sight of the nest.

The hatching of the eggs of one species (Pepita diadema) has been traced with great minuteness, and the successive evolution of the embryo figured with great skill, by M. B. Herold of Aix. M. Latreille, whose method has been generally followed both in Britain and on the continent, arranges the arachnida into two orders:

I. Arachnida palutorumia, or pulmonata, distinguished by having pulvelliary cavities for the purposes of respiration, and from six to eight simple eyes.

II. Arachnida trachea, or tracheata, distinguished by having air-pipes (trachea), like insects, and more than four simple eyes.

Each of these orders comprises a number of genera which shall be noticed in their proper places.
ARACK, or ARAC. This word is derived from the Arabic word arak, which properly signifies perspiration; hence juice, liquor. Under various modes of spelling it is employed as a general name for distilled spirits along the northern coast of Africa, including Egypt, over all Asia, and even in the north and eastern parts of Europe. This spirit is prepared from different substances, some are distilled from the flowers of the palm tree, some are distilled from the flowers of the coconut tree, and some from other flowers. The toddy is extracted from the branches of palm-trees, and even from incisions made in the stem, but erroneously. The 'toddoy trees,' or coco-nut tree orchards, are very extensive in Ceylon, and their produce is collected for the distillation of arack. The coco-nut tree orchard varies from 8d. to 1lb. per gallon. Ceylon arack is superior to Batavian arack, and it commonly brings a higher price of from 10 to 15 per cent. on the peninsula of India, than Javanese manufactured spirits. The quantity and estimated value of arack imported into the United Kingdom is 625, amounting to 611,211 gallons, value 21,500, which is at the rate of nearly 8d. per gallon. The following is a schedule of duties levied on the coco-nut plantations in Ceylon, average of three years, 1827-8-9, which will show the importance of the manufacture of arack in political and commercial points of view.

<table>
<thead>
<tr>
<th>Distillation of arack</th>
<th>£3,644</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail of ditto</td>
<td>24,375</td>
</tr>
<tr>
<td>Export of ditto</td>
<td>3,156</td>
</tr>
<tr>
<td>Export of coco-nut</td>
<td>153</td>
</tr>
<tr>
<td>Export of jaggery</td>
<td>162</td>
</tr>
<tr>
<td>Export of copperas</td>
<td>1,539</td>
</tr>
<tr>
<td>Export of coco-nuts</td>
<td>1,551</td>
</tr>
<tr>
<td>Export of coco-nut oil</td>
<td>413</td>
</tr>
</tbody>
</table>

The tariff duty levied upon arack imported into the United Kingdom is 15s. 6d. per gallon. (See Marshall's Contribution to a Natural and Economical History of the Coco-nut Tree and Bartolacci on the Revenue and Commerce of Ceylon.)

ARAD ISLAND. [See BaHRIN.]

AROMETER. [See HYDROMETER.]

ARASTYLE. This is a term composed of two Greek words, ἀρατ Alpha, meaning rare or fine, thin, weak, and ἄρας, a column. It is used by writers on architecture, who follow the absurd system of Vitruvius, as a name for one of what he terms the five species of temples. As the term itself imports, it refers rather to the arrangement of columns than to the composition or structure of a temple. The kind of temple called arastyle is, according to Vitruvius himself, that in which the columns are placed more distant from each other than in the columna regia and regia, and is agreed upon by all the principal commentaries upon that writer say, is that the space between columns, or the intercolumniation, is from four to five diameters. The arastyle intercolumniation is generally assigned by the several authorities to what in the Vitruvian system is called the Tuscan order, and as such in the works of the more classical architectural works of the Greeks and Romans, on which the system professors to be based, exhibit no examples of either the arastyle intercolumniation, or of the Tuscan order of columns, each could with safety be assigned to the other. The east or market front of St. Paul's church, Covent Garden, in London, exhibits an example of what the followers of Vitruvius would term a Tuscan portico in antis, though the columns are hardly set wide enough to come up to the character which they have assigned to the arastyle intercolumniation. [See also EUSTYLE.]

ARAGOSTYLE. This term is compounded of araco and syntyle, and was formed to designate an arrangement of columns not mentioned by Vitruvius. The French architect, Perrault, is understood to have introduced the term aragostyle to designate an alternately very wide and very narrow intercolumniation, or, what is familiarly called coupled columns. This arrangement is alternately araco-style—columns too far apart; and syntyle—columns too close together.

Perrault is the front of the palace of the Louvre in Paris, the western porch of St. Paul's cathedral, the porticoes, pavilions, and colonnades of the Pantheon, and the numberless other edifices in London, exemplify the peculiar ineluctable mode of arranging columns which the term aragostyle designates.

ARAFAT is the name of a hill near Mecca, where...
According to the belief of the Mohammedans, Adam, conducted by the angel Gabriel, met Eve, after they had been separated for two hundred years, in consequence of their disobedience, and banishment from Paradise. The Musulman pilgrims, after having visited the sacred rock, called the Kaaba, on Mount Moriah, and the tomb of Abraham, rest a short distance from Mecca, perform a journey to the town of Arafat on a fixed day, the ninth of Dhu-hijjah, the last month of the Mohammedan year.

Burckhardt, who, in 1814, visited those territories which the Mohammedans regard as sacred, in the disguise of a hajji or pilgrim, describes Arafat as a small hill, rising from the north-east side of a plain, closely encompassed by mountains, but separated from them by a rocky valley. The hill is, according to him, about a mile or a half a mile in circumference, and the summit is nearly three hundred feet above the level of the plain.

'On the eastern side,' says he, 'broad stone steps lead up to the top, and a broad unpaved path on the western, over rude masses of granite, with which its declivity is covered. After mounting about forty steps, we find a spot a little on the left, called Modas Soydna Adam, where, according to Mohammedan tradition, the angel Gabriel first instructed Adam how to adore his Creator. On the summit of the hill the place is shown where Mohammed used to take his station during the pilgrimage; a small chapel formerly stood over it, but this was destroyed by the Wahhabites. The steps and the summit are covered with handc kerchiefs to receive the pious gifts of the pilgrims. The top of the hill is covered with an extensive plain, the sides of which are surrounded by mountains covered with trees; the summit is covered with a fine aqueduct which supplies Mecca with fresh water from the eastern mountains. From the summit of Arafat, Burckhardt says, one can see the lowest part of Mecca and the plain; but the greater number of the pilgrims were without tents. The number of persons assembled here from all the Mohammedan countries he estimated at about seventy thousand, and that of the camels at from twenty to twenty-five thousand. There is, perhaps,' says he, 'no spot on earth where, in so small a place, such a diversity of languages are heard; I reckoned about forty, and have no doubt that there were many more.' The essential part of the ceremony at Mecca is performed and the pilgrimage towards the hill, the sides of which they cover from top to bottom; and in hearing a sermon, which is usually delivered by the kadi of Mecca, and which lasts from about three to five hours, in the afternoon the same day. The effect of this range, which penetrates into Aragon, form a number of lateral valleys with a rapid slope to the south. Taking Monte Perdido or Mont Perdu, elevated 11,165 feet above the sea, as a central point, the range descends in a series of steps to the ocean. On the east, the same gradual descent is observed as far as the frontier of Catalonia, where it rises again in the Peña Maladeta to 11,494 feet; it again descends as far as the valley of Andorra, where it rises in the Monçal to 10,653 feet; then it again descends near Mount Butor to 9,414 feet, and then again in the Canigut to 9,414, and then makes a rapid descent to the Mediterranean. This circumstance at first led to the erroneous idea that the Canigut was the highest point of the range; but it is still 2,820 feet higher than the exiguous ridge descending from the chain appear to descend in all directions, while the distance diminished the apparent height of the other summits; but by exact measurements this error has been corrected.

The first valley of Aragon which we find in the Pyrenean chain, as we advance from the east, is that of Bànques, the capital of which is the town of the same name, with a fortress and a custom-house. Proceeding westwards, we find the valleys of Bóix, Broto, Tena, the capital of which is last Salén, in the centre of the range; about two miles from Salén is the source of the river Gallego (an affluent of the Ebro), and then it winds its way far from the town of Mecca, perfectly straight, and then turns to the west, following the valley of Canfranc (the Puerto, or opening, which bears that name, is 6713 feet high); those of Aragüés, Hecho, and the last, Ansó, on the frontier of Navarra. Every valley is separated from the adjoining by the gigantic escarpments of the Pyrenees. The hill rises from the south-eastern direction from the main mass, form these lateral valleys. All the summits of the Pyrenees in this part are covered with snow nine months in the year, and even in summer it is ice from June to September. The second chapter of this province is that called by some geographers the Iberian, which runs in a direction from N.W. to S.E., under the names of Montes de Oca, 5346; Sierra de Monayo (the Mons Caninus of the ancients), 5921 feet; Sierra de Molina, 4498; Sierra de Teruel, 4331, at the city of that name; and then enters Valencia, and terminates on the shore of the Mediterranean near the deserto de las Palmas.

Almost all the rivers of Aragon have their source in these two chains of mountains, and run in different directions to their common receptacle, the Ebro. This river crosses the province from N.W. to S.E. and divides it into two parts almost equal. Its affluents on the right bank are the Aragón, the Anser, the Huesca, the Jalón, the Huerva, the Agüas, the Martín, the Guadalquivir, and the Matarraña; on the left, the line of boundary between Aragon and Catalonia; and on the left, the Arno, Aragón, Gallego, and Segre. (See Ebro.)

Several roads cross the province, passing through the principal towns. The principal road, from Barcelona, which was opened in 1529, by order of Charles V. The water was taken from the Ebro at Fontellas; a basin and a house were constructed three miles below Tudela in Navarra, and the canal was continued parallel to a river. This work was abandoned, and remained unfinished for nearly two hundred years. Under Charles III., in 1772, the conduct of the undertaking was entrusted to Don Ramon Pignatelli, a man of great activity and skill, under whose direction it was carried on until 1791. This work is said to have cost 80,000 ducats, and crosses the Huesca, Jalón, and Guerra. If we consider it with respect to its width, we may assuredly say that it is one of the finest in Europe, but the benefits derived from present it from are very inconsiderable. There is sufficient water for vessels of from sixty to eighty tons, but in consequence of the canal not reaching the sea the trade is very limited: if ever the original project is completed, and the navigation continued to Tortosa, the advantages which the Aragonese, Navarrese, and Catalans would derive would be calculable. In 1819, the produce of this canal amounted to about 13,392l. The object of this canal is double, being designed both for irrigation and navigation.

The climate of Aragon is subject to the elevation and particular situation of the different districts, but in general, except on the mountainous parts, it is adapted to most of the productions of temperate climates. The winds that chiefly prevail are the Cierzo, or N.W., and the Bochorno, or S.E. These two continue during nine months in the year. The period that the S. or E. blows is very short. The W., which the Aragonese call Vaigüeto, and the Castilian favento, is always welcomed by the husbandman, as it never fails to bring along with it abundant showers, which are favourable to vegetation.

The productions of the soil are, wheat, barley, rye, oats, Indian corn, leguminous vegetables, esparto, or Spanish hemp, flax, hemp, saffron, barbels, madder, saffron, licorice, rice, oil, wine, and timber. The productions of the mineral kingdom are gold, silver, copper, iron, lead, quicksilver, cobalt, alum, jet, coal (near the source of the Martin, a tributary of the Ebro, and copperas); few of these minerals are now worked, but a very important amount of rock-salt at the village of Remolinos, near Alagon, which supplies Aragon and Catalonia with this article. Peat earth, which has been compared with that of Holland, and found, has been discovered on these mountains; the mountains abound in game; wolves and bears are likewise found, and numerous herds of cattle feed in the valleys. Before the Peninsular war, the number of sheep was 50,000. The rivers preceding the Aragon are singularly trout and eels; of the latter, the most celebrated are those of a lake, or rather pond, near Almacán. The produce of grain and wine is more than sufficient for the con-
The ecclesiastics were not admitted into the Cortes until 1881. (Blancas's *Medio do Proceder en Cortes*, ch. vi. p. 14.)

The first Cortes of Aragon were held in May 1249 at Manresa, but the privileges and customs of the Cortes of Burgundy or Commons is distinctly mentioned, are those of Monzón of 1211. These orders formed one house. Every brazo gave its vote separately, and the majesty in each brazo decided the vote of that brazo, but the unanimous consent of the four brazos was requisite to the enactment of any law. Any individual could stop the proceedings of the Cortes by giving his veto in writing. The number of the nobles that generally sat in the Cortes were eight; the ecclesiastical brazos consisted of twenty-three, and the municipal brazos or corporations members were thirty-one. The number of the members for the cities and boroughs was not fixed. In the Cortes of Zaragoza, A.D. 1163, fifteen deputies from that city, besides many from Huesca, Jaca, Calatayud, Daroca, and Tarazona were present; and the number of the municipal deputies from every principal city and borough in the realm. Thus Aragon had a popular representation nearly a century before any other nation in Europe.

The Cortes were summoned by the king, and were also dissolved by him. After the conviction, they adjourned from day to day, for an indefinite period of time. The adjournment was made by the justicia: if before the opening of the Cortes, for the virtual absence of some of the parts of the Cortes; and if after, by the order of the king and at the will of the Cortes themselves. When the king absented himself from the place where the Cortes were assembled, they were dissolved. The king presided in the Cortes in the name of the crown, being, as the Brazos called him, the crowned prince, or some other individual of the royal family, to supply his place.

On the opening of the assembly, a discourse was pronounced by the king or called the *exhortation*. Bishop Garcia of Zaragoza for the ecclesiastics, and the jurado of the same city for the commons: the rest were elected by their respective brazos. The promovedores proposed the subjects and petitions which were to be subjected to discussion, and the tratadores examined and arranged them in proper order.

From the first opening of the Cortes, the justicia was obliged to sit in the common brazos for the sexes, greuges, or grievances, which any Aragonese had to make against any individual, high or low, for infractions of the fuera, and this, says Martel, was 'not done by way of supplication, but as a matter of right.' Certain officers called the *regidores* and the *examiners* of grievances, or examiners of grievances, were appointed, to decide whether the complaint presented was a constitutional grievance or not. When the king or any of his ministers were affected by the greuge, he was excluded at the time of giving the sentence, which was pronounced by the justicia and the Cortes. Both the positive infractions of the law, and the nonfulfillment of it, were a subject of greuge. As these complaints were more frequently made by persons of rank, some have erroneously supposed that this was a privilege of the nobility: but Blancas says, that if any officer of the crown had put to the torture (a thing contrary to the fuera) the most miserable person, the least village in the kingdom, the latter had a right to complain to the Cortes, and he should not only be attended to, but even be furnished by the nation with the necessary means for the prosecution of his cause.

The servicio or supplies were granted by the Cortes, but not until the several petitions of the deputies had been first granted. In former times, it was not called servicio, but *proertia* or *sacro*, offer or succour, and was made not in money, but in kind. This system began in 1200, and Zurita and all the other historians of Aragon make its creation contemporary with that of the suero of Sobrarbe, but no mention is made of the justicia before the conquest of Zaragoza.

The Cortes were composed of four brazos, or orders,—the ecclesiastics, the nobility, the caballeros, and the people.
serve their kings except with their persons; that it was the Jews and Moors that served theirs with money. The following still more striking fact is recorded by the same historian, of Tarreuel: In the month of March, 1420, Miser Juan de Marmillen, treasurer to the queen, presented to the trastadores of the Cortes and the king an humble petition from la Señora Reina, requesting some pecuniary assistance for her support; to which they answered that such a thing as that had been done before, and then it was their opinion that it could not be done without great detriment to their liberties; a thing which la Señora Reina neither could nor ought to want, and therefore they begged Su Majestad not to request them to consider again, both the petition and the answer they had given, their reply was, that they stood firm to what they had said, and they neither could nor would suffer that such a thing as that should be done again. In 1436, the Cortes, by virtue of the constitution of Aragon, obtained of the Cortes a loan of 60,000 florins, about 900,000, a buen tono, to be duly returned. In 1442, another sum was lent to Fernando I. upon the same condition. In course of time these debts were remitted to the kings, and by little and little, the custom was introduced of granting supplies of money, the first of which was the one made to Fernando el Católico, for the conquest of Tuni and Bugia. The ordinary expenses of the state were defrayed by means of the provision of the Cortes, the provision of the King, and the subsidy, arising from the profits of the war, for as long a time as the war lasted, and which had been granted, nobody could exact them, under the penalty of excommunication.

The last sitting of the Cortes was that called the enito, in which all the laws that had been enacted were solemnly proclaimed and sworn to, first by the king and the justicia, and then by two individuals for each brazo, and by all the public functionaries. The sanction of the king was absolutely requisite for the validity of any law; if he refused to give it, the deputies refused to consider the law. The justicia signified that it was not his pleasure that it should be insisted upon any further. Though the king was present during the discussion, he was obliged to leave the Cortes when the vote was given.

By the Cortes and the justicia two deputies were appointed for each brazo to sit permanently until the next general assembly. The diputacion, in union with the justicia, watched over the observance of the law, and examined the accounts, and every thing in the financial department.

Among the many privileges of the Aragonese, the most notable were, the privilegio de la manifestacion, and those of the union. By the privilege of the manifestation, when any one was accused of any crime, not by the delator, contrary to the fuero, he appeared before the justicia, and being asked by him whether he desired to be manifestado, if he answered in the affirmative, he was placed in the prison of the manifestacion, or, in the prison of the manifestacon, and his cause was taken from the judges of the crown, and examined by the court of the justicia. The privileges of the union were granted by, or rather wrested from, Alonso III. This prince having assumed and exercised the royal dignity without having first taken the necessary oath of allegiance to the constitution, his subjects formed a union, and with the Cortes at their head, threatened to withdraw their allegiance, unless he solemnly—not to prosecute capriciously any of their members, nor to put any injury upon them, even to imprison him without previous sentence of the justicia to that effect, and with the approbation of the majority of the Cortes; secundum quo, that the king should be obliged thenceforward to assemble the Cortes every year at Zaragoza in the month of September, and to give the deputies the power to appoint his ministers, councillors, and other officers of the crown, and even the officers of his household. The condition was that the persons appointed should first swear to advise him in all his labours; and lastly, that in case he or any of his successors infringed any of these privileges, the members of the union would not acknowledge him as their king, and, without any charge of rebellion, would refuse attendance on him. For these privileges, seventeen castles in Valencia and Aragon were placed in the hands of the representatives of the nation. This extraordinary transaction took place on the 29th of December, 1268. Pedro IV. abolished these privileges in the Cortes of Zaragoza, 1348; still the justicia of Aragon, in union with the diputacion of the Cortes, preserved the constitutional right of calling the nation to arms against the king, when he invaded the fueros of the kingdom.

The Aragonese devised an oath calculated to remind their monarchs of this privilege. 'The king,' says Antonio Perez, upon the accession of the throne, kneeling before the justicia, the latter being seated and with his head covered, swears solemnly to observe the fueros of the nation; then the justicia, in the name of the Cortes, says, No, que valenos tanto como vos, o lucemos Rey y g' i, con tal que non sean tres veces tres, sino, no; that is, We, who are worth as much as you, make you our king and lord, provided you keep our laws and liberties, otherwise not.' (Relaciones de Antonio Perez, p. 132.)

Under the monarchs of the Austrian dynasty, these institutions, which had lasted nearly eight centuries, began first to be undermined. The justicia Juan de Lanuza IV., having in virtue of his authority rescued Antonio Perez from the grasp of the king and the insurrection, seeing that the Castilian army was in march to invade the kingdom, called the Aragonese to arms, and the priests, both in the pulpit and in the confessional, exhorted the people to come forward in defence of the Cortes. But they were shamefully deserted by the nobility, imprisoned while in the performance of his duties, and without any trial publicly beheaded. The king, Philip II., in a letter written with his own hand, without any signature of either secretary or minister, addressed to an Asiatic tyrant, said to his general, 'As soon as you receive this letter, you are to proceed to the imprisonment and execution of the justicia Don Juan de Lanuza, and let me hear of his execution as soon as of his imprisonment. This order was strictly obeyed, and between the arrest and execution of Lanuza there was only the lapse of twenty hours. His charge, says Perez, was his arrest, and his defence his martyrdom. From that time the constitution of Aragon became an empty sound; but it was not actually annulled, but lost all the due respect, when Philip V., the first of the Bourbon dynasty in Spain, abolished it, not only in virtue of the sovereign authority residing in him, but by the right of conquest, as the decree states. In civil concerns, however, the Aragonese are still governed by their own laws, and only apply to those of Castile in cases where their fueros are deficient.

The crown in Aragon, as well as in all the rest of Spain, from the time of the Goths, was elective: and although the king was generally chosen out of the family of the deceased monarch, following the order of primogeniture, until the fifth century, yet instances may be adduced both in Aragon and in Castile, of the nation having departed from this custom, and selecting some one who was not of the royal house, and one who might be called the rightful heir. We are not aware that there existed any positive law on this subject, previous to the constitution of 1812.

In accordance with the unitary political constitution, all the other codes of Aragon were dictated by a more liberal and humane spirit than those of the neighbouring states; thus, while, in the surrounding nations, a criminal, or perhaps an innocent person, was inhumanly tortured, the Cortes of Zaragoza, in 1325, declared it unlawful to put any Aragonese, of whatever rank or condition, to the torture, or to confiscate his property; neither could foreigners be subjected to it, except for forgery.

Aragon was a country peculiarly the most powerful nation in the Peninsula: it embraced the provinces of Navarra, Catalonia, and Valencia; abroad, it possessed the Balearic islands and Sardinia. Ferdinand, the catholic, king of Aragon, was also king of the two Sicilies, and by his marriage with Isabel of Castile, the two kingdoms of Aragon and Castile were united under one sceptre.

The Aragonese are sullen and stern, scrupulously honest in keeping their word; brave, firm, and always ready to all剡的 occasions; they do not choose another king. The beauty of their character is proverbial, and often carried to excess.

A Chronological Table of the Kings of Aragon, from the separation of that kingdom from Navarra to its union with Castile, showing the years of accession:

A. D.
1035. Ramiro, son of Sancho el Mayor.
1063. Sancho, son of Ramiro.
1094. Pedro, son of Sancho.
suspected that the Caspian was lower than the Black Sea, and the fact was ascertained with great accuracy, in the year 1811, by the Russian travelers, Engel and Dembitsky, who ascended the river Caspian and reached the Caspian Sea by water. They met with no difficulties and returned to the Black Sea. This depression extends to a great distance on the north, for by the barometrical observations of Helmersen and Hofmann in the years 1828 and 1829, the town of Orenburg on the Ural river, is only fifty miles from 332-41 English feet above the Caspian, consequently very nearly sixteen feet lower than the level of the Black Sea. Now Orenburg is 500 verstes, or about 335 miles, in a direct line from the shores of the Caspian; and Humboldt is of opinion that the northern boundary of the depression runs between the neighbourhood of the towns of Orenburg and Saratov, and consequently includes all the country lying between the Volga and the Ural south of that line, these rivers being in some places more than 300 miles distant from each other. Humboldt further states, that the great chain of the Himalaya extends westward, until, passing to the south of the Caspian, it joins the table-land of the Aserbaidzhan, and forms the southern boundary of the great depression.

On the north of the Aral Lake is a wild hilly region, thinly inhabited by half-civilized nomadic tribes, who are to be found all round the lake, wherever an oasis in the desert enables them to subsist. The Kizhirzh is the highest of several peaks, and the highest part of these steps, are a continuation of one of the groups into which the great Ural chain divides itself towards its southern termination: the insolated cone, called the Accenture, the highest point, is only 960 feet above its base. The Urala in the neighbourhood of Orenburg are composed of a red sandstone, and the same rock extends into these steps of the Kizghir. Dr. Pander, the naturalist, has been in the habit of stating, that he found the sandstone composed of quartz pebbles united by a quartzose cement, and then passing into a white sandstone; he observed a stratum of coal in the bed of a brook in this sandstone; he found the pudding-stone covered by a limestone full of shells, with sharks' teeth, many bivalves, and ammonites, some of the latter two feet in diameter; and he discovered beds of gypsum associated with the limestone: the Mongodzhir mountains are composed of the sandstone associated with porphyry and greenstone. The hilly region gradually sinks to sandy plains towards the south and east, no branch of the Urals being prolonged so as to reach any part of these plains. The Chai Chai is a deposit of clay, marl, and calcareous tufa, covered by loose sand, which is blown up into hillocks from thirty to forty feet high, and the aspect of the country is thus changed after every storm of wind. In these desert plains, the base of the hilly region, and along the north east edge of the Aral Lake, are ranges of low hills called the Great and Little Bourzouk; the latter terminates in a promontory, at the north-east angle of the lake, but the Great Bourzouk extends considerably westward. North-east of the Little Bourzouk are some hills composed of indurated marl full of marine shells, and the formation extends to the shores of the lake. The hills of Algour and Sari-boulak, forty miles inland, are composed of red sandstone, and they seem to have then been raised to the level of the lake. The northern sides of the hills, or those sloping from the lake, are gradual and covered with shrubs; but the side of Sari-boulak next to the lake presents a face of naked marl, upon which you can see precipitous sides from 120 to 180 foot high, and the marl contains beds of shells and fishes' bones, from three to four feet thick. 'I mentioned to our Kirghizians, says Baron Meyendorf, the traces of water on Sari-boulak, and they assured me that their ancestors had been habituated to dwell along the foot of this hill, although it is at present sixty verstes distant from it. So great a number of the Kirghizians have told me the same thing, that I consider it as an undoubted fact, and it proves how very considerable, and at the same time how rapid, the diminution of the waters of the Aral Lake has been. It continues to diminish, and one of our guides pointed out a place in our route, far inland, which he hypothesized was covered to the depth of five fathoms. This remarkable fact may be compared with the state-
ment of Colonel Monteith (Journal of a Tour through Asia, Australia and the South Sea, in the year 1828, vol. ii., London: Royal Geographical Society), that during his residence in that part of Asia from 1811 to 1828, the Caspian Sea, as well as every other lake in Persia, had decreased most sensibly in depth.

Between the foot of the Changa-djar mountains and the banks of the Syr-darâ, a distance of more than 970 miles, not a single river traverses the sandy desert, which is covered with a number of shallow salt-water lakes, and has exactly the appearance of land from which the sea has retreated. These lakes are sometimes placed in the midst of salt desert, and occasionally in a salt of dazzling whiteness, covering a surface of sometimes six or seven square miles. From the north-eastern part of the Aral Lake to the mouth of the Syr-darâ, there is a great sandy tract, called the Karakum, which is in some places 175 miles broad. The country along the banks of the Syr, and especially near its mouth, is tolerably fertile, but that fertility is confined to a narrow band between the desert of Kara-Coum on the north, and one no less sterile on the south, the Kizil-Coum or red sand, which extends to the banks of the Amou, an ocean of sand without one drop of fresh water. The base of the Kizil-Coum is an argillaceous red sandstone, in which some places rise above the surface; the plain is covered with sandy hillocks rising from twelve to sixty feet, and the view from the top of one of these is like looking over a stormy ocean transformed into sand.

The country between the Aral Lake and the Caspian, the Turcomanian isthmus, is but little known. Humboldt says that the southern prolongation of the Ural mountains may be followed from the table-land of Goubierls near Orenburg to Oust-ourt, between the Aral Lake and the Caspian. The chain of low hills of the Great Buzrouzouk, on the northern side of the lake, spreads out towards the west, and turning south extends through the isthmus to within ten days' journey of the town of Khiva; and there is a range of mountains in the isthmus called by the Kalmucks Mangislawski Gori. The caravans between Astracan and Khiva, and between Orenburg and Khiva, pass through this isthmus, the route to Orenburg lying along the shore of the Aral Lake, and the distance between these two places being about four hundred miles. The English traveller, Thompson, who accompanied this caravan in 1740, describes the lake as being bounded on the north-west by rocky cliffs.

It has been supposed that the Aral Lake and the Caspian were at one time united; the Greek geographers appear to have been of this opinion, or rather were ignorant of the existence of the Aral Lake, for they make the Oxus and the Iaxartes flow into the eastern part of the Caspian. But until we are better acquainted with the structure of the isthmus, no one can be certain on the subject.

That this part of Asia has undergone great changes in its physical structure, and that the relative position of land and water has materially altered since the existence of the Caspian Sea, there can be no doubt; but to what extent these have taken place within the historical era can only be determined by a much more minute examination of the country than has yet been made, and by careful researches into the nature of the organic remains which are imbedded in the soil that has been abandoned by the waters. The narrowest part of the isthmus is not less than 150 miles wide, and a series of barometrical measurements by Messrs. Duhameil and Anjou of the French navy, from the Caspian to the Bay of Mertovs Koulouk, on the western shore of the Aral Lake, have proved that the surface of the lake is 117 feet above that of the Caspian.

These steppes and sandy deserts cannot, from their nature, support a great variety of animals and plants. Violent heats in summer, succeeded by very rigorous winters, are unfavourable to the growth of trees or even of shrubs. Poppies and willows, which attain a height of five or six feet, are met with in groups in those oases where a river has overflowed its banks and deposited a covering of fertile soil, or where there are springs of fresh water. A species of tamarisk is common, and attains in favoured spots a height of twelve or fourteen feet. Lilaceous plants of the genera Hyoscyamus, Iris, and Cucum, are very generally diffused, and their bulbous roots are the principal food of the mammiferous quadrupeds found in these countries. These are chiefly of the smaller sized kinds, and such as burrow in the ground. Different species of the rat, mouse, dormouse, and marmot, are abundant, and the Baikal hare is not uncommon. Among carnivorous animals there are different species of the fox, marten, weasel, etc. For the botany and zoology of these countries the reader may consult Pallis's Travels, and Dr. Pendere's Appendix to Meyendorff's Travels; A. W. Kephalides, De Historia Maria Caspii; Engelhardt and Parto, Reise in den Kaukasus, Meyendorff, Voyage d'Orenbourg à Soukhara, Humboldt, Fragments de voyages.

ARALIA/CÉZ. ARALIA are a small natural order of plants, nearly related to the umbelliferous tribe, from which they are so remotely related by their young fruit consisting of more parts than two. They are frequenters of dry and arid turf, and not uncommonly furnished with powerful hard prickles; but they are often also herbaceous and unarmed, like umbelliferous plants themselves. As an illustration of the order, the American ginseng, Panax quinquifolium, may be taken.

This plant, which is nearly related to the celebrated stimulatizing drug called ginseng by the Chinese (see PANAX), is found occasionally on the mountains of America, from Canada to the Carolinas. It has long since been introduced into our gardens, but it is now seldom seen. This natural order seems to possess little or no sensible properties, for the singular invigorating power described to ginseng by the Chinese is considered to be apocryphal.

ARAMA, أراب, literally, the high land, is a geographical designation given in the Old Testament to all the countries between Phenicia, Palestine, Arabia, the Tigris, and Armenia, or to those countries which the Greeks called Syria and Mesopotamia (Jer. vii. 8; 1 Kings xx. 26). Aram was divided into

1. Aram of Damascus بسطار, the territory of Damascus, whose rulers waged almost continual war with the Hebrews from the time of David to that of the Babylonian exile (2 Sam. viii. 6: 1 Kings xi. 24, seq.; xvi. 5, seq.)

2. Aram-Obadah بسطار, which was, according to Syrian authorities, Ninib, the Greek Nabos. But this cannot be, because Nabos is in Aram Naharaim, or Mesopotamia, which, according to Ptolemy, differs from Aram-Obadah. The passage to which we refer belongs to the
English authorized version of the first verse: 'When he (David) strove with Aram-Naharaim and with Aram-Zobah, &c.' We read also in the Holy Scriptures that the king of Zobah obtained auxiliaries from beyond the Euphrates from Aram-Naharaim. According to Benjamin of Tudela, Zobah means Halebe, or Aleppo. Sahnwineh and Bochart think that Aram-Zobah means that part of the territory of Hamath where the town of Zobah was situated, not far from the Euphrates. Therefore, the visit of the Jews to Zobah, 'Solomon marched to Hamath-Zobah, prevailed against it, and built Tadmor in the desert.' And according to 1 Chr. xviii. 3, when David went to recover his border towards the river Euphrates, he slew Hadarezer, the king of Zobah, and took the castles of Zobah. We have seen before, Hamath, being a part of Aram, sometimes went under the name of Aram-Zobah. The inhabitants of Aram-Zobah were frequently involved in war with the Hebrews, 1 Sam. xiii. 19, et seq. Or, according to C. Hyde's note to page 60 of the Ethiopic Bible, Oznolin, 1691, 4to.

3. Aram is the name of one of the ten tribes of Israel, and was the proper name of King Solomon. He built the city of Aram, 2 Kings viii. 17, 'the high land.' (Bochart, Phileg. ii. 6; Winer, in Encyclop. de Bel and Gras.; Michaelis' Spicil. Geog. des Trib. der Heb., i. p. 117. seq.)

According to Bochart, Aram is a Persian word, and is derived from Moses of Chorene (i. 13, p. 83, ed. Whiston), a conqueror who went from the western or Aramean or Syrian Capпадocea, or from Armenia Minor, into the high-lands of Armenia, and from whom the present name of Aramia may be derived, like Anglia or England from the conquering colony of the Angles or Anglo-Saxons. This circumstance explains the fact, that the Arameans and Armenians are sometimes confounded (as we see in Breydenb. i. p. 41, 42, Cassarn, and I. p. 112. Siebenkoch), and that the Arameans themselves, descending by Haik from Noah, do not use the name of Armenia, which first occurs in Herodotus and other Greek authors, and has been since adopted by western writers.

ARAMEAN OR ARAMIC LANGUAGE (אֲרָמִי, אֲרָמִית, אֲרָמִי), distinguished from the usual root אֲרָמ, which is related to the cognate forms אָרָמֶה, אָרָמָא, אָרָמָּ֣א, (to be high, or he was elevated), literally means the Highland-dialect, in contradistinction to אַרְמָּנ, the language of Canaan, or the Lowland-dialect. The Aramaic was thus denominated because those parts of Aram which bordered upon Palestine were higher than the territory of the Jews, and especially higher than the territory of Maccabaeus and his successors. Thus a designation became current which was improperly applied to the whole of Aram, many parts of which had a lower level than Canaan, but passed under the general appellation of Highlands, because Aram bordered by Mount Lebanon upon Palestine, and had a higher level in all points of immediate contact. Aramaic is spoken near Mardin and Mosul, (see Niebuhr's Reisebeschreibung nach Arabien, t. ii. p. 352; Niebuhr's in French translation of 1789, t. ii. p. 275;) where it is asserted that the Syriac is also spoken in several villages of the government of Damascus. Niebuhr calls the Christian idiom Chadade. The Christians of Mardin and Mosul write even the Arabic in Chadade characters, and write also, in other cases, on the same visiting marks, as in Ateh, in the west of Asia, and the bordering parts of Bukhara. The language is not altogether dead, but is still spoken in the towns and villages of Aram. Mention is also made of a dialect which is spoken in the north of Arabia, but this appears to be a mere tradition. The language was spoken by the Christians of the regions beyond the Tigris, and from the source of the Tigris to Arabia. Both of these, as well as the others, had the same stock of ancient radical words, and essentially the same grammar. The principal features of their difference were, that many words of the old primitive language remained current in one dialect, which were entirely or partially lost in the other (expose to the sun, or to dry) in Aramian, of which only the noun אָרְמָּן (sun) remained in the Hebrew. The same word was sometimes in use in both dialects, but in different significations. The Babylonian dialect borrowed expressions from the northern Chaldæans, who made an irruption into the country. Traces of such additions are to be found in the names of the principal institutions, and also in a few words which enter into the government. The Babylonian pronunciation was easier of utterance, and more sonorous than the Hebrew.

The numerous Aramean colonies (2 Kings xvi. 94) which were substituted for the subjects of the kingdom c.
In Prussia, he had devoted his attention in particular to examine the military tactics adopted by the great Frederick, which were then the admiration of Europe, with a view to apply them to the military system of his own country. He founded a school of artillery which he placed under the direction of the Electoral Prince, but in 1733, he undertook the establishment of the Artillery College, and the military instruction of his own army.

In Armenia, the Armenian language derives peculiar interest from its having been generally employed by the inhabitants of Palestine, from the Babylonian captivity to the final and general dispersion of the Jews. We find that Jesus Christ, when repeating on the cross the beginning of the twenty-second Psalm, does not quote the Hebrew original, but the Aramaic version. Many other occasions when the language used in the New Testament and in the writings of Josephus indicate the prevalence of the Aramaic language in Palestine in the age of Christ. The Greek, however, had been long established in Palestine, and it was frequently introduced by the Macedonian conquests, and extended under the dynasties of the Seleucidae. We know, both from positive testimony and the indirect evidence of inscriptions, that the Aramaic was still commonly used at Palestine at this period as the French now is in Alsace, though it was no more the native tongue than the French now is in the province just mentioned. Greek was also the language of science and learning, as it contained nearly all the knowledge which that time existed. Concerning the language of Palestine in the age of Christ, compare the dissertations of De Rossi and Pfannkuche, and a chapter in Hug's introduction to the New Testament; which have been translated partly by Robinson, in the Biblical Repository for 1831, and partly in Edinburgh, in the Biblical Collectors 1833, vol. i. The standard work on the Aramaic language is, Andreas Theophilus Hoffmannis Grammatica Syriaca libri tres, cum tabulis notarum Scripturae Aramatieae generi exhibentibus, Halle, 1827, 4to.

English readers may compare Yates's Syriac Grammar; Harris's Chaldæe Grammar, 1824, 8vo.; and הַדָּמֹן הָכֹלֵי הָעַדָּמֹן הָכֹלֵי הָעָדָמֹן הָכֹלֵי הָעָדָמֹן הָכֹלֵי הָעָדָמֹן הָכֹלֵי הָעָדָמֹן הָכֹלֵי הָעָדָמֹן הָכֹלֵי Haggis's Hebrew and Chaldee Lexicon, containing all the words of the old Testament, with the Chaldee words in Daniel, Ezra, and the Targums, and also the Talmudical and Rabbinical words derived from them, by Selig Newman London, 1824, 8vo., price 21s.

ARANDA, A. PEDRO PABLO ABARCA DE BOLEA, COUNT OF, descended from a very antient and noble family in Aragon, was born about the year 1718, and married the profession of arms. In 1743 he was severely wounded in an engagement against the Austrians, near Bologna in Italy, and left for dead on the field. The day after the battle one of his servants happened to pass by, and having recognised his master among a heap of bodies, procured him the necessary assistance. He was afterwards sent to Frederick Augustus II., elector of Saxony and king of Poland. On his return to Spain, he was sent to Portugal to supersede the Marquis of Sarría in the command of the Spanish army then invading Portugal. In August, 1762, he resided at Almeida and other places; and soon after peace was made. In 1765 Aranda was appointed captain-general of Valencia, and in the following year he was called to Madrid, that capital being then in a state of violent commotion against the legacy of the Austrian heir. This emergency fully corresponded to the confidence placed in his talents. He was honoured with the presidency of the council of Castile. Not only was tranquillity restored in the capital, but by making a new municipal division of the city, by the establishment of a permanent garrison, and by other prudent regulations, the court prevented the recurrence of similar riots. During his travels in Europe, Aranda had improved his natural talents and knowledge.
who possessed it. The palace is a very handsome square building, with twenty-one windows in front, and a turret at each extremity. It was designed by the architect Juan de Herrera, and was begun under Philip II.; Philip V., Fernando VI., and Charles IV., who delighted in this royal seat, added to its embellishment. The gardens, which are watered by the Tagus, are particularly admired for their natural beauties. In the time of the Peninsular war, this place suffered a truly Vandali destruction, and only the gardens were preserved; the palace was destroyed, but even the Ceres, a fine statue of the fountain of that name, entirely disappeared.

The town is of modern construction; the streets are broad, very regular, and intersected at right angles. The actual population of Aranjuez amounts to about 5,245, which number is more than doubled during the residence of the court. In 1808, part of the ground, which had been then used for uncontrolable cultivation, and was retained by the king as an appendage to the palace, was let to farmers, and brought into cultivation by them. From that period the population became more numerous; and the increased production of grain in consequence has had considerable influence on the markets of Madrid. Charles IV. established here a farm-house and menagerie, in which various foreign animals were very successfully reared. Trees and other productions of distant climates were also cultivated. The forest has since been partly parried.

(See Miñano ; Ponz, carta v. i.)

ARARAT (أرارة), the name of a region in the centre of the high-lands of Armenia, which was included in the former Persian province of Aran, but now in the present Russian government of Armenia (2 Kings xix. 37); the Armenian names for Ararat are Armén, Arama, Arapa, or Arro, the name of this region are called the mountains of Ararat, on which the Ark rested (Gen. viii. 4). The whole of Armenia is called the kingdom of Ararat (Jer. li. 27). That Ararat was originally a name of the region appears from Moses of Choreneus, Geography Armeniac (46, 52), who derives the name from Araci, Arat, the spot of Araci, who was king of Armenia in the days of Semiramis. (See Schroedi Theaurus Lingue Armenicae, p. 55; and Moses Choreneus, Hist. Armen. ed. Whiston, pp. 290, 308, 325, 361.)

The antient interpreters render ARMENIA, Ararat, in Genesis and 2 Kings, by the word Armenia, as Aquila did with Symmachus, Theodoreion, and the Vulgate. At present the Armenians give the name Ararat in preference to that mountain, to which no one, at least, in ancient times, ascended, and upon which the ark rested. The ancient Armenians, Persians, Koh-i-Nuh, the mountain of Noah. (See Wallis's Asia, pp. 518, 606, &c.; &c. Geoseni Theaurus.)

ARARAT, MOUNT, a celebrated mountain of Armenia, situated to the south-west of the town of Erivan, about five miles from the bank of the river Ararat, which is called in antient Araxes. It rises majestically from the midst of a great plain, detached from the other mountains of the country, in two conical peaks, one of which rises far above the level of eternal snow. Humboldt, on the authority of the Russian traveller, Parrot, states its height above the level of the sea to be 2700 toises, which is equal to 17,250 English feet. Thus it is 5389 feet higher than Mt. Etna, 4792 feet higher than the volacic peak of Teneriffe, and exceeds by 1528 feet Mont Blanc, the point of greatest elevation in Europe. It does not, however, ascend to this great height from its base, for it stands upon the table-land of Armenia, which extends over the plains covered with the phenomenon of the level of the sea. The smaller cone is separated from the greater by a plain of great extent, and is considerably lower, for the snow disappears from its summit in summer, and it serves as a calendar to the surrounding people, who regulate their agricultural operations by the progress of the melting of the snow on the little Ararat. The appearance of this mountain is well described in the travels of Sir R. Ker Porter and of Mr. Morier. The former approached it from the north, and pursued Chalvington and Chalvington, and the ice-clothed slopes against the clear blue expanse of the heavens. Mr. Morier, who approached it from the south, speaks in strong terms of admiration of the beauty of its form. Such a mountain must naturally be seen from a vast distance, and it is said to serve as a landmark to the navigators of the Caspian sea. A remarkable circumstance, as connected with the tradition belonging to this mountain has been observed, namely, that when seen from afar and in certain positions, the summit has a striking resemblance to a great circle, and the whole country round is full of traditional stories about Noah's ark's being seen. The Armenians call Ararat, Massisseseus, or Mountain of the Ark, the Persians Koh-i-Nuh, or Mountain of Noah. It is a common belief that the remains of the ark still exist on the summit, and that the wood is considered inviolable. In a church at Nova Schmaschana, near the junction of the Araxes with the Kure, they show a cross, made many centuries ago, out of a plank of the ark. Peter the Great, in 1720, sent some Armenian monks and chemists to Ararat, to procure the wood, and they reported that, to their amazement, nothing of the kind was to be seen. The report, however, in no way shook the faith of the true believers; who with great restraint, rested upon the conviction that the summit of the mountain is unspeakable. The Armenian monk who brought the plank from which the cross was formed, when nearly exhausted in his effort, was met by an angel, who had compassion on him, and handed to him the precious relic. The higher regions are usually covered with clouds, and when these are dispersed the summit is unveiled, the devout Armenians fall on the ground, cross themselves, and pray. At Erivan, they show the spot where Noah first planted the vine, and the name of the vine is known, Navfijof, meaning, according to Chardin, 'place of descent, being the place where Noah first settled when he came out of the ark.'

Several attempts have been made to reach the top of the mountain, and some of them have surpassed the snow limit. The enterprising Tournefort, in 1700, made the attempt; but after undergoing great fatigue he was obliged to give it up. About twenty-five years ago, a Turkish taste fitted out an expedition and built huts well supplied with provisions at different levels, but strong winds, these people suffered severely in their struggle amid the snow and masses of ice in so rarefied an atmosphere, and returned without accomplishing their purpose. From all the accounts we have of the structure, and the height, we have no doubt that Ararat is, partly at least, a volcanic mountain. Its conical shape and its detached position are in favour of this supposition. Tournefort, describing the ascent, says, that they passed over a great and beautiful plain to the base of the mountain; that at the beginning of the ascent they found moving sand, which continued for a great way up, their feet sinking in it so that they slipped back at each step, which made their ascent extremely laborious; that they afterwards came upon sharp fragments which hindered their shoes to pieces, and then to large blocks piled upon one another. This description indicates a volcanic mountain covered with Saltpetre and the remains of decomposition, but it is rendered still more clear by what Colonel Raffet writes in his Memoir in the third volume of the Journal of the Geological Society. He ascended some way up Mount Ararat, and says that he passed great quantities of pumice-stone. On the side of the greater cone there is a vast cleft, which Tournefort describes as a deep abyss, with lofty precipitous sides, and sharp pinnacles of black rock. This cleft is so great that it can be seen distinctly from Erivan; and between it and the foot of the mountain there is a succession of low round-topped eminences. One can hardly hesitate to consider this hollow as the crater of an eruption from the side of the mountain, an event which would be in accordance with the great altitude and the indications of great elevation; for in these, such as the Peak of Tocmen and Ararat, there is seldom an eruption from the top, but almost always from the sides, as if the great mass heaped up by successive ejections afforded a greater resistance to the volcanic force than the sides. But no eruption has ever occurred since the volcanic action, has been recorded within the historical era. In the Chronicon kept by the monks of the monastery of Etschmajesdzes, in which everything relative to this sacred mountain is recorded, there is no mention of any eruption. Many parts of the region around Ararat are decidedly volcanic: Sevelian, a mountain 13,000 feet high, between Ararat and the Caspian, is described by Mr. Murray, who has perhaps been the latest in activity in that country. Extensive beds of lava are visible on its side, and there are warm springs all round the base. The same traveller, describing the lake of Goueka, or Sevan, a body of water 47 miles long,
and in some places 21 broad, situated eastward of Erivan and between Ararat and Sevallian, says, that he found on its banks high perpendicular cliffs of lava, vast quantities of obsidian or volcanic glass scattered over the country, and the ashes of the volcano inhabited by bears. He says that he saw within them 700 yards of bears, that he and his people threw themselves on the ground for the sake of concealment while the tigers passed by. He adds that he found the tiger always in traps by the people, the mark of their captivity by wild beasts throughout Persia. (Tournoy, "Voyage dans le Levant; Sir R. Kerr Porter's Travels; Mr. Morier's Travels; Humboldt, "Fragments Asiatiques;" Von Hoff, "Geographische und Erdkunde;" Mothe's "Tour through Persia," &c.)

ARARAT, or PILOT MOUNTAIN. [See North Carolina.]

ARAXES, or ARAX, is a large river of Armenia, mentioned by Greek and Roman writers under the name of Araxes. It rises at Dekman in Mount Bin-Gheul, from a number of sources, about 20 miles E.S.E. from Erzerum, and about 39° 47' N. lat., 41° 9' E. long. A branch of the North River rises on the north side of the same elevation, a fact known to Flinny (vi. 9). Its general course from this point is east, with a slight deviation to the north, through Basen and along the borders of the provinces of Karabach of Erivan, at a place called Sahashaphes. From this point it takes a bend to the E.S.E. (passing the eastern base of Ararat) as far as the ruins of Old Julfa in the province of Nakhchivan; at Sahashaphes, the borders of Erivan, its banks are bordered with numerous windings. From the ruins of Julfa (within a few miles, the most southern point of the river's course) the general course of the river is E. to the limits of Khapshan, where it turns N.E., running in this part of its course, with some considerable bends, through part of Nakhchivan, Kapan, and the Karsabugh to near Jevat, where it is joined by the Kur (Cyrus) coming from the Caucasus. The united stream, after running about thirty miles east, turns suddenly to the south, and enters the Caspian Lake by three mouths (about 39° 30' N. lat.); a long projecting tongue of land, or delta, is here formed between the Caspian on the east, and the small gulf of Kiliaghat on the west. After its junction with the Kur stream it is crossed several times by south from Shirvan, and part of the ancient Albania on the north. Its length cannot be less than 600 or 700 miles, if its general course on our maps is correct; but the Djihan- nish or narrow mouth of the river is 1200 miles. The Araxes receives numerous tributaries, but none of them are of any considerable magnitude compared with the chief stream: on the north side, the Hassan-Caleh in Basen, the Dehenkli, which comes from a lake the same name in Cars, and the Arapathez (according to Rennel, the Harapuss of Xenophon, *v. iv. 7) in the same province; the Arapathez runs in a deep ravine, with numerous ruined castles on its high banks; the Zenghi, another name assigned to it in the thirteenth century, is said to be about 5000 feet above the sea, runs past Erivan, and joins the Araxes twenty-four miles from this town; the river of Nakhchivan, &c. Other streams of about the same size, but fewer in number enter it on the south bank. There is a bridge at Dekman, one in the province of Basen, a third at Kapan, and a fourth at Jevat, below the junction of the Kur. There was a bridge at Julfa (39° 54' N. lat.) in the time of the Tugarhians, but the main bridges are seen in other parts of the river. The Araxes, when not swollen by sudden rains or the melting of the snow on the high mountains of Armenia, is easily passed either in boats or at the fords, particularly in the upper parts; but its swollen state the current is extremely impetuous and dangerous. In Khapshan there is a considerable cataract at: a place called Krespar; it is said (Journal Asiatique) that the fall leaves at the bottom a space wide enough to allow men and a whole caravan to pass. But there is pro-

bably some exaggeration in this statement, if these falls are the same which Colonel Montéth describes as more than six feet high, and which he considers to be the falls of Krespar, or Aras Bar. This is probably the cataract alluded to by Strabo (v. iv. 2), according to the ancient tradition, that the Araxes, after its exit from the high mountain region, spread out into a great lake, till at length a rent was effected in the mountain barrier like that which the Ganges makes in India; and the plain was drained. The position of this cataract appears also to correspond to the great break in the mountain chain which Colonel Montéth places about forty miles below Julfa. (See Montéth's Map, and Rennel's Atlas.)

Many of the affluents of the Araxes rise in mountains covered with oaks, pines, and firs. The water of the river is pure and wholesome. It abounds in a great variety of excellent fish, of which the chief is the iscar, a fish of large size and delicious flavor, met with both in the Araxes and the Iscar, still larger than the iscar, a long slender-shaped fish; the deghin-port, which sometimes weighs an okh (45 ounces, if that of Constantinople is meant), and the camarzakht (red-skirt), so called from its external colour, but the flesh itself is white.

The Araxes was known to Herodotus, though only from hearsay (i. 203, iv. 40); he describes it as flowing eastward from the country of the Median, and striking at its approach to the city of Nisa, where, after entering the Caspian Sea, it flowed to the Caspian, by way of the lake Platanus. It is mentioned in the prophecy of the Oracles of Plato (p. 491). In the Egyptian map, it is called Arapoetou or Arapouet; and thus means by the Araxes; but we think there is little doubt that he meant the Aram of Armenia. If this supposition will not reconcile all the difficulties, as it certainly will not, his ignorance of the regions bordering on the west, east, and south of the Caspian, helps to complete the solution of their difficulties. (See Mannert, Geog, der Griechen und Römer, Armelen.)

Strabo, according to the fashion of his countrymen, explains the word Araxes as being of Greek origin, and having reference (according to its supposed derivation from ἀραξις, to strike, or break) to the gap where it passes through the mountains. 'The Peneus of Theseus,' he adds, 'was once called Araxes on account of its having separated (δια των οροφών) Ossa from Olympus by forming the gorge of Tempe.' Such remarks are mere trifling; and it is more important to observe that the name Araxes was given to various rivers and places in countries widely separated. An Araxes (now the Benten-Ehsar) flowed through mountainous Persia and entered the Lake of Bakhtegan. Xenophon, in his Anabasis, gives the name of Araxes to the Aborras, or Chorabara, now the Khabar, an affluent of the Esphates. But the name Araxes was also once applied to the coast of the Peloponnesus, near the confines of Elis and Achaea. (See Journal Asiatique de Paris, No. 71, 1839; Journal of London Geographical Society, vol. iii.)

ARATOS, or ARATUS. [See Poets.]

A poem in Greek, which has come down to us. Neither the date of his birth nor death is exactly known; but, from other circumstances, we infer that he must have been alive in the 13th Olympiad, that is, he lived about the time of the first Pythian Games, and must be placed, as to the time of his notoriety, between Euclid and Apollonius of Perga, with both of whom, in the most extended sense, he may have been contemporary. The materials for his life are chiefly collected from an anonymous Romance of Aratus, which survives in the manuscript copies: from the German translation of it, by Ulmann, in the Bibl. Litter., and from the old Latin translation of it, by Avenius, in the Bibl. Litter., are derived the materials for the Latin translation of it, by Urtomecius, and various scattered notices and allusions in classical authors. There are, in fact, three anonymous lives of Aratus, besides the notices in Suidas and Eudocia. All that is worth recording amounts to this, that he was certainly born in Cilicia, some say at Athens, others at Soli (afterwards called Pompeipolis); that his calling was medicine, that he was invited to the court of Antigonus Gonatas, king of Macedon, son of Demetrius Poliorcetes, who caused him to be killed by a错误的 transmission. It is certain that he was educated by a Stoic named Diocles Heracleius in the principles of that sect.

By the desire of Antigonus, Aratus composed the Phainomena of Eudoxus, which he says does not appear whether he had any remarkable astronomical qualifications for the task. It is a question whether he made any original observations or not; but it is certain, from the commentary of the celebrated Hipparchus, which is yet extant, that he made many altera-
tions: for this commentator frequently cites the prose of
Rudens and the poetry of Aratus together. The work of
the former has not come down to us; in fact, Aratus is the
second Greek poet to be translated. It is in fact described
as the head of the dragon as never setting, but only just touch-
ing the waves. This, at his ears, answered to a latitude of
38° 7', but, in another place, he describes the intersection of
the horizon of the heavens. If he was in a latitude of
40° 8' 4", more than 2° greater than the former. The
second latitude answers to some of the southern parts of
Macedonia.

The poem of Aratus is divided into two parts; the
Epinomia or Phaenomena, and the Astroemia or Prognostica;
the first contains 732 lines, the second 417. It opens with
a declaration of the dependence of all things upon
Jupiter, whoes children all men are, and who has given the
stars as the guides of agriculture. The passage in italics
(vt zypoy tivo xwpiy tivq) is remarkable as being, at
a much later period, quoted by St. Paul in his address to an
Athenian audience (Acts of the Apostles, chap. xvii. v. 94),
"For in him we live, and move, and have our being; as
also certain of your poets have said, for we are also his
offspring." If the words in italics represent the correct text,
they marvelously serve to restore the notoriety of the poem, if
it be recollected that Paul was a countryman of Aratus;
but his purpose was not to wound so great a poet as
Cicero (seen Griesbach's edition) support the reading zypoy xwpiy.

Aratus then proceeds to lay down the doctrine of the
immovality of the earth and the motion of the heavens round a
fixed point. He describes the rotation of the constellations,
and the associations of the constellations then in use, their relative times of
rising and setting, the march of the sun through the zodiac, and the milky way, which is described as one of the great
circles of the heavens. The planets are simply mentioned
as bodies having a motion of their own, but no idea is given of
the length of the periods. There is nothing on the orbit of
the moon, or on the unequal motion of the sun in longitude.
There are many mistakes as to the placing of the stars; for
example, it is said that Lyra has none but small, and Cygnus
none but moderate, stars, though there is one of the first
magnitude in both. There are various phenomena which
are irresponsible with any one latitude, an instance of
which we have noticed; and there are others which could
not have occurred at any one epoch; for example, his sepa-
rate description of the winter and summer solstice belongs to
periods distant by 900 years from each other.

The book of Prognostica consists of predictions of the
weath, which are not very accurate: he except that the celebrated cycle of 19 years is mentioned in it,
it adds nothing to our knowledge of the existing state of
astronomy. It contains various accounts of the effect of
weath on the various regions of the earth. The book is
more like the Georgics of Virgil than any other poem of
antiquity. The latter work contains several imitations of the
Prognostica. There is not a word of astrology either in
the Phaenomena or the Prognostica.

Aratus is also said to have written poems on Homer, on
the Iliad, on astronomy, on medicine, a hymn to Pan, a fune-
ral ode on his brother Myrs, and a poem called Erothos or
Skeithian. More than thirty epistles of his were extant at
the time of his death.

The number of commentaries upon Aratus is very great.
The elegance of the verse caused his work to be for a long
ime in circulation among the Greeks. Petavius gives a list
of thirty-six commentaries in Greek; among the authors
of which are Aristarchus, Geminus, Eratosthenes, and
Hiparchus. The last has come down to us, and owes its
origins to the difference which Hipparchus had observed
between the descriptions of Aratus and his own observations.
According to some, Aratus was a friend of Eudoxus for the
worste; but the latter is also shown to have so far fallen short of what might have been expected even
with the then existing means of observation, that Delambre
considered his error as the maximum limit of the motion of
the heavens, but from a globe, on which the stars had been
incorrectly laid down.

Full account of as well of Aratus as of his commentators
will be found in Delambre’s Histoire de l’Astronomie An-
icienne. The anonymous Life of Aratus, is, as before noticed,
in the Uranologiae of Petavius, together with the com-
mentary of Hipparchus and another, which has been attrib-
uted sometime to Eratosthenes, but which is given by Petavius to Achilles Tatius.

The Phaenomena was translated into Latin by Cicero
when a very young man. Several fragments of this trans-
lation still exist, and are given by Grotius in his edition of
Aratus. It was also translated by Germanicus, father of Caligula,
by Fustus Avienus, both of which versions are to be found
in the same edition, which was published at Leyden in
1606, and contains also the original Greek with notes.

There are also commentaries on the Phaenomena as by
the elder Aldus, Venice, 1496, folio; this edition contains
other writers on astronomy. The latest is by Beckler, with
scholia, Berlin, 1828, 8vo. J. H. Voss published a critical
edition of the Greek text of Aratus, at Halleberg, 1834,
8vo, and accompanied it with an excellent German poetical
version.

ARATUS, son of Clemina, was born at Sicyon 271 B.C.
His native city, distinguished in the history of Greece
as a school of art more than for its philosophical
influence, had long been harassed by the conflicting proclivities
of various persons, who, in succession became, to use the
language of Greece, its tyrants or princes. Clemina held
this proconsular dignity during a short time; but he was killed
by Abanidanes, whom also of his own accord he had
like fate gave way to Paeas, who was succeeded by Nico-

cles. Aratus was but seven years old at his father’s
death. He fled in the tumult, and falling into humane and
honourable circumstances, was brought up, and then
to Argos. There he grew up to manhood, distinguished for his bodily powers, a frequentier of
the poleasor, or place of exercises, and a frequent visitor
in the rough games which the city of Greece invented to
please and were proud to excel in. When Nicoles succeeded
him to the tyranny, Aratus was just entering upon manhood,
and he became the object of that person’s especial favor. This
jealousy was not unfounded. Aratus already meditated the
cold enterprise of assassinating his patron, and he endeavored to associate in his views the numerous
exiles who had been banished from Sicyon in its successive
changes of masters. A few only joined him; the greater num-
ber doubted the capacity of the young and inexperienced
plotter to conduct such an enterprise, and shrunk from its
dangers. He persevered however, and carried on his de-
signs with secrecy and boldness. He deceived the spies whom
Nicoles employed to watch his motions, by an affectation
of careless and riotous extravagance, and when his plans
were ripe, he made a night march from Argos to Sicyon,
with a small number of followers, whom his own resources,
and those of his friends, enabled him to arm and retain.
The details of this enterprise are so striking that they
are worthy of place in his life by Flutareh; he succeeded in sealing
the walls, forced his way to the tyrant’s residence, and
mastered his guard. Nicoles escaped by secret passages.
Aratus immediately returned to his friends; and at break of day the populace assembled in
the theatre, where proclamation was made that Arat-
us, son of Clemina, invited the citizens to resume their
liberties. This striking revolution was effected, n. c. 261,
without the loss of a single life, either in the enterprise
itself or as a measure of policy or revenge. Still the new order
of things was far from being safely established. Both justice
and expediency prompted the restoration of all exiles to
their civil rights; but they were in some cases more than
600, naturally sought to recover the possessions which
they had formerly enjoyed. This difficulty of adjusting the
conflicting claims of emigrants and actual possessors was re-
cently experienced in France, after the restoration of
the Bourbons. Aratus, seeing the newly-recovered liberty of
Sicyon threatened at once by civil discord and by the ambi-
tion of Antigonus Gonatas, king of Macedonia, whose policy
was directed to the establishment of tyrants in all the Gre-
cian cities, gained a footing at Philippi for the maintenance of
security, and procured the enrolment of Sicyon as a mem-
er of the Achian confederacy. [See Achrie.] Aratus had
cultivated the friendship of Philomelus Euergetes, king of
Egypt, by secreting a treasure for him, not less than 300,000
livres d’or; the two, under the names of Grecian art; and he
now undertook a voyage to Egypt, and gained so much upon the king’s esteem, that
he presented him with a large sum of money (100 talents),
the whole of which Aratus employed, on his return to Greece.
in satisfying the indigent exiles, and re-establishing concord. He was appointed commissioner, with full power to adjudicate all questions connected with their claims. Unwilling, however, to bear the whole responsibility, he associated fifteen citizens in the task; which was fulfilled with so much fidelity and honesty that some of the exiles erected a brazen statue of him, with a laudatory inscription, in testimony of their gratitude.

The talents and services, and perhaps the intrigues, of Antiochus soon made him an object of general (strategus) of the Achaeian league; which under his prudent counsels grew up from a confederacy of a few insignificant cities for mutual defence into a formidable body exerting a powerful influence in Greece. He held this office for the first time n.c. 245. In the same year he arrived in Lesbos, and being elected strategus of the northern side of the North Aegean Gulf. Being re-elected in 243, after the necessary interval of a year, he conceived the project of wresting Corinth from Antigonus. The Acrocorinthus, or citadel, was considered the key of southern Greece. Antigonus, after long coveting, at last gained possession of it by treachery, and held it with a strong garrison. But the faithlessness of two soldiers in his service disclosed a weak point in the fortifications and a practicable path up the precipitous mountain; and Antiochus undertook the bold enterprise of mastering the strongest fortress of Greece, by night, with only 400 men. For the particulars of this remarkable escalade we must again refer the reader to Polybius, though Polybius, not restrained by much difficulty; and the advantage gained was secured by the arrival of a larger body of Achæan troops, to whom the Corinthians gladly gave admittance. Early in the morning that day he was met by the Achæan generals, appearing on the stage in his armour, was received with the warmest demonstrations of joy and gratitude. He restored to them the keys of the city, which, since the reign of Philip of Macedon, they had not had in keeping, and invited them to join the Achæan league. They acceded to the proposal; and the Acrocorinthus was thenceforward occupied by an Achæan garrison. Antiochus also gained possession of Thasus, one of the ports of Corinth, and in the end of his reign, he devoted all the resources of Megara to the benefit of the league. Troezen and Epidaurus soon followed the example, and the confederacy was further strengthened by the friendship and support of the king of Egypt.

The powerful city of Argos had long been held by a succession of tyrants. To re-establish the commonwealth was a favourite object with Aratus; and he made several attempts, which proved abortive, not being seconded by the temper and wishes of the people. It was not until n.c. 297 that Aristocles, being tyrant for the time, was induced by the counsels of Aratus to resign his power, and bring over Argos to the Achæan league. Cleone, an ancient city of Argolis, which had become a state in its time before, was added to it at the same time. The resignation of Aristocles was probably prompted by the example of Lysias, tyrant of Megalopolis, who, emulating the virtues and the reputation of Aratus (if Plutarch speaks truly), obtained the surrender of only one life, and induced his city to join the league, n.c. 232. Lysias was rewarded by the popular favour, and was three times chosen strategus, alternately with Aratus. Each probably felt jealous of the other, for continual bickerings existed between them. Lysias was killed in battle with the Laconian exiles, and Aratus was killed in an engagement on the coast of Acarnania. This was in n.c. 225.

In prosecution of his favourite policy, Aratus made several attempts to gain the kingdom of Achæa. Thence he could not obtain by arms, he effected by money, soon after Antigonus, surnamed Doson, began to reign, n.c. 237, when Diogenes, the Macedonian governor, delivered himself of the kingdom of Achæa, which he held with the title of Salamin, for a bribe of 150 talents, of which Aratus contributed twenty from his private fortune. At the same time Aegina, Hermione, and a considerable part of Arcadia joined the Achæan league. It will be seen, on reference to the map of Greece, that during a period of about twenty years, in which the affairs of the Achæan league had been chiefly managed by Aratus, that body had grown up from the union of a few weak cities for mutual defence and unity. The Achæans, including the whole northern coast of Peloponnesus from the promontory of Aratus to Scyillum, with the lands of Corinth and Megara, and the greater part of Arcadia. This change was wrought, in a great measure, by the probity and high personal character of Aratus; who, as we are told by Plutarch, even during those years when the forms of the constitution prevented his having the name of strategus, still had the authority of the office, because the people saw that he set neither glory, nor wealth, nor the friendship of kings, nor even the general advantage of the Achæan league. Accordingly, he was elected general officer, it should seem, than the law strictly allowed; for in a period of thirty years from his first elevation, n.c. 211, he held the office of general seventeen times. The leading feature of his policy was the expulsion of those petty tyrants whom it had been the favourite object of the Macedonian kings to establish in all the cities of Greece, as the ready means of retaining them in their sovereignty. Mercenaries from Megara, and Peloponnesus; and to give vigour to the Greek nation by uniting them in one confederacy of well-organized commonwealths. We have seen that he succeeded to a great extent in this virtuous, and judicious, and truly patriotic design. But he was constantly opposed by the Macedonian kings, Antigonus and his son Demetrius, and very frequently by the Athenians, a warlike and turbulent people, who derived much of their wealth from piracy, and were ever opposed to peace and to good order. Hence, though sometimes led to alliance with the Achæans by a common jealousy of the power of Macedon, they were much more frequently arrayed against them, and in one of their predatory invasions into Italy, the Achæans suffered much loss and considerable slaughter. By this victory Aratus acquired considerable renown: for the most part, however, he was unsuccessful in the open field, and cautious to excess in his movements. He was, however, very bold and very successful in effecting the capture of the strongest fortresses by sudden assault, a species of enterprise in which, above all others, prompt contrivance and bold execution are required. His personal courage did not escape unquestioned, and in certain circumstances he doubtless betrayed a weakness and want of steady purpose. He seems to have done best where he had least time for reflection; he saw and did what was expedient on the spur of the moment, but he was not always free from the suspicion of rashness and confidence. So that, according to Polybius, qualities totally opposite were united in him, and in different circumstances he was no longer the same man.

Shortly after the accession of Argos to the Achæan league, war broke out (n.c. 226) between the Laconian allies and Achæans, a war to which neither party seems to have been averse. The Achæans looked with contempt upon the youth of Cleomenes, king of Sparta; and Cleomenes was then desirous of military fame, and hoped to find in the events of war something favourable opportunity for effecting the civil changes at home which he desired. Aristocles, the late tyrant of Argos, was strategus when the war began. Aratus, however, was dissuaded from following him by an engagement with his influence to prevent his giving battle when the hostile armies were first opposed to each other at Pallantium, in Arcadia, though the Achæans were 20,000 strong, and the Laconians but half as many. But the Achæans were successful. Homer never went over to him; and Corinth passed into his hands, with the exception of the Acrocorinthus, which still remained in the possession of the Achæans. The Achæan leaders, then elected, had refused to accept the office of strategus, whether from anger at some censure which had been passed on him after his late defeats, or from a fear of being unable to execute the enterprises which the Achæans, on the accession of Aratus, with Sparta had involved them. He was much censured, both in his own time and afterwards, for having brought the vessel of the state into danger, and then abandoning the helm to others. Though ostensibly in a private station, he
continued to exercise his usual controlling influence. To extricate himself from the difficulties in which he was involved, he adopted the disgraceful expedient of inviting back the Macedonians, whom he had been at so much pains to expel from the Peloponnesus. He had been already engaged in a war with the Athenians, which ended in their cession of the cities of the Hellespont which the Athenians had recovered in the wars of Thermai and Abydos. He had already gained over them several successes which put Argos and so many other places into the hands of Cleomenes. Having prepared the way for reconciliation, and ascertained that Antigonus was not unwilling to form an alliance with the Achaeans after the battle of Dyne, he sent them a formal application to the Athenian commandery for assistance. Antigonus, however, required, that the Acorcorinthus should be placed in his hands as the price of his services: and this open invasion of the liberties of Corinth, a city which was so dear to those whom he desired to persuade. But the voluntary revolt of the Corinthians removed this difficulty, and the Achaeans forthwith transferred the citadel to the custody of Antigonus. Cleomenes took up a station to defend the Ithamus, but he was obliged to abandon it in consequence of a counter-revolution at Argos, which returned to the Achaeans, and Antigonus entered Peloponnesus unopposed (a.c. 224). He took several cities in Arcadia, which he delivered to the Megalopolitans, and going to Aegium to confer with the Achaeans congress, was appointed commander-in-chief of the confederate army. In the following year he took Teuta, Orchomenus, and Mantinea; but this success was counterbalanced by the loss of Megalopolis, which Cleomenes had been compelled to evacuate about the same time. In another year, a.c. 222, Antigonus defeated Cleomenes in the decisive battle of Sellasia, which put an end to the war. The Macedonian king entered unopposed into Sparta, but he treated it as a province of his empire, and where he died, and where he left his sons, to rule over the changes which Cleomenes had made. Cleomenes fled to Egypt, where he died, and Antigonus died shortly after in Macedonia, enjoining Philip, his nephew and successor, to regulate his policy in Greece strictly by the counsels of Aratus.

Peace followed the battle of Sellasia, and for a time Peloponnesus was quiet. This, however, was of short duration. Of the character of the Aitolian tribes we have already spoken. So far as they had embraced the Achaeans as their interest prompted, they were now in firm friendship with a people whose conduct was directed in the main to the upholding of peace and order, while they led themselves a life of rapine, gathering by the strong hand those luxuries from their neighbours which they were too indolent or ignorant to procure by honest industry. A series of gross provocations induced the Achaeans to declare war against these turbulent mountaineers. And they took an active part in urging this measure, and being elected strategus for the ensuing year (it was near the period of changing officers when these transactions occurred), he anticipated with pleasure the prospect of his command, and of the confidence which he might then have to march against the Aitolians, who were already engaged in ravaging Messenia. He failed signally in the conduct of this campaign; once at Cyphes, by his hasty and too hastily, in which he was defeated, a.c. 226; and afterwards in his march through enemy territory, their depredations unchecked, and neglecting opportunities of which a more active general would have availed himself. Great complaints were made at the next congress; and Aratus himself seems to have been sensible that his conduct was open to exception, since, in defending himself, he urged his former services as a plea for passing lightly over his error, if it should be judged that any fault had been committed; but it was not successful; and he continued to retain his wonted influence.

In the course of this war, Philip II. the young king of Macedonia, acted as general of the Macedonian and Achaeans and at Aracante he preserved his conqueror's military commands, and regulated his own conduct strictly after the counsels of Aratus; and he displayed such ability, prudence, and justice, as gave rise to the fairest expectations of success. Some however of his confidential ministers, jealous of Philip's rising power, formed an expedient of Aratus' using every means to destroy his state'sman's weight with their prince, and they induced Philip to procure the election of Epatera as strategus, an avowed opponent of Aratus. The Achaeans, at their secret conference, were present; and Epatera instantly took upon himself to overawe Philip by their interference produced much discontent among the Achaeans. The successful candidate was a person of little estimation, and humble ability, and affairs went on so ill in his hands, that Philip was forced to seek a reconciliation with Aratus.

The war was then prosecuted with success both in Aitolia and Peloponnesus. All parties, however, became desirous of peace. Philip sought to take advantage of the distress to which the Romans were reduced by Hannibal; the Achaeans wished to conclude peace while the advantage was on their side, and the Athenians, being brought to depend on a struggle in which they had the worst. Peace was concluded a.c. 217, each party retaining what they then possessed.

The extensive prospects of ambition opened to the Macedonian king brought to light the seeds of evil in his character. Hitherto his conduct towards his Grecian allies had been generous and faithful; henceforth his desire was to reduce all Greece under his power, and he scurried at few things to fulfil his views. He became distasteful to him, and the authority which that statesman had insensibly acquired over him became irksome. Latterly indeed the policy of Philip became so hateful, that Aratus withdrew entirely from his court and society, fearing to incur the odium of the crimes which he was constantly committing. Still the recollection of Aratus checked, and rendered him uneasy; and to rid himself of this restraint (if Plutarch's tale be true, and it is confirmed by Polybius), he procured the death of his old friend and guide by a slow poison. Aratus felt the blow, and knew the author; but feeling that complaint was useless, he endured it in silence, with the single exception that he once observed in an oracle that his impious and impious was given. The yielding of the Cephalon, are the rewards of the friendship of kings.
Andes was formerly possessed by a separate tribe, called Puelches, which afterwards became united to the Araucanians.

The government of the Araucanians is aristocratical, and is composed of three orders; the toqui, the apo-ulmenses, and the ulmenses. The toquis are four independent chiefs, each of whom is endowed with the right to dispose of his nation, and is derived from the hereditary order of the Araucanians. They possess the command of the province which they inhabit, and the title of toqui, and the ulmenses reside over the refues or districts. The badge or device of the toqui is a porphyry or marbles. The apo-ulmenses and ulmenses have staves with silver heads, but the former are distinguished by a silver ring round the middle. All the districts are hereditary in the male line, in the order of primogeniture. The toquis possess but a shadow of sovereignty; the real power resides in the ulmenses and tocas or caciques, the great councils, or council of the Araucanians. This diet is composed of the toquis, the apo-ulmenses and ulmenses, and is held in some plain or valley, whenever any affair of importance is to be decided upon. Previous to their meeting they have their games and sports.

An ulmen or code of laws consists simply of traditional customs. The laws which are the most distinctly defined are those which regard the district of every toqui, and the succession and union of the tetrarchies. The election of the principal officers of the army, the composition of the diet resides in the toquis. No toqui can ever rule over more than one tetrarchy. The subjects are not bound to render their chief any sort of personal service except in time of war; they are himself, like the people of a certain private body, his fief.

When the male line of the chief becomes extinct, the people choose another ruler out of the family that is most agreeable to them, but before giving the new sovereign his power, they present him to the other toquis to be acknowledged by them.

The crimes which are visited with the greatest severity of the law are treason, murder, adultery, theft, when to any considerable amount, and witchcraft: the murderer may escape if he is accompanied by two blind-faces. Fathers possess the right of punishing their children, or any other individual of their family, even with death, whenever they think proper. The sorcerer is first tortured by fire in order to compel him to declare his accomplices, and then stabbed. The smaller crimes are punished by the law of retaliation, called by them thalatossan. Any one found guilty of a capital offence is immediately put to death, without being in general use when Molina wrote.

The prescribed punishment of the Araucanians, though not more complete than the civil and criminal codes, owe a considerable degree of intelligence. When the council has decided upon war, they proceed to choose a chief from among the most capable of the warriors that compose the army. This chief is then equal to the title of toqui, and the title of ulmen, which all the other toquis are obliged to lay down during the time of his dictatorship. This ceases with the war. Path the toquis and all the other chiefs swear allegiance to him. The general then appoints a vice-toqui, and the officers of his staff, the latter nominating their subaltern officers. The vice-toqui is generally elected from the tribe of the toqui. A messenger, called huerguen, is then sent to announce the war to the friendly tribes, and even to the Indians who live among the Spaniards. His credentials consist in a small bundle of arrows tied with a red thread, and the war has always begun, they put in the arrows the finger of a dead enemy. This ceremony is called palalquite or running the arrow, and is done with such secrecy, partially in the possessions of the Spaniards, that it has rarely been discovered. The dictator then requires from the hearts of his allotted contingent of men, and the levy is made by the apo-ulmenses and ulmenses without difficulty, as no Araucanian ever refuses to come forward in defence of his country's liberty. Thus the principal officers, whose time of war and this and prominent duty it consists generally of five or six thousand men, besides a large body of reserve.

The Araucanian army consists of cavalry and infantry: the former was not known among them before the arrival of the Spaniards; but since the introduction of horses and in 1568 they were able to equip some squadrons for the field. The toqui Cadeguila was the first who established a regular body of cavalry in 1585. The infantry is formed into regiments, each consisting of 1000 men divided into ten companies; every regiment has a flag with a star embroidered upon it, which is the arma of the nation. The cavalry is divided in the same way, but the number of horseman is not fixed. The zuquis are mounted, and they feed, but they put on, under their usual dress, a cuirass made of leather hardened by means of a certain varnish. Their helmets and shields are also constructed of the same material. The zuquis are armed with pistols and lances, and the infantry with pikes and clubs furnished with iron. Formerly they used the sling and the bow, but experience has taught them that close combat was more effectual against the fire-arms of the Spaniards. The Araucanians have never been able to obtain weapons of the same kind. They were at first very anxious to possess it. Having observed some negroes among the Spaniards, they supposed that gumpowder, from its blackness, was extracted from their bodies. Some of these poor negroes having had the misfortune to fall into their hands offered them the opportunity of trying the experiment. He was first flayed from head to foot, and then burnt to ointers, but the result only served to show them the fallacy of their chemical knowledge. They have occasionally made the mistake of using fire-arms at different times taken from the Spaniards, but, perhaps from their strong prejudice against anything derived from the Europeans, they have never generally adopted them. The zuquis, however, are armed with pistols and a sword, and guard to prevent any surprise. The infantry is usually all mounted on horseback until they discover the enemy, when they immediately dismount and form themselves into com panies. Each soldier carries with him his own provisions, consisting of some roasted meal or flour in a bag, a small quantity of which mixed with cold or warm water serves them for food until they arrive at the enemy's territory. In this manner their armies, unencumbered with any sort of baggage, move with great expedition. The general display is not indicated in their encampments, particularly at night is admirable. Having formed an entrenchment round the camp with ditches covered with branches of trees and boughs, they place their weapons, to show their vigilance, is obliged to keep a fire all night before his tent.

After the battle, every soldier is the rightful master of the prize which he himself has made, but when the booty has been taken in common, it is divided equally among them all, the toqui himself having no greater share in it than the private soldier.

One of the laws of the military code of the Araucanians proscribes Insight that the title of the principal officers be sacrificed to the menaces of the heroes who have fallen. This ceremony is called the puelquon or dance of the dead. Fortunately this horrid custom is so rarely performed, that the spirit of two hundred years, it is said, only two of these festivals have occurred.

When the enemy uses for peace, a great congress is held, generally in an extensive plain between the rivers Bio-bio and Duncanque, on the boundaries of Chili and Araucania. The Spanish president and the Araucanian toqui, accompanied by four deputies from the respective athanapunz, without the unanimous consent of whom the peace cannot be ratified, repair thither. The two nations then encamp at the distance of two miles from each other. The conference is opened by many tedious compliments on each side, and in sign of reciprocal friendship, the staves of the ulmenses and that of the Spanish president are tied together, and placed in the middle of the assembly. An Araucanian officer then introduces a libation in the Araucanian language, expiating at great length on the evils of war and the advantages of peace: a similar one from the Spanish president is made in reply, which is translated word for word by an interpreter. The articles of the treaty are then signed and ratified by the sacrifice of several Chilhequues or Chilian lamases, with the blood of which the toqui sprinkles a branch of cinnamon, and presents it to the president as a token of his love. This is followed by the Spanish president dines with the toqui and the ulmenses, and makes them a magnificent present in the name of his sovereign.

The religious system of the Araucanians is in accordance with their political system of government. They acknowledge a Supreme Being, whom they call Pilen, a word derived from pulsi, 'the soul,' which means the essential soul or
spirit. They give him the epithets of Guemz-Pillum, or "the Spirit of Heaven," Paez Gen, "Great Being," and "Mictlantecuhtli," Creator of All, etc. The universal government of their Polish, days, is in the person of the god of the universe, and has his apo-ulhemes and ulhimes to precede over the inferior affairs. The principal of these inferior deities are, the Eaxunam, or "god of war," and the Mieumten, the beneficent god, the friend of the human kind. There is a controversy which determines with some conflict of opinion whether or not the Guemz-Pillum has shaken it; if a friend dies, he has been suffocated by the Guemz-Pillum. On the contrary, the good Mieumten, by the agency of his celestial ulhumes, is constantly endeavoring to check his malignant influence. There are various kinds of ghosts, the female is called Gen, and the latter Amei-Malghen, or spiritual nymphs, one of which is constantly attendant on every Aryanadian; and so firmly are they persuaded of the truth of this influence, that when any one has been fascinated in anything, he expresses his satisfaction by saying, Nien ca'it Amei-Malghen, that is, 'I have my nymph by me.' As their earthly rulers require no particular service of them, the Araucanaans suppose that Being also requires no sort of worship; accordingly, they have neither temples, idols, nor priests, and offer no sacrifices except on some solemn occasion, when they offer a llama, and burn tobacco, as the.incense most grateful to their divinities. They are very hospitable to strangers, and the dead are buried with an inexpressible reverence, at the sight of an owl.

One of the chief articles of their religion is, the immortality of the soul. They acknowledge that man is formed of two substances, the body, or body, and the one or full soul, and that the latter is anamaul, or incorporeal, and nugreaul, immortal. After the death of the body, the soul is taken by a spirit to a place called gueluzheu, or the abode of the men on the other side of the mountains, which place, according to some, is called by two males and a female with an inexpressible value, is terrifying at the sight of an owl.

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After the funeral festival is called curaousnatis or the black festival, that colour being with them the colour of mourning. On the following day, and sometimes two or three days after death, the ashes are collected and placed in two stones, one for the good, and another of misery for the wicked; but others pretend that they will all be there eternally happy, and that their actions during the life of the body have no influence on their future state.

As soon as an Aryanadian dies, the body is laid upon the ground, and all the friends of the deceased sit round it, uttering mournful lamentations for some time. It is then placed on a high bier, clad in the richest garments, and the night is passed in weeping, eating, and drinking. This funeral festival is called curaousnatis or the black festival, that colour being with them the colour of mourning. On the following day, and sometimes two or three days after death, the ashes are collected and placed in two stones, one for the good, and another of misery for the wicked; but others pretend that they will all be there eternally happy, and that their actions during the life of the body have no influence on their future state.

In the new state of existence, the soul being free from the incumbrance of the body, pursues with greater facility and perfection all the occupations that it had in the body. Wives return to the bosom of their husbands, and children rejoin their parents, but no new children are born. The marriage of a woman with her husband is an annual deluge from which a few persons were saved on the top of a mountain having three points, called by them the Thoeggget or 'Thundering Mountains,' which floated upon the waters. As this deluge would have destroyed all the population, whenever these phenomena took place the inhabitants betake themselves to one of those mountains in the Andes which resembles the Thoeggget, carrying with them an abundant supply of provisions, and several wooden plates to protect their heads against the excessive heat of the sun in case the mountain should be raised too near to that body.

The Aryanadians divide their years into seasons, months, days, as well as the rest of the world, except the end of December, or immediately after their summer solstice, which they call Thoxumaharntinatis, that is, 'the end and beginning of the year,' and the winter solstice they call aumaharntinatis, or 'divided of the year.' These points they determine with some degree of certainty, and that from the following cause: when our season of summer is over, and the days begin to grow shorter, and the sun's rays come not so far, they then call Thoxumaharntinatis, or 'month of the fruit,' which corresponds to our January; Cuji-tinatis, February, or the 'harvest month,' etc. They divide the natural day into two equal parts, and these parts, they say, they subdivide into twelve parts, six for the day and six for the night; thus their segmentation consists of two to four of ours. They measure their hours by the altitude of the sun in the day, and by the stars at night, without the aid of any instruments. In civil affairs they reckon their time by days, mornings, or nights. They divide the stars into pal, or constellations, and distinguish them by the number of stars which every one consists of: thus, the pleiades they call capu-pal, or 'the constellation of six.' They also distinguish them from each other by the nature of the stars, by the verb guaes, to wash, supposing that when they set they sink into the sea. They believe them to be inhabited, for which reason they call them countries, as cypes-cypus, the country of the moon. Eclipses are not considered by these people as bad omens, but are considered with a great deal of wonder, of which they do not know. An eclipse of the sun they call lay-antu, and that of the moon lay-cuyes, that is, 'the death of the sun or moon.' Comets are considered by them as tertial stars, which become ignited in the atmosphere, but they are not terrified by their appearance.

The only sciences which they cultivate are, oratory, poetry, and medicine. Of these sciences oratory is that which they hold in the highest estimation. The chief object of an orator is to convince his hearers by a language which is not a product of his art; in this respect he is excluded from the profession: for this reason they take their children to their national assemblies, &c., to at an early period, to speak in public. Their poets are called gexpe, or lords of speech. Their poems, which are transmitted from father to son, generally have reference to the exploits of their heroes, and the measure most generally adopted in their compositions is that of eight or eleven syllables. They are so careful to preserve their language that even a foreigner settles among them is obliged to change his name for an Aryanadian one; even the missionaries have been compelled to adopt that practice, and to submit to be interrupted in their sermons by their auditory at every word, as they do not understand the language. When they are speaking in Spanish, they will rather submit, on all public occasions, to the tedious distinction of an interpreter to adopt the Spanish tongue.
The Araucanians are of a moderate stature, strong, muscular, and well-built, and naturally have a very martial character. It is their first business to find someone whom they person; not because, as some have erroneously supposed, they destroy the infants who are born with any imperfection, but because the modes of life and other obstacles, which among civilized nations prevent the action of nature, are more frequent among them. Their color is generally that of the Americans, that is of copper, although somewhat lighter; their face is oval, their eyes small, but lively and full of expression, the nose rather flat, the mouth pleasing, with a pleasant smile, and their teeth white, regular, and strong, with small and flat feet. In general, they have no beard because they take particular care to eradicate every hair that grows on any part of the body except the head, the hair of which they never cut, but dress it round in tresses. Old age is seldom perceptible in the Araucanians before their sixtieth year, and it is not a rare occurrence to see an Araucanian eighty years of age without a single grey hair. Frequently they attain the age of ninety or a hundred years. Their moral qualities correspond to the physical. They are bold, intrepid, courageous, constant in enduring the fatigues of war, and fearlessly expose their lives when the liberty of their country is at stake. They are also exceedingly jealous of their honour; hospitable, honest, grateful, generous, and kind to strangers. The love of human society is very strong among them. They are indolent when not at war, addicted to intoxication, presumptuous, and haughty.

The dress of the men consists of a shirt, a sort of jacket, with sleeves and a collar, and a pair of trousers, or a sort of drawers. They are made of cloth simply with a hole in the middle for the head to pass through, falling before and behind down to the knees, and open at the sides like a cassock. The colour of their dress is generally blue, which is their favourite colour. On their heads they wear a sort of band like a diadem, which is in time of war ornamented with feathers; they also wear a sash of different colours round the waist. Persons of distinction make use of woolen boots of different colours and leather sandals, which they call cheddes; but the people go bare-footed.

The dress of the women is very simple and modest, consisting of a long tunic or gown without sleeves, called chiamal, fastened to the shoulders with silver buttons; a sash round the waist; and a short mantle called ichella. This dress is never altered, but they are allowed to add to it all the ornaments which their fancy or vanity may prompt them. The colour of their dress is also blue. The hair is divided into several tresses, which they allow to fall down their shoulders; their head is adorned with false emeralds, called ibanca, to which they attach a high value. They also wear necklaces and bracelets of glass beads, and a sort of square ear-rings made of silver. Even the poorest of the Araucanian women has upon her ear-rings of silver. The women of the nobility are splendidly dressed.

The Araucanians build their habitations along the banks of rivers, or in plains where there is a facility for irrigation; and every family is anxious to occupy that piece of land which their ancestors possessed by inheritance. They never build large towns, and much less walled cities, which they consider as marks of servitude.

The games of skill with which they amuse themselves are common or chess, and the jogo, a similar to buck-and-racket, both of which they knew previous to the arrival of the Spaniards. Gymnastic exercises they practise most passionately; besides wrestling and racing, they have a peculiar game called the pumo, representing a siege. Twelve to thirty young men assemble, and in the midst of the ring they are surrounded by the hands; in the middle a child is placed; an equal number of assailants attack the ring, and endeavour to carry off the child.

Since the invasion in 1537, the Araucanians have sustained an almost uninterrupted war against the Spaniards for nearly three hundred years. Valdivia, one of the first who undertook the conquest of Chili, founded on the Araucanian territory the settlements of Imperial, Villarica, Valdivia, and Talcahuano. These settlements were obtained by the toqui Paillamachu in 1602. The siege of Villarica lasted two years and eleven months. The pious Father Valdivia, a Jesuit who had been a missionary among the Araucanians, convinced the government of the necessity and advantage of being at peace with them, and the negotiations were in a state of forwardness when the unfortunate circumstance occurred of a Spanish lady, who was the slave of the toqui Ancamanec, making her escape, and
carrying with her two of his little children, and four of his wives and daughters, whom she had persuaded to embrace the Catholic religion. The Spanish governor naturally took the lady and her converts under his protection. The town, in high indignation at the loss he had sustained, listened to no further proposals, and the war was again renewed with fresh vigour. In 1641 the governor, Marques de Baydes, at last entered into a treaty of peace with the toqui Lincophion. In 1655 war raged once more from causes which are not known; and it lasted until 1773; when Spain was forced to acknowledge the Araucanians as an independent nation, and to allow them to send an ambassador, who should reside at Santiago de Chili. During the time of the presidency of Don Ambrosio O’Higgins this people continued to enjoy the blessings of peace; and we are informed by Vancouver, that this enlightened and humane governor had in some measure succeeded in introducing among them a spirit of industry, and that he had the pleasure to see them endeavouring to excel each other in the cultivation of the ground, the breeding of cattle, and other peaceful arts. In the late contest between the colonies and the mother country the Araucanian toqui promised to observe a strict neutrality, and was faithful to his promise. Schimdtmeyer, who visited Chili in 1820, says, that in the independent army of that country some Araucanian youths of the first rank served as officers, and that, according to the opinion of the creoles themselves, they fought like Mars, and drank like Bacchus; ‘two characteristic national features,’ adds he, ‘which still appear strongly marked in that people.’ The exploits of this warlike nation have been celebrated by their enemies. Six different poems are still in existence: the best of those that we are acquainted with is the Araucana, by Alonso de Escilla [see Escilla], who was himself engaged in the wars which he describes in his poem. (See Molina’s History of Chili, written in Italian, and translated into Spanish by Mendez, Madrid, 1788, 2 vols.) At the end of the second volume is a list of more than sixty writers and works on matters relating to Chili. Compendio della Storia naturale et civile del Regno di Chili, Bologna, Anonymous; Vancouver’s Voyage of Discovery to the North Pacific Ocean, vol. ii., chap. 5. Schimdtmeyer’s Travels into the Andes in 1820-21, chap. xv. Febures’ Arte de la Lengua General del Reino de Chili.)

Araucaria, in Botany, is the name of a singular genus of gigantic firs, found scattered over the southern hemisphere. It is known from all the other firs by its stiff broad leaves, by a long leafy appendage with which the scales of its cones are terminated, and by its authors having many cells. Only three certain species have been described, each of which we shall give some account.

Araucaria excelsa, commonly called the Norfolk Island Pine, is found not only in the spot after which it has been named, but also in other places in the South Pacific, as in New Caledonia, Botany Island, Isle of Pines, and in some parts of the east coast of New Holland. It is described as the most majestic tree, growing to the height of from 160 to 225 feet, with a circumference sometimes of more than 30 feet. Its trunk rises erect, and is sparingly covered with long, drooping, naked branches, towards the extremities of which the leaves are clustered; these latter, when the plant is young, are long, narrow, curved, sharp-pointed, and spreading, but when the tree is old they have a shorter and broader figure, and are pressed close to the branches; old and young trees are consequently so different that one would think them distinct species. The dark abounds in the young trees, which is deep green; the old leaves are white, tough, and close-grained. It was once expected that this tree would have been valuable for its timber, and that it would have afforded spars for the navy of great size; but it has been found on trial to be too heavy, and so unsound, that Captain Hunter would only find seven trees fit for use out of thirty-four that he caused to be felled. Its wood is, however, useful for carpenters' indoor work. Several species of this tree exist in the collections of this country. Some live in the open air, others in the shade, and its growth is so rapid as to render it very soon too large for the loveliest greenhouses. A supposed species, called the Moreton Bay Pine, or Araucaria Cunninghamii, is scarcely distinguishable from this. It is a highly interesting fact, that a plant very nearly the same has frequently certainly once grew in Great Britain. Remains of it have been found in the lias of Dorsetshire, and have been figured in the Fossil Flora, under the name of Araucaria primaeva.

Araucaria excelsa.

Araucaria Dombeyi, or, as it is more commonly called, A. imbricata, is a noble species, inhabiting the mountains of the Araucanian Indians in South America, whence the name of the genus derives its origin. This species has its branches closely covered with broad, lance-shaped, very rigid and pungent dark-green leaves; it produces its branches in cycles around its erect stem; and when old it acquires an appearance not very unlike that of the Norfolk Island pine, only it is much less graceful. Its wood is said to be durable, and it yields a great quantity of resin. It is expected to be naturalised in this country, as some individuals now exist as far north as London, which have survived several winters with but little protection. It is, however, not a native of so low a latitude as is commonly supposed, and does not exist on the mountains farther to the southwest than the volcano of Villarica.

Araucaria Brasilimata is extremely like the last, but the leaves are longer, weaker, and less densely imbricated; and it is much more impatient of cold. It is found wild in the southern provinces of Brazil.

All these species are multiplied with difficulty, unless by their seeds; and the latter are so seldom brought to England in a living state, as to render all the species still extremely rare. Travellers may, however, bring them home in safety, by packing them in earth rammed hard into boxes, and kept dry and in the dark, and exposed to as little variation of temperature as possible.

Arauvarli is a mountain-range, which forms one of the most remarkable features of northern India. Its southern extremity may be placed where the 24th parallel is cut by the 23rd meridian, to the north of Edur, or Edser. From this point it extends in a N.N.E. direction to 28° N. Int. where it terminates some minutes to the east of 78° E. long. Its whole length, therefore, may amount to upwards of 300 miles. Its breadth is various: from the southern extremity to the fortress of Komulmair it extends about sixty miles from west to east, and is composed of numerous high ridges, generally running south-west and north-east. To the north of Komulmair it forms one uninterrupted and compact range of table-land, from six to twenty miles in width. Thus it continues up to the town and valley of Ajmeer, where it
begins to lose its tabular form, and, breaking into lofty ridges, sends numerous branches through the territories of the Tajoure and Alwar, which terminate to the south of Kanound and Rewaure.

This mountain-chain is not remarkable for its height. On an average it does not rise to more than 3000 feet above the surface of the sea, yet it is sufficiently elevated to attain a somewhat more; but the extreme steepness of its declivity to the west renders it impossible for the boldest invader to attack India on this side. Here it is skirted by an extensive plain, the extremity of which is occupied by a vast salt basin, and is terminated by the city of Karimnagar (the seat of the khan), a country which rather resembles the high plains of Persia than the Sahara of Africa. A general might conduct an army to the foot of the Aravalli, but he would find it impossible to march over this region, which can be traversed at the most by the most straggling troops—least none that is practicable for artillery. Thus every invader of India is obliged to enter that country by the plain which extends from the north-eastern extremity of the Aravalli, and of the Marabout, to the Himalaya mountains; and, India, in a military point of view, may be considered as an island, joined to the continent by an isthmus of about 100 miles in length, and perhaps less in breadth. This circumstance must render the means of defence of that rich country very easy and effective; it is the hands of an active and well-governed constitution.

The southern extremity of the Aravalli range is turned to the Vindhyas mountains by an extremely hilly and broken country, with a great deal of rain and thick fog, and is much inhabited by the Myhies, occupying all the country on the upper part of that river and its branches, and joining the Vindhyas mountains near Champainaur. By the same hilly country it is united to the plains from which its principal range is only separated by the valley of Oodopour.

That part of the Aravalli ranges lying to the south of Komulnair is in possession of a number of communities, composed of aboriginal races, living in a state of almost savage independence, owning no paramount power, paying no tribute, and preserving all the simplicity of small republics, though their leaders, having the title of Ratu, are hereditary. The capital of Gomna can bring into the field 50,000 horsemen, but not a single one through the roads, as the castles are guarded by small rude hamlets, near their pastures or places of defence. To the north of Komulnair the range is inhabited by a mountain-race called Mair, who formerly, when the surrounding countries were in a state of war approaching to anarchy, issued from their fastnesses, infested their neighbours, and robbed them of their most valuable property; but since the East India Company has become the protector of Rajastan, they have been peaceable subjects. They possess the same | features of the range, the rocks and valleys, which are abundantly watered, and not deficient in pasture. The produce of the cultivated ground, though of comparatively small extent, is commonly sufficient for the wants of the inhabitants. It is inhabited mainly by the cultivated inhabitants of the plains of South India. The crops consist of rice and sugar-cane, cotton, rice, and Indian corn are raised.

The hills which rise in the short valleys of this range are numerous, and by their union form some rivers. Those descending from the eastern declivity fall into the Bunas, a tributary of the Chambal; and those running to the west join the Longhur, which I stated was the source of the Timor. This range is composed of rocks of primitive formation. The granite exposed, as Colonel Tod reports, 'in a variety of angles (the general dip is to the east) on massive compact dark blue slate, the latter rarely appearing above the surface or base of the superincumbent granite. The internal valleys abound in variegated quarts and a variety of schists. The surface of the great river, which gives a most singular appearance to the houses and temples when the sun shines upon them. Rocks of granite and of syenite appear in the interior; and in the diverging ridges west of Ajmeura the summits are quite dazzling with the enormous masses of vitreous rose-coloured quartz.'

The granite rock, which also yielded much silver, was once worked; copper of a very fine description is still extracted in sufficient quantity to supply the currency of Rajastan.

Garnet, amethystine quartz, rock crystal, crysalite, and some inferior kinds of emerald, are found in a few places.

The name Aravalli implies 'the strength of refuge,' which is very appropriate, as at all times it has afforded protection to the antient sovereigns who held dominion either to the west or to the north of it. The name of Zara means 'the mountain of Zara' in that province, from which it is separated by the canal of Moraita. It is twenty-nine miles in superficial extent, and is very mountainous; it contains four valleys, which have a very productive soil. The climate of this country is variable, when it is hot and wet, it frequently inclement, that thousands of sheep have frequently been frozen to death in one season. It produces wine, olives, figs, and corn; these, together with its fishery, salt-pan, and numerous flocks, afford lucrative occupation to its inhabitants. The latter are above 3000 in number, and dwell in the town and a market-village, or live dispersed in separate tenements: they profess the Roman Catholic faith. There are six monastic establishments and sixty ecclesiastics on the spot. The town is situated on the right bank of the river, with a handsome port, and contains about 900 inhabitants. The name of the market village is Barroto. Lat. 44° 50' N., long. 14° 50' E. 'The town,' says Edin editions, 'is situated on the river.'

Arbela, now Arbly or Erbl, a miserable village, which lies on the ordinary route from Bagdad to Mosul, in 36° 11' N. lat., according to Niebuhr' observations. It is situated between the Rhades and the Great Zara river, but nearer the latter, in a hilly and tolerably fertile district. Arbela was formerly in possession of an hereditary race of Mohammedan princes, whose dominion extended to Tabreez in Azerbaijan, and it was then a large city, defended by a castle situated on a hill of a conical shape. Niebuhr describes the castle as existing when he passed through, though its outer walls were gone: Kinneir remarks, that the castle probably stood on the hill, from which it would be a fair inference, but perceiving the town to have been carefully destroyed and mortared, and has two entrances facing one another, each leading to a flight of steps, by which two persons may ascend the tower without seeing one another till they meet on the top.

Arbela is one of the scenes of the last great battle between Alexander and Darius, B.C. 331. The battle was not fought at Arbela, but at a spot called Geugameola, now Karmelis, a little place about 36 miles to the south-west of Niceby (Niebuhr). The battle was there fought by the Indians of the Karamis or Karamis, and in June 331, 300 stadia according to Arrian). The stream of the river Bruyllis appears to have been the Nymphus or Bumelus of Arrian. (Anab. ii. 8.) After the battle, Alexander, in his pursuit of Darius, crossed the Lyus, and arrived at Arbela. [See Alexander; Niebuhr's 'Rommel,' vol. ii. p. 342; Copenhagen ed. 1819; Kinneir's 'Memoir of Persia.]

Arbiter, was a term in the Roman law signifying a judge invested with a discretionary power, and was applied to different kinds of judicial functionaries. The arbiter compromissarius answered to the arbitrator of modern jurisprudence, and his office will be treated of under the article Arbitration.

Another species of arbiter, peculiar to the law of Rome, parted more nearly the character of an ordinary judge. In order to understand the nature of his office, it must be borne in mind, that all actions were commenced before the praetor, and the preliminary proceedings carried on before him; and when the praetor, or one of the parties formally expressed had raised a question of fact disputed between them, a person was appointed to whom the adjudication of this fact was referred: the title and powers of this person depended upon the nature of the suit. It is generally known to the Roman law were divided into three classes: actions of strict law, actions of good faith, and arbitrary actions: under the first class were comprehended all actions upon contracts called unilateral, that is, where only one of the parties is bound, as in the case of money borrowed, where the borrower is bound to repay, but no further obligation lies
under the lender. In these actions the person appointed to adjudicate was styled a judge ('judeuz), and the only question for him to decide was, simply whether the plaintiff had prevailed in the suit or not—bodelly illustrated. In the two other classes of actions the person appointed to adjudicate was allowed a greater latitude of judgment, and was styled an arbiter. Actions of good faith were such as were founded on bilateral contracts, that is, on contracts by which an obligation is imposed on each party such as the contract of sale, where the seller is bound to deliver the goods, and the purchaser to pay the price. In all these actions the arbiter was not compelled, as in actions of strict law, to refer to written rules. The parties need not state the claim of the plaintiff, but might enter into the merits of the case, and decide according to what seemed to him to be just and equitable between the parties.

As in the third class, viz., that of arbitrary actions, belonged those briefly in which the restitution of property, or some specific performance, was required of the defendant. In these cases the arbiter had authority to estimate the just claims of the plaintiff, and to condemn the defendant to some greater penalty, as for instance to pay fourfold in case of his not performing the judgment. (Just. Institut. lib. iv. tit. 6; Heincouci, Elem. Jur. Civ. § 1181, § 1196; Idem, Antig. Rom. iv. 6, 50.)

And on the third ground he proceeded in the adjudication upon a matter in controversy by private individuals selected and appointed by the parties. This mode of settling differences is very frequently resorted to as a species of amicable litigation, and has a tendency to avoid the delay and expense of a lawsuit, and the court is in the business of providing an efficient tribunal for the decision of many causes;—for instance, as involve the examination of long and complicated accounts, which our ordinary courts of law are, from their mode of proceeding and the want of proper machinery, incompetent to investigate.

The person appointed to adjudicate is called an arbiter, or referee. The matter on which he is appointed to adjudicate is said to be referred or submitted to arbitration. His judgment or decision is called an arbitration, or, more usually, an award.

Any matter actually in controversy between private persons may be referred to arbitration; but a prospective agreement to refer any differences which may hereafter arise is not binding. Nor can any injury be the subject of an arbitration, unless it is such as may be a matter of civil controversy between the parties: a felony, for instance, which is a wrong, not to the party injured merely, but to society in general, is incapable of being referred.

There are no particular qualifications required for an arbiter. In matters of complicated accounts, mercantile men are not sufficiently clear in their ideas; it might be generally considered advisable to appoint arbitrators, who, being accustomed to judicial investigations, are able to estimate the evidence properly, to confine the examination strictly to the points in question, and, in the making of the award, to avoid those issues which might not grow out of the case. Both time and expense are thus saved by fixing on a professional arbiter. Any number of persons may be named as arbitrators: if the number is even, it is usually provided that, if they are divided in opinion, a third person shall be appointed, called an umpire, whose sole decision the matter is then referred. [See UMPIRE.]

A dispute may be referred to arbitration, either—1. When there is an action already pending between the parties relating to the same thing; or 2. In the former case, the parties to the action, if sui juris, are in general competent to submit to arbitration. The reference may be made at any stage of the proceedings: if before trial, it is effected by a rule of the court, either of law or equity, in which the action is brought; if at the trial, by an order of the judge or an order of Nisi Prius, either of which may afterwards be made a rule of court. The usual mode of appointing the arbitrators is as follows: if the plaintiff entreats that a verdict shall be given for the plaintiff for the damages laid in the declaration, subject to the award of the arbiter.

The person named as arbiter is not bound to accept the office, nor, having accepted, can he be compelled to proceed to the hearing of the case. As long as the suit continues, the reference is at an end, unless the contingency has been provided for in the submission, or unless both parties consent to appoint some other person as arbiter in his stead.

Previously to the late statute for the amendment of the law, 3 and 4 Will. IV. c. 42, the authority of the arbiter was revocable by either party at any time before the award was made. And the authority of an arbiter cannot be revoked by any of the parties without the leave of the court or a judge: but it is still determined by the death of any of the parties, unless a clause to obviate this is inserted in the submission; and if one of the parties is a single woman, her marriage, being in law a civil death of all her rights, will have the same effect. The order of reference usually provides that the award shall be made within a certain period; and if the arbiter does not make the award, his authority ceases, but a clause has usually been inserted to enable the arbiter to enlarge the term; and now, independently of any such clause, the court, or any judge thereof, is, by the late statute for the amendment of the law, empowered to do so. The authority of an arbiter likewise ceases as soon as he has made or declared his award. After this, even though it be before the expiration of the time appointed he has no longer the power even of correcting a mistake. When the arbiter has accepted his office, he fixes the time and place for the parties to appear before him. Each of them furnishes him with a statement of his case, which is usually done by giving him a copy of the briefs on each side; and on the day fixed he proceeds to proceed in the manner in person, or by their counsel or attorneys, and to receive the evidence on each side, nearly in the same manner as a judge does at an ordinary trial: but he is frequently invested by the order of reference with a power, which occurs in law in no case prior to his attendance of the parties, of making such order as is necessary for the comprehension of the issues, so that no means existed of compelling the attendance of witnesses, or the production of documents, before an arbitrator, until the statute 3 and 4 Will. IV. c. 42, authorized the court or a judge to make an order to that effect; disobedience to which order, if served with proper notice of the time and place of attendance, becomes a contempt of court. The witnesses, thus compelled to attend, are entitled to their expenses in the same manner as at a trial. As the order requires the witnesses to be examined upon oath, the arbiter is by the same statute authorized to administer an oath or affirmation, as the case may require; and any person giving false evidence may be indicted for perjury.

The extent of an arbiter's authority depends upon the terms of the reference: it may either be confined to the action pending between the parties, or it may include any other specified grounds of dispute, or all disputes and controversies whatever existing between them at the time of the reference. Where the matters referred to him are specified, it is his duty to decide upon them all: where they are not specified, it is his duty to decide upon as many as are laid before him. Arbiters, therefore, are quite free to decide upon anything not in fact comprehended in the reference; such, for instance, as any claims or disputes which may have arisen after the reference was made, or, where the reference is specific, anything not expressly included within its scope. As an arbitrator is in a peculiar manner free from the manners existing between themselves, an arbiter can have no authority to bind any one who is not a party to the reference.

An arbiter being a judge appointed by the parties themselves for the final settlement of their differences, his decision on the merits of the case submitted to him is conclusive; the question is set at rest, and never can be agitated between them again. But if his award is partially or ill-bredly made, the parties have recourse to courts of law, and not, aside, upon application being made within reasonable time. This happens either, 1. where the award is not co-extensive with the arbiter's authority; or, 2. where it appears upon the face of it to proceed on mistaken value of law, or fact, in some of the qualities required for its validity [see Award] or, 3. where any misconduct has been committed. This may happen in two cases: 1st, where the arbiter or any of the arbitrators has acted with such gross negligence as to render a new trial necessary, or a verdict for the plaintiff unjust. Where an award is absolutely void, as where it is made after the authority of the arbiter has ceased, it is not in general necessary to set it aside, as it is incapable of being enforced. 2 K 2
When the award has been made and delivered, if one of the parties refuses to comply with it, the other may bring an action against him on the award. But the most prompt and efficient remedy is to apply to the court for an attachment, grounded on the contempt of court which he has been guilty of in refusing to abide by and perform the award, or for by a mandate to show cause why he should not be committed for contempt. In opposing this application, the other party may insist on any objection apparent on the award itself; but if there were any other objections affecting its validity, and he has neglected to apply to the court to set it aside, without due process of law, it is too late for him to avail himself of them.

When, in the original action, a verdict has been given for the plaintiff subject to a reference, if the defendant does not abide by and perform the award, or for by a mandate to show cause why he should not be committed for contempt, the court, after hearing the parties, may, by leave of the court, enter a judgment and sue out execution for the whole damages mentioned in the verdict.

2. Where no action has been commenced, the parties may resort to differences of arbitration by mutual agreement. Every person capable of making a disposition of his property may be party to such an agreement: no peculiar form is necessary for its validity.

Whether the submission be verbal or in writing, it is in the power of either of the parties to revoke it, and thus put an end to the authority of the arbitrator at any time before the award is made. In order to prevent this, it is usual for the parties to make it a part of their agreement, that they will not hold an arbitration for the second time, nor allow either of them, without sufficient reason, revoke his submission, or otherwise prevent the arbitrator from proceeding with the arbitration, he will be liable to an action for the breach of his contract.

The time for making the award may be enlarged, if there be a clause to that effect in the agreement of submission, or if all the parties consent to it, but not otherwise. There are no means of compelling the attendance of witnesses, nor how the arbitrators are to be empanelled, nor of administering an oath to both the witnesses and—if they have agreed to be examined—the parties sworn either before a judge, or, in the country, before a commissioner. They may, however, be examined without giving sworn evidence, if no objection is made to it at the time.

The courts cannot enforce performance of the award by attachment; the only remedy is an action on the award itself, or rather on the agreement of submission. The defendant may insist on any objection apparent on the award itself, but where there is any other ground for setting it aside, his only remedy is by a bill in equity.

Thus it will be seen that where the reference is by agreement, the proceedings are attended particularly from the deficiency of the remedies; but the legislature has enabled parties to put such references on the same footing as those which are made where a cause is depending, by enacting, by 9 and 10 Geo. IV., c. 44, that the submission (which is held in this case must be in writing) shall be made a rule of any of his Majesty’s courts of record, and in practice courts of equity have long enjoyed concurrent jurisdiction, and inserted such agreements in their submission; and this submission may at any time afterwards be made a rule of court, by producing the affidavit of its execution made by a witness thereto. The provisions of the new rule 3 & 4 Will. IV., c. 41, apply as well to arbitrations made in pursuance of such agreements of submission, as to those made by order of court; and the law is the same in both cases, except in some few points of practice.

The settlement of disputes by arbitration seems to have entered into the minds of the ancient Greeks, and to have been considered the highest and most important part of the duties of the state. The Athenians and the Spartans had each a tribunal for such cases, but the former, unlike the latter, had a regular and regular method of arbitration. The Athenians had two modes of proceeding which passed by the name of arbitration—the Greek word for which is diatra (diatra). In one of these the arbitrators appear to have been appointed by lot, and at the instigation of the parties; in the other, by a specially appointed body. In both cases, the arbitrators were required to make a decision, and if they disagreed they would be called a Court of Reconciliation. A certain number of persons, of a specified age, were annually chosen from each tribe, as official referees; and from among these the arbitrators to decide upon each particular case were afterwards also chosen. (Petit. Lagen Allen, p. 345; ch. 2.)

There were at Athens two modes of proceeding which passed by the name of arbitration—the Greek word for which is diatra (diatra). In one of these the arbitrators appear to have been appointed by lot, and at the instigation of the parties; in the other, by a specially appointed body. In both cases, the arbitrators were required to make a decision, and if they disagreed they would be called a Court of Reconciliation. A certain number of persons, of a specified age, were annually chosen from each tribe, as official referees; and from among these the arbitrators to decide upon each particular case were afterwards also chosen. (Petit. Lagen Allen, p. 345; ch. 2.)

An appeal lay from their decision to the ordinary courts; and sometimes the arbitrator referred the cause to their judgment at once, without pronouncing any sentence of his own. (Heraldic Animadversiones, p. 370.) In either case, all the writings connected with the trial were sealed and delivered to the court before the award was brought. And it is said that originally no action could be introduced into the ordinary courts without having been first carried before the Court of Arbitrators. (Petit. p. 345; Gellius, x. 10.) Their jurisdiction, however, was confined to Attican causes, and they first sat as courts of suits in which the sum in dispute was less than ten drachmae, such smaller actions being disposed of in a summary manner by a special tribunal. (Ibid.) The litigant parties paid a fee of a drachma for each case, and the arbitrators were paid a drachma for each suit. (Ibid.) These courts were not abolished until the appointment of the public or public arbiter (Bovis Eon, l. 316. English Trans.) When their year of office expired, the arbitrators were liable to be called on for an account of their conduct, and if found guilty of corruption or misconduct, were punished with infamy.

In the other mode of proceeding, which was strictly in accordance with the definition which we have given of arbitration, the parties were at liberty to refer their differences to whomsoever they chose. The submission was generally made by a written agreement, which frequently contained an engagement by third persons to become sureties for its performance. (Demosphontes' Speech against Apellas, chap. 4.) The arbitrator was not required to adhere to a rigid decision; he might be restrained, in accordance with individual merits of the case before him. (Aristot. Rhet. i. 14.) There lay no appeal from his award to any other tribunal whatever. (See the law quoted by Demosthenes against Meleager, p. 116.)

The Roman law upon this subject is much better understood, and is of infinitely greater importance. Its influence has extended over the whole of Europe, and even in our own country it is evident that references made by virtue of a mutual agreement—are governed by the principles of the Roman law— are mainly founded upon the doctrines contained in the Digesta of Justinian, lib. iv. tit. 8. The only mode of referring a matter to arbitration in the Roman law, was by a conveniunt or compromissum, which contained the names of the arbitrators (hence called arbitri compromissarii), the matters intended to be referred, and an undertaking by both parties to abide by the award, or in default thereof to pay to the other a certain sum of money as a penalty. The rule which forbids matters of public interest to be submitted to the judgment of a private referee, was not confined in its operation to criminal prosecutions and penal actions only, but extended to all matters of private right, and, in fact, to any question affecting the civil condition (status) of any individual, —his freedom, for instance,—as from deciding on the validity of any contract which it was attempted to set at naught by fraud or force, &c.

The persons named as arbitrators were not bound to undertake the office, but having once done so, they might, by an application to be presented to the court, be released from it. Their authority was, however, terminated by the death of either of the parties, unless his heirs were included in the submission; by the expiration of the time limited for the execution; by either party having broken the agreement, and so incurred the penalty; or by his becoming insolvent, and his property in consequence of a cessio bonorum being vested in his creditors. Their authority also ceased by what we should call an implied revocation, if the subject matter or objects of the reference ceased to be those for which the submission was made. The procedure in some other way, referred it to other arbitrators, or proceeded with an action respecting it. Besides the cases in which his authority was thus at an end, an arbitrator could not be compelled to proceed with the reference if he could allege any sufficient excuse, as, for instance, that the submission was void, that there had arisen a deadly enmity between him and one of the parties, or that he had been prevented by age or infirmity, or by an appointment to some public office in the state.

The extent of the arbitrator's authority depended upon the terms of the submission, which might be either special or general. The submission usually appointed a certain day for the making of the award, and in default of its being given to the arbitrators to enlarge the time if necessary, but they could not give their award on an earlier day without the consent of the parties. On the day originally appointed,
or on that subsequentully fixed by the arbitrators, they formally pronounced their award, and (unless it had been agreed otherwise) the parties were required to be present, and if one of the parties had not been present, or had not bound himself, but the party who had thus prevented the arbitration being completed incurred the penalty specified in the submission. If there were several arbitrators, all were bound to attend: they were not, however, required to be unanimous. The award of each justice proceeded; and if they were equally divided, it is said that they might of their own authority appoint an umpire, and in case of their refusing, the presiding had the power of compelling them to do so. The award of the umpire was final, and, if one of the arbitrators expired, and they could neither retract nor alter their decision. The award made when had not the authority of the common power, and could not be enforced by any direct method of enforcing the performance of it; but as the parties had bound themselves to abide by the arbitrators' decision, if either of them refused to perform it, or in any other way committed a breach of his engagement, he was liable to an action; and however unsatisfactory the award might appear, there was no appeal to any other court. If, indeed, the arbitrators had been guilty of corruption, fraud, or misconduct, or if they had not adhered to their authority, the deed was inoperative, but it was not the case with the parties performing the deed, so as not to have the benefit of such proceedings, unless what is called enforcement be finally set aside; and if, contrary to the ordinary courts exercise a much greater control over the proceedings in references than they do in England, but they have never had the power which the magistrates had at Rome—of compelling a person who had once undertaken the office of arbitrator to proceed with it; nevertheless, if he fail to do so, without a sufficient excuse, he is liable to an action for the damages occasioned by his neglect of duty. In order to understand clearly the peculiarities of the French law, it is necessary to remark that the proceedings before the arbitrators are much more nearly on the same footing with the regular administration of justice than is the case with us, and that many of the details are merely adopted from the practice of the ordinary courts; for instance, there is no appeal to habeas corpus, and the jurisdiction of the ordinary tribunals; it may be rescinded by the consent of the parties, or waived by their acts.

The second kind of compulsory arbitration, called 'arbitral jurisdiction,' is where the parties are by law required to submit to a reference, and are precluded from having recourse to any other mode of litigation. The antient laws of France introduced the practice of arbitrations very extensively for the settlement of disputes respecting either movable transactions or family arrangements; but by the codes now in force, it is admitted in one case only, that of differences between parties. Over such differences the ordinary courts have no jurisdiction whatever; for example, even by the consent of the parties, but the commercial courts exercise a superintending and controlling authority over the proceedings. Thus the arbitrators may either be appointed by the parties, or may be chosen by the court, from either of them, the court, after taking into consideration how far their respective interests are identical and how far they are conflicting, will regulate accordingly the number of arbitrators to be appointed by each. The sentences of the arbitrators, however appointed, is decided by the majority of votes.

The authority of the arbitrators in this case partakes more of the judicial character than it does in voluntary arbitration, they are considered as being substituted for the ordinary commercial tribunal; their sentence is accordingly registered among the records of the court; and for the same reason also they stand upon the same footing with the court, both in the power of sentencing the parties to imprisonment and, unless the right has been renounced by the parties, in the liability of appeal from their decision. (Code of Commerce, art. 51-64.)

Besides the compulsory arbitration in matters of partnership, the parties are, if their appointed arbitrators be found incompetent, permitted to stipulate that all differences arising between them shall be submitted to arbitration. This stipulation is compulsory, and the court will, if requisite, appoint an arbitrator ex officio for the party who should refuse to appear, but if he refuses to take the part of justice, the allotment of the arbitrator in the jurisdiction of the ordinary tribunals; it may be rescinded by the consent of the parties, or waived by their acts.

The third kind of arbitration is distinguished by the application of the persons to whom the reference is made; they are not called, as in the other cases, arbitres, but aimables compositeurs, or in the older law, arbitureurs. The peculiar characteristics of this amicable composition are, that the reference is always ad arbitrum, that is, in the hands of the parties; the arbitrator is not a man of the law, but a person chosen by the parties, and bound to the parties, not to the law; he is not bound by the rules of law, but are authorized to decide according to what they conceive to be the real merits of the case; that in the exercise of this discretion their decision is final, and without appeal from one tribunal to another, and even in case of misconduct, the award may be set aside by the judgment of a court, but this judgment cannot be further questioned in the Court of Cassation. This modification of the general law may be introduced into all arbitrations, whether voluntarily composed or composed by the Parlement, Cour de Dernier Concours, (§ 1384-1419.)

In Denmark and its dependencies, Courts of Arbitration or Conciliation were established about the year 1795, and are said to have been attended with extremely beneficial effects. In Copenhagen the court is composed of one of the judges of the higher courts of judicature, one of the magistrates of the city, and one of the representatives of the commune. In other towns, the chief magistrate proposes five or six of the more respectable citizens for arbitrators, of
whom the comonality of the town elect two. In the country, the bailiffs or sheriffs are the arbitrators, and generally act as such personally; but in extensive districts they have authority to appoint deputies, matter dependent upon them. In this matter, they are referred to these official arbitrators; who in the country sit once in every week, and in the capital as often as occasion requires. It appears that, after investigating a disputed case, the arbitrators in these tribunals have the right to refuse to impose their decision; and if they do not impose it, the parties still disagree, no record is made of the proceeding, and they are at liberty to discuss their respective rights in the ordinary courts of justice. It is necessary, however, that before a suit commences an action in the superior court be first applied to one of the courts of conciliation. These courts, which are attended with very small expense to the suitors, soon after their establishment, multiplied rapidly in Denmark and Norway, and are said to have produced an astonishing decrease in the amount of contentious litigation. (See Tableau des Etats Danoises, par Catteau, tome i. p. 296.)

ARBLAST, or ARBAILEST, was the name more particularly given to the cross-bow by Robin of Gloucester, in his Celebrations which he published by Hearne 1737. It is an ancient difference between the bowmen and the arbalistes or arbalsters, the cross-bowmen. In the Latin of the middle age it is called arcubalista, from arcus, a bow, and the Greek word, which throws out the first syllable.

The precise date and origin of the arbalist is unknown; but it seems easily derivable from the larger species of balliste. Vegetius is inclined to consider the scorpio to be the same as the cross-bow; he speaks of scorpiones, which he says they now name manuballistae; and in later writers the modern weapon is sometimes termed scorpio manualis.

Pithecus, in his Lexicon, has assigned the introduction of the arbalist into the Roman armies to the time of Constantine, or a little earlier. It is certain that the cross-bow was introduced into England about the thirteenth century; but Davies Barring- ton comes probably nearer to the truth (Archæologia, vol. vii. p. 46), when he inclines to the opinion, that it was the arbalist, and not the long bow, which was used with such destructive effect at the battle of Hastings by the Normans. There can be little doubt but that the arbalist was intro- duced by the Normans at their first arrival. We have no mention whatever of it in any writer or document of the Saxon times, but in the Domæsay Survey, compiled in 1086, we have several arculalbistarii, captains of cross-bow men, among the tenants in chief. No such appellation is given in the Domesday Survey, which held lands in the time of King Edward the Confessor.

Brompton, in Twyden's Scriptores, col. 1278, says, that the use of the arbalist having been laid aside, was revived by King Richard I., who was afterwards killed by an arrow shot from the siege of Chalons.

The arrows for the cross-bow were called quarrels, from the French cordeaux. More will be said of the use of the cross-bow in the account of Archery.

FREDERIC ANTOINE, was born at Mutzig in Alsace, in 1759. According to the account given in the Biographie Universelle, he was successively professor of mathematics at the school of artil- lery, and teacher of the same in the city of Strasburg. He afterwards represented the department of the Lower Rhine in the national convention, where, however, he took no prominent part in politics, and his name only appears to some reports on scientific subjects. He was also a parent of the science, as the most comfortable and the fairest instruction, to the affairs of which he particularly devoted himself. After the dissolution of the convention, he became professor of mathematics in the central school of his de- partment. He died in 1803, under the name of Antoine, a name which must be placed high among those of the analysts of his day, and a character without reproach.

Arboigast's first work was presented to the Academy of Sciences of France, on the 13th of January, 1752, an Essai sur de Nouveaux Principes de Calcul Differente et Directe. In 1755, the Memoires de l'Academie des insinment Petits, et de celle de Limous. This essay is not printed, but from his own account of it in the preface to the Calcul des Dérivations, it appears that he had, partially at least, anticipated the leading points of the Théorie des Fonctions de Lagrange.

In 1799 (Lacroix, Cale. Diff., 1792; Broc, Univ.) he gained the prize proposed by the academy of inquiring for an essay on the nature of the arbitrary functions contained in the integrals of partial differential equations. In this paper he takes, and in the opinion of Lacroix finally es- tablishes, the view maintained by Lagrange and Euler against a formal notion of the discontinuity (Lacroix, Cale. Diff., vol. i. p. 586).

But his great work is the Calcul des Derivations, published at Strasburg in 1800. Its main object, and we can here but name it, is to state no more than relatively atomizer, the expression is more complicated than a function of a binomial. Therefore Taylor's theorem and common differentiation are particular cases of Arboigast's method. It is an eminently well-worked book to read, on account of the number of new notions, the clarity and the complexity of the algebraical part; but it contains much that is elegant, and which may eventually become useful. M. Lacroix thinks that it has not been received with sufficient favour, and a well-published memoir of M. Francais, who was in habits of intimacy with M. Arbo- gast, and corrected the proofs of his work, in which the former had applied the method to a question of mechanics, and had succeeded in a development which he (M. Lacroix) thinks would be of prime use in the art of navigation.

We must not omit to mention, that the Calcul des Deriva- tions contains the first use of the separation of symbols of operation and of quantity, which has since thrown so much light on the theories of various parts of analysis. (See Lacroix, Calcul, Cale. Diff., vol. iii. p. 726.)

ARBOIS, a town in France, in the department of Jura, and the arrondissement of Poligny, about six miles N.N.E. from the town of Poligny, and twenty-three miles in the same direction from Lons la Saone, the capital of the department. It is on the south bank of the little river Cuisance (a feeder of the Loue, which empties itself into the Doubs, and so into the Saone and Rhone), not far from the north-eastern ridge of Jura. It is neat and well built. The wines of the neighbourhood of Arbois are highly esteemed, especially that which, from being made at the commencement of winter, has the name of vin-de-glace (frost wine). Leather, paper, and china, are among its manufactures. The population in 1826 was between 5000 and 7000. It is the seat of a tribunal de première instance (a subordinate civil and criminal court) under the Cour Royale (assize court) of Besancon. Before the revolution there were several religious establishments at Arbois.

It possesses some Celtic and Roman monuments, and has the ruins of an ancient castle, which is considered by the in- habitants as having been haunted. The castle is said to have originated from a castle which had been confirmed, by an act of cruelty committed by Mahaut of Arbois, Countess of Burgundy, who when some poor persons had taken refuge with her in time of famine, ordered them to be confined in a large building, and burnt in it. Lat. 46° 35' N., long. 5° 45' E. of Greenwich.

This town gave birth to General Pichegru. (M. Brun, Balbi, Dict. Universel de la France.)

ARBOUGA. [See ARBOURGUECK.]

ARBUUTHNOT, JOHN, a celebrated wit and physi- cian in the latter part of the seventeenth and the early part of the eighteenth century. His father was a clergyman of the Scotch church of Aberdon. Arthubuthnot was educated in the University of Aberdeen, where he took his doctor's degree in medicine. The revolu- tion having deprived his father of his church prefer- ment, and a small paternal estate being insufficient for the support of his family, he was obliged to cast his lot to London in pursuit of fortune. He began by teaching math- ematics as a means of subsistence. Dr. Woodward's Essay towards a Natural History of the Earth, published in 1736, and his own Essay, An Essay on the Nature of the Earth, 1697, 8vo., which brought him into notice as an author. His extensive learning and conversational talents introduced him gradually into practice, and he became emi-
ment in his profession. He had the good fortune to be at Epsom, when Prince George of Denmark was suddenly taken ill. He had the care of him, and his treatment was so successful, that the prince, from the time of his recovery, employed him as his regular physician. Arbuthnot was appointed physician in ordinary to Queen Anne in 1709, and admitted to the College of Physicians of England. He had for several years before been a Fellow of the Royal Society.

His talents, learning, and fascinating manners, introduced him to intimate correspondences and friendship with Pope, Swift, Gay, Parcell, and other leading wits of that day. His first publication was a little poem addressed to an ivory box, which was to have been worked up with mock solemnity and all the pretensions of history. But the project was stopped by the queen's death, when nothing more than an imperfect essay towards it had been drawn out, under the title of the first book of the Memoirs of Mortons Scritters. This fragment is to be found in some editions of Pope's works. There is nothing like it in our language, nor to the best of our knowledge, in any other; it is characterized by a brilliancy and humour which contains all the extravagance of wit and humour, which is pretty sure to tempt any who has once read it to a second perusal. Gulliver's Travels are said by Warburton to have been first intended as a part of these Memoirs: allusion is made to them in the 15th chapter. The collection also contains a picture of the Italian Opera Companies and the Restauraturs, and the report Estrangulando e Stile, are detatched portions of the same work; of which the eminent writer above named speaks thus:—"Polite letters never lost more than twenty guineas on this; but this piece of jovial triviumstuard would have found exercise for his own peculiar talent, besides constant employment for that they all held in common. For Arbuthnot was skilled in everything which related to science: Pope was a master in the fine arts; and Swift excelled in nothing. Wit then had all in equal measure; and this so large, that no age, perhaps, ever produced three men to whom nature had more bountifully bestowed it, or art had brought it to higher perfection by the humanist and political pamphlet John Bull, which has served as the model for many jests d'esprit upon the same plan, is generally believed to have been written by Arbuthnot, though attributed at the time to Swift, and published in the collection of his works. Swift, however, in his letters names Arbuthnot as the author. This piece, which is entitled Law is a Bottomless Pit, or the History of John Bull, contains a burlesque account of the war which broke out on the accession of a branch of the house of Bourbon to the throne of Spain, and ended with the conclusion of the peace of Utrecht in 1711. The war is described under the semblance of a lawsuit, carried on by the contending parties of England, Holland, and Austria against France and Spain, which are designated by names emblematic of the national distinctive qualities usually ascribed to each of them. The queen's death, and the consequent disasters which befell his friends, deeply affected Arbuthnot's spirit. As a relief to his melancholy, he went to Paris; but after a short stay returned to London, and having lost his place and official residence at St. James's, he took a house in Dover-street, observing to Swift, that he still hoped to be able to keep a radical habit warm in town. In 1705 published Texts of Ancient Coins, Weights, and Measures, &c., in octavo, republished in 1727 in quarto. He continued the practice of medicine with success, and amused his intervals of leisure in writing papers of wit and humour. In 1721 he published his Essay on the Nature and Choice of Aliments, which was followed the year after by an essay on the Effects of Air on Human Bodies. He is thought to have been led to the subjects of these treatises by studied attention to his own constitution. He lived to the age of eighty years, and at length was found to be incurable. In 1734 he retired to Hampstead in hope of some relief; but died at his house in Cork-street, Burlington-gardens, in February 1735, aged 80. He was buried at St. Mary-le-bow.

His son George enjoyed a profitable place in the Exchequer, and was one of Pope's executors. Two daughters survived him, but died unmarried. Anne was honoured by a legacy in Pope's will. His son John died two years before him; and from Arbuthnot's affectionate expression, that he 'would willingly have redeemed his life with his own,' it is probable that grief aggravated his disease, and hastened its fatal termination.

Pope, in a letter to Digby, says that the first time he saw the Doctor, Swift observed to him that the Doctor was a man who could do everything but walk. The observation was not without a reference to the Doctor's gait, upon which Swift comments in one of his letters. Arbuthnot appears to have been in every respect a worthy and accomplished man. He was inferior to none of his brilliant contemporaries in humour, liveliness, and learning, and few of them could approach him in the strict, perfect performance of moral duties, or in acts of humanity and benevolence. The fortitude displayed in his letter to Pope, written almost on his death-bed, could have been inspired only by a conjunction of secresy of purpose and high courage of soul, as one of a well-spent life. No person of right mind and feelings can read that letter without admiring the writer, and feeling better from the perusal. In 1751 two volumes in 12mo. were published at Glasgow, entitled the Miscellaneous Works of the late Dr. Arbuthnot. It is set up in a definitive manner, with the following preface:—"The contents of these volumes, and what is inserted in Swift's Miscellanies, comprehend all the pieces of wit and humour of this admirable author. The collection contains several pieces which are not found in the Miscellanies, and the genuineness of several pieces is negatived both by the internal evidence of discrepant style and inferior taste, and by the direct testimony of Mr. George Arbuthnot. To his other accomplishments, Dr. Arbuthnot added the knowledge of music. In his History of Music, in which he is so justly celebrated, and in his Historical Fragments, in which Hawksins, in his History, mentions an anthem composed by him. Kippis, Biog. Britann.; also Pope and Swift's Correspondence."

ARBUTUS, a genus of evergreen shrubs, belonging to the natural order Ericaceae. It is characterized by its fruit being a berry, containing many seeds. The most remarkable species is the arbutus of Virgil, now called A. unedo, or the strawberry tree, from the resemblance it bears to that wild berry which is a native of the south of Europe and the Levant; in our gardens it proves a hardy evergreen tree, sometimes as much as eighteen or twenty feet high, bearing its greenish-yellow blossoms in October and November, and its bright yellow and red berries, which are studded with little projections, in November and the succeeding months. The most interesting specimens in this country are the lake of Killarney, where they form groves of great beauty; the plant seems to thrive better, however, when considered indigenous to Ireland on this account. Its berries are hardly edible; taken in too great quantities they are apt to produce stupefaction; nevertheless a wine, said to be pleasant enough, is prepared from them in Corsica. Three varieties are distinguished: the common one, a little thorny, has flowers, called the scarlet arbutus, which is much more beautiful than the original species; a second, with double greenish flowers and a smaller foliage; and a third, with leaves which are all at one time, a mixt of the two kinds. These are more objects of curiosity. They are all increased by grafting upon the wild species, and by cuttings or layers of the young shoots; the wild kind itself springs up readily from seeds, by means of which it may be multiplied in great abundance. Considering this circumstance, it is quite surprising that we do not see it more frequently planted in large masses.

The Oriental Arbutus, A. andrachne, is superior to the last in beauty both of leaves and flowers; but it is much more tender, and does not bear fruit in Great Britain. It is readily known by its broader and less serrated leaves, and by its bark peeling off so as to leave the stem always smooth and of a clear, bright cinnamon-brown. Native of the Levant.

A. hybrida, or the mule arbutus, is apparently a hybrid between the two last, agreeing with A. unedo in the general aspect of its foliage, which is, however, larger and more handsome, and with A. andrachne in the size and texture of the deciduous bark. It is hardy, and very ornamental, but it does not bear berries.

The other species are chiefly American, and of less general interest: A. praevalens, in the southern parts of this country, but it does not seem likely to be able to endure our climate. It is a native of New Albion, where it forms a moderately-sized tree; another, A. novomontana, from the Straits of Magellan, is a hardly evergreen bush, with small, very dark, pointed and serrated leaves, among which
hang numbers of solitary white blossoms. It has lately
begun to flower about London, but is still a rare plant. It
requires to be grown in peat soil.
For other species of arbutus see Arctostaphylos.

ARC, from the Latin arcus, a bow, signifies any part of a
curve line, as A C B. The straight line A B, which joins
the extremities of the arc, is called its CHORD.

For the arc of a circle, see ANGLE, where the method of
finding the arc from its angle, and the converse, is given.
For the properties of the area of various curves, see their
several names.

It is found necessary to assume the following axiom pre-
viously to any general investigation of the properties of an
arc. Every arc is greater than its chord, but, when coneease
to the chord throughout, is less than the sum of the sides
of any rectilinear figure which contains it. Thus A C B is
greater than A B, but less than the sum of A D, D E, and
E B. If x and y be the co-ordinates of any point in the
curve, the general method of finding the arc is by the in-
tegration of the formula

\[ \int \sqrt{dx^2 + dy^2} \]
or, in the language of the fluxional calculus,

\[ \text{fluent of } \sqrt{x^2 + y^2} \]

The practical method of finding the length of an arc,
which is an approximation to the preceding process, is as
follows. Divide the arc into a number of smaller arcs,

making the number large in proportion to the degree of
accuracy required, and add together the chords of the
smaller arcs. The sum of the chords will differ very little
from the true length, the number of sub-divisions being
very large. For instance, the arc of the quadrant of a

circle, whose diameter is ten million of inches, is 7,833,982

inches, within half an inch. Divide this quadrant into ten
equal parts, and the sum of the chords is 7,849,910 inches;

divide the quadrant into fifty parts, and the same sum is

7,853,659 inches, which is not wrong by more than one part

out of 24,316. For only twenty subdivisions the sum of
the chords is 7,851,905 inches, wrong only by one part out

of 2389. For every practical purpose, an arc of

a circle (and the same may be said of every other curve) is

the polygon made by the chords of a moderate number of
sub-divisions of the arc.

The preceding property is (but in what manner our limits
will not permit us to show) a consequence of the following pro-
position. Let there be a number of arcs, such as A C B, cut
off the same curve, having their chords parallel to the tangent

X C Y. Then, as A B moves parallel to its first position

towards X Y, D not only decreases without limit, but its

proportion to A B decreases without limit; that is, let any
number, however great, be named; then shall A B, before

it reaches X Y, reach a position in which it contains C D

more than that number of times. This proposition is

satisfying to the beginner in mathematics, and should be

considered by him with great attention. It may be illus-

trated in the following manner:— Suppose that while A B

moves from its first position towards X Y, and has reached

a b, a microscope moves with and over it, which increases in

magnifying power as a b moves in such a manner that a b

always appears in the glass as large as A B to the naked

eye. Then a b will not be magnified into the form A C B,
but into A Q B, where Q D grows less and less without

limit, as a b approaches towards X Y. But if two straight

lines had been taken, as in the following figure, a b could not

have been magnified to A B without changing a c b into

A C B.

During that period of anarchy in France, when the

supreme power which had fallen from the hands of a

monarch deprived of his reason was disputed for by

the rival houses of Orleans and Burgundy, the contending

parties carried on war more by murder and massacre than

by regular battles. When an army was wanted, both had

recourse to the English, and these conquering strangers

made the unfortunate French feel still deeper the horrors

and ravages of war. At first, the popular feeling was

undecided; but when, on the death of Charles VI, the

crown fell to a young prince who adopted the Armagnac side,

whilst the house of Burgundy had sworn allegiance to a

foreigner (Henry V.) as King of France, then, indeed, the

wishes and interests of all the French were in favour of the

Armagnacs, or the truly patriotic party. Remote as was the

village of Domremy, it was still interested in the issue of

the struggle. It was decided Armagnac, and was strength-

ened in this sentiment by the rivalry of a neighbouring

village which adopted Burgundian colours.

Political and party interests were thus forced upon the

enthusiastic mind of Joan, and mingled with the pious

legends which she had caught from the traditions of the

Virgin. A prophecy was current, that a virgin should rid

France of its enemies; and this prophecy seems to have been

realised by its effect upon the mind of Joan. The girl,

by her own account, was about thirteen when a supernatural

vision first appeared to her. She describes it as a flash of

light, accompanied by a voice telling her to be devout and

good, and promising her the protection of heaven. Joan

responded by a vow of eternal chastity. In this there appears

nothing beyond the effect of imagination. From that time

the voice or voices continued to haunt Joan, and to echo the

enthusiastic and restless wishes of her own heart. We

shall not lay much stress on her declarations made before

those who were appointed by the king to inquire into the

credibility of her mission. Her own simple and early

account was, that '* voices' were her visitors and advisers;

and that they prompted her to quit her native place, take

up arms, drive the foe before her, and procure for the
young king his coronation at Rheims. These voices, however, had not influence enough to induce her to set out upon it, although the band of Burgundians, traversing and plundering the country, had not ceased together with her parents, to take refuge in a neighbouring town, when they returned to their village, after the departure of the marauders. They found the church of Donmay in the company of many others to a great feast, and in the indignation and exult the enthusiasm of Joan. Her voices returned, and incessantly directed her to set out for France; but to commence by making application to De Béthune at Vaucouleurs. Her parents, who were acquainted with Joan's maternal properties, attempted to force her into a marriage; but she contrived to avoid this by paying a visit to an uncle, in whose company she made her appearance before the governor of Vaucouleurs, in May, 1428. Having as an advocate, at first refused to see her, and, upon granting an interview, treated her pretensions with contempt. She then returned to her uncle's abode, where she continued to announce her project, and to insist that the prophecy, that France, lost by a woman (Isabel of Bavaria), should be saved by a virgin from the frontiers of Lorraine, alluded to her. She was, it was asserted, who could save France, and not either kings, or dukes, nor yet the king of Scotland's daughter—an expression which proves how bad a name she was as to the political events and rumours of the day.

The fortunes of the dauphin Charles at this time had sunk to the lowest ebb; Orleans, almost his last bulwark, was completely deserted, the closest pursuit of the battle of Herrings seemed to take away all hope of saving the city from the English. In this crisis, when all human support seemed unsatisfying, Baudricourt no longer despised the supernatural aid promised by the damsel of Donmay, and gave permission for the lady's appearance at the battle of Herrings, in the hope that the English, if impressed by the prophecy, might be induced to take advantage of it. Under her banner, and cheered by her presence, the besieged marched to the attack, and met the English in the field of St. Loup. The first carried was that of St. Loup, to the east of Orleans. It was valiantly defended by the English, who, when attacked, fought desperately; but the soldiers of the Pucelle were invincible. On the following day, the 6th of May, Joan, and another summons of the French. After cheering on her people for some time, she had seized a scaling-ladder, when an English arrow struck her between the breast and shoulder, and threw her into the fosse. When her followers took her seat, she showed at first some feminine weakness, and wept; but seeing that her standard was in danger, she forgot her wound, and ran back to seize it. The French at the same time pressed hard upon the enemy, and the English began to yield ground. The bishop of Noyon, Commander, Gladsdell, or Glacidas, as Joan called him, perished with his bravest soldiers in the Loire. The English now determined to raise the siege, and Sunday being the day of their departure, Joan made a new attempt to molest their retreat. The English, while she was in the boat, she struck the English at Jargeau. They made a desperate resistance, and drove the French before them, till the appearance of Joan chilled the stout hearts of the English soldiers. One of the Foles was killed, and another wounded in the face, and two other were captured. This success was followed by a victory at Patay, in which the English were beaten by a charge of Joan, and the gallant Talbot himself taken prisoner. No force seemed able to withstand the Maid of Orleans, the soaring town of Troyes, which might have repulsed the weak and starving army of the French, was terrified into surrender by the sight of her banner; and Rheims itself followed the example. In the middle of July, only three months after Joan had come to the relief of the sinking party of
Charles, this prince was crowned in the cathedral consecrated to this ceremony, in the midst of the dominions of his ancestors, an event, according to the fifteenth century belief, that superhuman interference manifested itself in the deeds of Joan.

Some historians relate that, immediately after the coronation, the Maid of Orleans expressed to the king her wish to see him crowned. When broken, the French general’s resolve compelled her to join in an attack upon Paris, in which they were repulsed with great loss, and Joan herself was pierced through the thigh with an arrow. It was the first time that a force in which she served had suffered defeat. Chastened by it, and ashamed to be found herself in a posture of such a resolution on her part. In September of the same year, we find her holding a command in the royal army, which had taken possession of St. Denis, where she hung up a trophy of the heads of some of the prisoners. Then, as news of Joan’s exploits during the winter. About this time a royal edict was issued, ennobling her family, and the district of Domremy was declared free from all tax or tribute. In the ensuing spring, the English and Burgundians formed the siege of Compiegne; and Joan threw herself into the town to preserve it, as she had before seen Orleans, from their assaults. She had not been many hours at the siege when news was received of her appointment to a war council, in which she was taken by some officers, who gave her up to the Burgundian commander, John of Luxembourg. Her capture appears, from the records of the Parisian parliament, to have taken place on the 23rd of May, 1430.

A matter of interest. A pillar of the Church of St. Julian in the presence of a Frenchman, who had been taken to Rouen, and examined the place used to mark the house where she was born. It was shown. They placed on her head the cap used to mark the victims of the Inquisition, and the fire soon consumed the unfortunate Joan of Arc. When the pile had burned out, all the ashes were gathered and thrown into the Seine.

It is difficult to say what party most deserved the attacks on account of this barbarous murder: whether to the Burgundians, who sold the Maid of Orleans; the English, who permitted her execution; the French, of that party who were not aware of the cause; or she, whose name is shown. The story of the Maid of Orleans is throughout disgraceful to every one, friend and foe: it forms one of the greatest events in the history of France. Joan of Arc is one of the most curious enigmas in historic record. It has sometimes been suggested that she was merely a tool in the hands of the priests; but this supposition will hardly satisfy those who read with attention the history of Joan of Arc.

It is asserted (Biog. Univ., art. Jeanne d’Arc), and probably correctly, that there is no genuine likeness of Joan of Arc extant. Our medal is taken from a French work: Les Maitres de la France, by Jeanne d’Arc, de la Ferté des rues plus rares et curieuses cabi (sic) des Rois, &c. Par J. de Bis Caligorge, Paris, 1634.

The works on the subject of Joan of Arc are very numerous. M. Chausseaud enumerates upwards of four hundred, either expressly devoted to her life including her history. Her adventures form the subject of Voltaire’s poem of La Pucelle, and of a tragedy by Schiller; but perhaps the best production of the kind is M. Boudet’s poem bearing her name to the University of Paris, and all the faculties agreed in condemning such acts and opinions, as impious, diabolical, and heretical. This judgment came back to Rouen; but it appears that many of the assessors were unwilling that Joan should be condemned; and even the English in authority seemed to think imprisonment a sufficient punishment. The truth is, that Joan was threatened with the stake unless she submitted to the church, as the phrase then was, that is, abjured her heresy. This was in Italy, the very spot where she had been so long and so ardently desired to go; and which took place afterwards for the reversal of Joan’s condemnation records the testimony of witnesses, given all one way, and dictated evidently by the remembrance of the paims.)

ARCADE signifies a series of badges on inscribed piles, forming a screen, and also the space inclosed by such. This is, perhaps, a limitation of the term within that usually given to it; but arcades properly a coaggulation of colonnades, should not therefore have a more extensive signification.
What, by a strange perversion of the term, are in this country called piazeus, and most particularly the part so termed of the buildings in Covent Garden, London, are strictly arcades; and the new market within the inclosed area of the same is also aquare; to which the term piazeus properly applies, exemplifies, in a great part of its exterior, the correlative term colonnule.

Arcade is but another and a substantive form of arched; and although it may be well to restrict it, as a substantive, to the architectural sense only, yet it may be properly used, as an adjective, instead of arched, as in the description of the Roman aqueduct; though it would be somewhat absurd to designate such works as the bridges over the Thames at London arcades, or to speak of them as arced.

ARCA'DIA, one of the ancient provinces of the Peloponnesus, now the Morea, comprising the central part of the peninsula, and bounded on all sides by mountains. It extended from about 37° 15' to 38° 30' N. lat., and from 21° 45' to 22° 30' E. long. Its greatest length from Kalavryta, the ancient Cynantha in the north to Samará in the south, near which it must have been separated from Laconia, was about 60 miles. Its breadth varied from 35 to 41 miles.

On the north and north-west it was separated from Achaia and Elis by a range of mountains, which branching off from Cyllene (now Zrya), the highest point of the Peloponnesus, said to be about nine stadia, or 5400 Greek feet, or 1620 yards, runs north-west and was known by the several appellations of Arionius, Lampsea, Erymanthus and Phoible: on the west it was separated from Triphyla by mountains which are a southerly continuation of the range just now described, but have not yet been transmitted to us: on the south, its boundary towards Laconia may be considered the high land from which the water flows in opposite directions, southwards into the Eurotas and northwards into the Alpheus: its separation from Messenia was the high land W. of Lycomura, running between the bed of the Neda and the sources of the Parnassus, and containing the great mountain Tetrází (Cerasium), a part of Lycomura. On the east it was separated from Achaia by the range of mountains under the appellations of Parthenium, Artemium, and Trachy. Its area is calculated by Mr. Clinton (Pasti Heleniici, i. 385) at 1771 English square miles, being next in size to Laconia, which was the largest and most populous province of the Peloponnesus. According to the calculation of the same author, the free population of Arcadia may have amounted to 107,850 persons, and by adding half that number of slaves, he makes the aggregate amount 161,750—about ninety-five persons per square mile. But the large part of Arcadia is fertile, is probably below the truth, at least in its most prosperous days.

Arcadia may be regarded as the Switzerland of Greece, though not of equal extent. The ancient centre of the Morea may be considered as a high table land, which is traversed by numerous ridges of hills: the valleys of Tegea, Mantinea, Orchomenus, and Caphyn, which run from south to north on the east side of Arcadia, are of considerable extent with others in the Morea, and show the general level of the eastern side of this table-land: from the west side of these valleys the long slope lies westward, as we see by the course of the Alpheus and its tributaries: that to the eastward is more steep and shorter. The plains of Caphyn, Tegea, Mantinea, and Orchomenus, which last is only separated from that of Mantinea by a low narrow ridge, may be considered as one, its length is about twenty-five miles, with a breadth varying from one and a half to six miles. An elevated plain (probably on the site of Pallantium) is on this elevated plain, where, in the month of March, the ground is often covered with snow, while the sea-coast enjoys warm and pleasant weather. The mountains of Arcadia are many, great numbers being so enclosed by mountains that the water is often unable to find an outlet. At the lowest parts of them small lakes and marshes are formed, though sometimes the water is carried off by subterraneous tunnels. Such phenomena are far more frequent in this part of Arcadia, which is a limestone country: these high valleys, in fact, belong neither to the water system of the Alpheus nor to that of the small streams which enter the sea on the east coast. Being surrounded by goodly fortified cities, towns, and on three sides by ranges of mountains, Arcadia, as Laconia, and Orchomenus, the extensive plain of Tripolitza presents one dull, uninteresting level, in the south and west, along the valleys of the Alpheus, the Arcadian scenery exhibits its most picturesque features, recalling to our recollection all the beautiful descriptions of the poets. The valley of Megalopolis still abounds in delightful scenery. The sides of the majestic mountains are covered with luxuriant vegetation, and the lower hills are clothed with underwood, and refreshed by numerous rivulets.

The Alpheus, the principal river of the Peloponnesus, has its source within Arcadia, and runs N.W., not far from the western boundary of the province, till it encounters the slopes of Mount Phoible, when it enters the valley of Olympia, and, flowing in a westerly direction, reaches the Alpheus. It is joined on the east by the rivers Helisson, Gortynias, and Arispes, celebrated in mythology for the scene of Hercules' exploit in killing the savage boar; on the west the mountains approach so closely to its banks that the courses of its tributaries are short, and in summer most of them dry.

The Arcadians were divided into many independent states, and each of these contained several interior towns or villages. Of their number some idea may be formed from the fact that the inhabitants of forty of them were transferred, a.c. 371, to form the new state of Megalopolis, which was founded near the frontiers of Laconia, and which seems to have had a territory assigned to it more extensive than that of any other Arcadian state, running northwards for about twenty-five miles, and eastwards as far as the Erymanthian, at the time when Strabo wrote, about a.d. 14, he tells us that there was scarcely a city in the whole extent of its territory, and that even Megalopolis had been reduced almost to a desert.

For a description of the ancient Arcadian state of 487 there are no extant authors of any account of the significant villages in Arcadia, but the only place of any importance is Tripoližiá, which during the existence of Turkish oppression in this unfortunate country was the chief residence of the pacha. We may mention a few of the principal ancient cities, though the sites of some of them are unknown, or at least doubtfully pointed out: In the north lay Psophiá, near the modern Klan of Tripotamo, on the banks of the river Erymanthus, remarkable for the strength and singularity of its site; Cynshirta, probably a school of gymnastics founded under the regulations of the Athenians after the defeat of Marathon near the pass Agios Kostantinos, on the pass of the mountain Karyntos; and in the centre of the Arcadians by the peculiar savagery and fertility of their disposition, qualities which Polybius (iv. 21) attempts, at great length, to prove arose from their hatred to music, which was particularly cultivated by their fellow-countrymen: Stymphalus, the remains of which are easily seen about an hour W.S.W. of the village of Zaraka, on the banks of the Palus Stymphalia, once the fabled haunt of the birds called Stymphalides: Caphyn, the remains of which are seen not far from the village of Cephalonia under the name of Aratus and the Acheans [see Aratus] by the Acheans in the Social War: Orchomenus, at Kalpaki, under which is a plain in a great measure occupied by a small lake formed from the rains of previous rain; the coast road is cut through the hills: on the east lay the important city of Mantinea, at the site of Paleopoli, celebrated for the death of Epaminondas in the great battle between the Thebans and Laconomoinia, b. c. 362; Tegea, at Paleo Episcopi, once one of the most powerful states of Arcadia: on the west there were no cities of any great importance.

Besides the ancient authorities already quoted, the reader may consult Strabo, viii. 388; Pliny, iv. 1; and Brestennouth, Geschicht von Griechenland, Transl. by J. Leake's Morea; Gell's Narrative of a Journey in the Morea.

ARCADIANS, an indigenous race, according to their own account, who had occupied the central part of the Peloponnesus from time immemorial, according to Aristotle (see Scholium on the Clouds of Aristophanes) the Arkadians expelled a prior race from the country, and were therefore not the primitive possessors, if we adopt this tradition. We have no difficulty, however, in making out that they were a sedentary race, great numbers being so enclosed by mountains that the water is often unable to find an outlet. At the lowest parts of them small lakes and marshes are formed, though sometimes the water is carried off by subterraneous tunnels. Such phenomena are far more frequent in this part of Arcadia, which is a limestone country: these high valleys, in fact, belong neither to the water system of the Alpheus nor to that of the small streams which enter the sea on the east coast. Being surrounded by goodly fortified cities, towns, and on three sides by ranges of mountains, Arcadia, as Laconia, and Orchomenus, the extensive plain of Tripolitza presents one dull, uninteresting level, etc. etc.
As Arcadia is a mountainous country, and abounds in forests and grass lands, the character of its ancient inhabitants and their mode of life were, to a great extent, determined by these physical circumstances. The Arcadians, their countrymen, cultivated their chief occupations, and we find them often represented in all the rudeness of an uncultivated state. Men and swine alike lived on acorns, and Philestratus (lib. iii.) paints the Arcadians as little superior to the savage animals around them. Yet somehow, in spite of circumstances, they rose to a state of nobility. When asked by their countrymen, they were brave like their ancestors, but what were these circumstances? They could scarcely explain this circumstance, when he tells us that the Arcadians, at first fierce and savage, were softened by their diligent application to music.

In the second Messenian war, B.C. 685-668, we find the Arcadians under the command of a king, Aristocrates, whom they stoned to death on account of his treacherous behaviour to the Messenians, and the country was then divided into a number of small republics. Herodotus (vii. 292) tells us that they took part with their countrymen against Xerxes, B.C. 486, and that they sent to Thermopylae a body of 2120 men to oppose that monarch. But if they had no larger number in the field than this, it does not speak highly for their patriotism. The Arcadian custom of hunting and the huntsmen's habits afford no proof that they possessed the feelings of a united people. They were mere soldiers of fortune, ready to draw their swords in defence of any one willing to pay them. In the celebrated Sicilian expedition, B.C. 415, they were not in the rear, nor do we hear of them as having had the honour of being among the first to have acted as a nation till they had founded, under Epaminondas, the city of Megalopolis, B.C. 371, which became the metropolis of the country. From this time the Arcadians appear as a confederated state with a general council to manage the affairs of the nation. It is said to have consisted of 10,000 members (αἱ περιβόλοι), and if it were not frequently mentioned by ancient writers under this appellation, we should be inclined to believe that there were other causes that have made it still more inexplicable, that it possessed the executive and judicial powers, but not the legislative, which resided in the whole assembled people. Pausanias, in his Arcadia (chap. iii. 4), speaks of the council of the Ten Thousand. It was Epaminondas and the Boeotians who assisted the Arcadians in establishing this constitution, and in rendering them independent of the power of the Spartans. On the death of Alexander, B.C. 323, we find the country a prey to a number of petty tyrants, and the part they took in the Achaean league did not relieve them from their difficulties, or enable them to re-establish peace and security. The Romans at last made themselves masters of Greece and of the rest of Asia. The Achaians, but their days of prosperity never returned. Strabo states, that in his time the country was desolate, and that Tegea was the only city of importance which it contained; but Pausanias, who visited Arcadia about A.D. 174, gives a minute account of its ruined cities, and of the numerous antiquities with which it abounded. (See Pausanias, book viii.; Thucydides, vol. iii; Xenophon, Hellenica, vii.; Diodorus, book xv.; Herodotus, vii. 72, 73.)

ARCADIUS, emperor of Constantinople, son of Theodosius the Great, whom he succeeded A.D. 395. Neither his personal character, nor the transactions in which he was engaged, are of much importance to natural history. He was a mere puppet in the hands of ambitious men, who pursued their own interests without reference to the prosperity of the empire or the happiness of the people. The desertion of Rome explained this; he was the last of the successors of Augustus and Constantine who was acknowledged by the whole Roman empire, and who appeared at the head of its armies. By his will he divided this mighty empire between his two young sons, Arcadius and Theodosius. Arcadius reigned over the provinces of Thrace, Asia Minor, Syria, and Egypt, from the lower Danube to the confines of Persia; Honorius became, at least, nominal emperor of the West, and his line which separated the two kingdoms was, in fact, much the same as that which now divides the empire of Austria from Turkey. The accession of Arcadius marked the final establishment of the empire of the East, which survived, with the title of Emperor of Constantinople by the Turks, during a period of 1568 years, in a state of continual decay.

It is curious, that though the period is copiously furnished with historical materials, it is not possible to fix on a single action which properly belongs to the son of Theodosius. In the Great Schism there were two claimants to the bishopric of Constantinople, and the men to whom he entrusted the affairs of his empire. He was at first the submissive tool of Rufinus, who had raised himself by his talents to the notice of Theodosius, and was employed by him to represent the state of the church to the pope. Rufinus employed all his influence to inveigle Arcadius into a marriage with his daughter, but failing in this object, he was accused of inviting the Huns and Goths into Asia and Greece, and was at last murdered in the presence of the soldiery of the emperor. His death was followed by a debate as to the legitimacy of his children, and the pope began to fill the mind of Arcadius with the desire of obtaining the Western empire. His place was soon supplied by a eunuch, Eutropius, who exceeded even Rufinus in acts of oppression and cruelty. Arcadius saw every thing with equal indifference, and cared not about his own honour nor the security of his subjects, provided he was allowed to enjoy the pompous luxury which we find described in the eloquent sermons of St. Chrysostom, an eye-witness of the scenes which he narrates. We cannot, perhaps, give a more vivid insight into the sort of life spent by these pagan emperors than by the following quotations from St. Chrysostom. (Opera, tom. xiii. p. 192-196.) 'The emperor wears on his head either a diadem or a crown of gold decorated with precious stones. The robes of his purple garments are reserved for his sacred person alone; and his robes of silk are embroidered with figures of golden dragons. His throne is of massive gold. Wherever he appears in public, he is accompanied by pages, attendants. Their spears, shields, cuirasses, the bridles, and trappings of their horses, have either the substance or the appearance of gold. The two mules that drew the chariot of the monarch are perfectly white, and shining all over with gold. The chariot itself, of pure and solid gold, attracts the admiration of the spectators, who contemplate the purple curtains, the snowy carpet, the size of the precious stones, and the resplendent plates of gold that glitter as they play in the light. It is surrounded by a crowd of servitors, of his life, Arcadius was entirely under the control of his wife, Eudokia, whose character is best shown by the fact that she persecuted the virtuous St. Chrysostom. Arcadius died May 1, 408, leaving his empress nor the security of the empire. He was born B.C. 316, and began, according to Apollodorus, to attract the attention of the learned by the seculum of his remarks before he had reached the age of seventeen. He was not long able to resist the influence of the pupil of the mathematician Autolycus, his compatriot, and afterwards proceeded to Athens, where it was intended that he should devote his time to the study of rhetoric. Philosophy, however, had no charms for him, and accordingly he became the pupil of Theopompus, the poet, and then of Crantor. He also made himself acquainted with the subtle dialectics of the Megaric school, and the scepticism of that of Pyrrho. He attached himself more particularly to the Academic sect, and became one of their leading philosophers, though he introduced so many changes, that he was considered the founder of what has been called the Middle Academy. The Academic sect was instituted by Crantor, Polemo, and Crates, to Arcebalis. It is a point which has been disputed, whether Arcebalis had established his school in the lifetime of Polemo and Crates, or whether we are to consider him as the successor of Crates; but we think that Mr. Clinton (Festi Helene, vol. i. p. 367) satisfactorily proves, by reference to many passages in ancient authors, that Arcebalis established his school at the death of Crantor, who died before Polemo and Crates; and that from this period Arcebalis maintained that the school was included in the name of Crates, strictly speaking, had no successors; that the old academy expired with them, and was superseded by the school of Arcebalis, which had been founded in their lifetime.

Arcebalis revived the Socratic mode of teaching, which had fallen into disuse; he propounded no dogmatic principles of his own, but discussed with much eloquence and art the points proposed to him by his pupils. He brought forward all the arguments that could be suggested.
on both sides of a question, and endeavoured to prove that there was no certainty in philosophical knowledge, and that in all purely speculative subjects we must remain from coming to a decision, because the mind of man cannot sufficiently distinguish truth from falsehood. He does not, however, appear to have carried these sceptical opinions into the everyday affairs of life, but to have restricted them to philosophy and science, though his opponents asserted, and with much reason, that such doctrines as he advocated tended to undermine all virtues and morality. In the world he admitted we must act as others do: the saying of the philosopher Cleanthes respecting him, clearly proves that his doctrines were not carried beyond his closet, and that in the world he was strictly attentive to all the duties of life. 'Leave him to himself,' says Cleanthes to some who lamented the tendency of his doctrines, 'for if Aratosias loosens the ties of morality by his words, he knits them again by his actions.' Yet he is accused by some of carrying the pleasures of love and wine to an excess little suited to his character as a philosopher; but we think that all such accusations ought to be received with considerable caution. He was succeeded in his school by Laecides, B.C. 241. The reader may consult the fourth book of Cicero's "Academic Questions" for an elegant and masterly exposition of the arguments for and against the philosophical doctrines of Aratosias and the sect which he founded.

ARCH, the same word as arc in its etymological derivation, and an older English form (having been always used in the sense of arc until that continental form superseded it), is now applied to any solid work, whether of masonry or otherwise, of which the lower part is formed into an arc of a curve supported at the two extremities. We proceed to some ideas of the question of theoretical mechanics connected with this word, referring, for all matters connected with the support, to "Abvent," "Butters," "Impost," "Piers," and for history and general information to "Bridge.

In practice, we have not only the arch itself to consider, but the loose matter with which the space above it is filled, and the roadway or building thereon constructed. The two extreme effects of this load may be thus stated. If it were fluid, to the common law of hydrostatics would derive its cohesion from every small portion a b (fig. 1) of the arch as sustaining a pressure perpendicular to itself, equivalent to the weight of a column of fluid having the horizontal base a b, and the mean of a c and b d for its altitude. On the other hand, if the whole superincumbent load could be considered as perfectly solid and wholly unsustained by lateral pressure, the portion p q r g might be considered as a part of the arch-stone underneath. In the absence of all trustworthy experiments to determine how far the real superincumbent pressure, where resulting from loose materials, partsake of one or the other supposition, we shall adopt the latter as probably nearer the truth than the former: which is equivalent to treating of the arch only after its superincumbent weight has been added to each arch stone.

A C and B D are called the piers of the arch; it is said to spring from A and B; A E and B F are the flanks, and G the crown. The line of the stone arches is called the "extrados" or "soft," the line of the concrete arches or "back;" the arch-stones are called "voussoirs," and the highest stone, G, the "key-stone," A B is the span of the arch, and G H its height. The voussoirs are cemented together, and if the cement was sufficiently strong, any form might be given to the arch, or at least any form which would stand if cut out of the solid material. If we suppose the stones uncemented, their friction upon one another would imperil the centre of the arch, and in this position the voussoirs would be in equilibrium by the pressure of the two adjoining. Such an arch, therefore, would not serve for a bridge, which must bear a considerable addition to its weight at different times.
It is to the friction and resists that the power of sustaining additional weights is due. It is evident that before the arch, kept in equilibrium as above, can be overturned, the additional pressure must be such as to overcome the friction against some one arch-stone exerted by the two adjoining. And the advantage is the greater, since the additional pressure itself increases the friction which opposes it. The effect of friction may be thus represented. First ascertain the extreme angle at which a mass of stone, such as the arch is to be built of, would rest upon an inclined plane of the same material that is, raise the stone A upon the stone plane BC until the least additional elevation would make it slide down. Measure the angle CBD. Now suppose PQRSTV to be part of an arch kept in equilibrium without friction. From T on both sides make the angles QTX, QTY upon CBD and measured: then the effect of friction is this, that instead of the two arch-stones meeting in T, Q, their line of junction might have been anywhere in the angle YTX, without endangering the mere equilibrium. Or if, as in a preceding figure, FM and FN are parallel to the lower sides of two arch-stones, and the angles MFX, MFY, NFZ, NFV’ be made equal to the angle BCD above-measured, then, instead of its being required that the proportions of the weights resting on those sides should be strictly that of EM to EN, they may be the proportions of any two lines, which, being set off from E towards S, have the end of the first between X and Y, and that of the second between X and Y’. The great latitude which this gives to the construction (since BCD is, for some materials, as great as 40°) renders attention to the system of equilibrium without friction almost unnecessary, so that any arch which does not very materially differ from the arch kept in equilibrium without friction, may be considered as safe from all fracture which arises from the slipping of an arch-stone. We can find no instance mentioned of an arch which broke in this manner.

The difficulty in the way of determining the best figure of an arch, lies in our comparative ignorance of the manner in which pressure is actually communicated. The materials supposed in mechanical problems are usually perfectly rigid; those of nature are compressible: and though it is clear that a very slight alteration of form might throw the pressure of one arch-stone almost entirely upon a very small part of the adjoining, we do not know enough of the nature of the materials even to guess at the law of distribution. Again, if a part of an arch be overloaded, but prevented from falling by the friction or cement, a new force is not contemplated in the preceding theory, is exerted upon the remainder. Dr. Robison, as far as we know, was the first who brought forward this method of considering the subject. He was led to it by observing an arch which fell, the account of which we give in his own words (Mechanical Philosophy, vol. i. p. 649): 'It had been built of an excessively friable stone, and the arch-stones were too short. About a fortnight before it fell, chips were observed to be dropping off from the joints of the arch-stones, about ten feet on each side of the middle, that is at H and F, and also at another place on one side, and about six feet from the middle, that is at I and G. 'The masons in the neighbourhood prognosticated its speedy downfall, and said it would separate in those places where the chips were breaking off. At length it all fell; but it first split in fifteen or sixteen feet at each side,' that is at D and B, 'and also at the very springing of the arch,' that is at k and l. 'Immediately before the fall, a shivering or crackling noise was heard, and a great many chips dropped down from the middle between the two arch-stones, and one dropped a fortnight before,' that is from a and b. The joints opened above at these new places more than two inches, and in the middle of the arch the joints opened below, and in about five minutes after this the whole came down. Even this movement was plainly distinguishable into two parts. The crown sank a little, and the baunches rose very sensibly, and in this state it hung for about half a minute. The arch-stones of the crown were hanging by their upper corners. When the whole fell, the same occurred.'

The preceding method of fracture also took place in several modes of arches of chalk, loaded for the purpose, and Dr. Robison explains the phenomena as follows. He supposes that the pressure from the crown passes in a straight line along as many vouchs of one straight line will pass through. That is, he considers each of the four parts E D D A. A B, B C, as one separate stone, not liable to be broken. The preliminary chipping from I, H, F, and G he supposes to have arisen from the whole uniform pressure being there sustained at the corner of the arch-stones. When the arch opened underneath A, the whole pressure was supported at a and b, since the opening at B and D deprived the arch of the support at those points. This occasioned the chipping there observed just before the fall. We must, however, remark, that the loose manner in which the preceding account is given renders it impossible for us to examine or no Dr. Robison was justified in supposing the line of communication of the pressure to be straight. His hypothesis might equally apply, if AHD were a convex curve, touching the intrados at H. This experiment should be repeated, with more attention to minute circumstances and actual measurement.

This very ingenious and probable explanation, which, supposing the slipping of individual vouchs of being impossible, may be considered as almost unobjectionable, led its author to recollect that an entire arch, so flat as to admit the same straight line being drawn so as to pass through some point of every vouchs on each side of the key-stone. That such an arch cannot be destroyed without either removing the pier, or crushing the material, is evident in the case of a flat arch, slipping being supposed impossible, since there is no part of the arch which exerts any effort to overturn the rest, but only to crush it. Blackfriars bridge has arches of this kind, not indeed triangular, but so flat that a straight line can be drawn through all the vouchs, in the manner recommended by Dr. Robison.

On this subject we refer the reader to Dr. Robison's work above cited, and to the article 'Bridge' in the Encyclopedia Britannica. For the method of building an arch, see CENTERING, to which we must defer the account of a method of constructing arches lately invented by Mr. Brunel, in which the stones are so joined that each half of the arch supports itself independently of the other.

ARCH. The origin of that species of construction called an arch is still unknown; it cannot be stated with any degree of certainty, either in what country it was first used. There is good reason to think that it was unknown to the Greeks at the time when they produced...
The pointed arch, upon its invention or first introduction into Europe, seems to have exercised the ingenuity of its true church architects in various ways, and it is the opinion of those works, though many occasions occur in which the application of the arch would have been of great service, and could not have been passed over by an intelligent and improved nation, that the great necessity of some such form of arch arose from the imperfections of those adopted in Egypt, and other monuments of early date did not prove the same thing. If these nations had known this admirable expedient they would doubtless have applied it in many instances in which it would have been of the greatest use; and if it had been used in Egypt, it could hardly have remained unknown to those nations who were in the habit of trading with the Egyptians. We know that both the European and the Asiatic Greeks had commercial intercourse with them, and we read of a king in the reign of Amasis. (Herod. ii. 175.) [See AMARIS.

It is maintained, however, by some, that there are brick-arches at Thebes in Egypt, which belong to a very remote epoch, and one long prior to the Greek occupation of the country. Minutoli (Reise zum Tempel des Jupiter Ammon) has given two specimens of Egyptian arches, one of which is a false and the other a true arch. The first specimen is from the remains at Abydos in Egypt (p. 240), where the roof of the temple of an arch, but is formed of three horizontal stones, of which that which occupies the centre and lies over the other two, is the largest; the three stones are cut under in such a way as to form a semicircle. The true specimen is at Thebes, and on the west side of the river (p. 260), near and behind the building which contains the fragments of the enormous statue. They are circular arches, and formed of four courses of bricks (see pl. 29), and on the walls there are Egyptian paintings and hieroglyphics. (See also Belzoni's Plates, No. 44, and his remarks on the brick arches of Thebes.) Should these be admitted to be old Egyptian arches, it seems difficult to conceive why the arch should not have come into more general and early use. The stone arches in the Nubian pyramids can hardly be adduced in proof of the origin of the arch, as these edifices are probably not of very high antiquity. (See Cailliaud's Plate, No. 43.) Etruria seems, from the best evidence that can be obtained, to have been the first country in which an arch was formed, and to the Etrurians, with great probability, may be assigned the honour of the invention, and certainly that of its earliest applications, as far as our positive and undisputed information goes. The great sewer of Rome, commonly called the Cloaca Maxima, can hardly be referred to any period in the history of the city with so much probability as to that to which it is assigned by uniform tradition, namely, the age of the Tarquins. But though we may readily admit this early date, we cannot say who were the architects, whether they were Roman or Etrurian.

The application of the arched structure is one of the most useful mechanical contrivances ever discovered by man. By means of small masses of burnt clay, and conveniently sized pieces of soft and friable sandstone, are made more extensively useful for the economic purposes of building, than the most costly and promising materials were in the hands of the Greeks and Egyptians. By means of its cellars and passages, an arch makes to pass under heavy structures and along streets with certainty and safety; and secure and permanent road-ways for every purpose of communication are formed across wide, deep, and rapid rivers.

Extensively as they were used of the arch, the Romans did not deviate much from the semi-circular form. Arches of smaller segments were certainly used by them, as well as elliptical arches, but in these cases they were fortified with a lintel, and the position of the arch was such that it was only one which, who probably in nearly all cases were Greeks, knew very well the weak points of such a construction. It was reserved for the architects of the middle ages, or rather those of the twelfth, thirteenth, and fourteenth centuries, to consider these points done by varying the form and construction of the arch.

Intersecting arches were most likely an early, and certainly a very widely-spread mode of embellishing Norman buildings, and some of them were constructed in places and with stones requiring centres to turn them on and the construction of these centres must have been by something equivalent to compasses. Thus, even supposing (which could hardly have been the case) that the arches were constructed without a previous delineation of the form, they would be a sufficient guide to the construction of the pointed arch; and when once formed, its superior lightness and applicability would be easily observed. To this remark it may be added, that the arches necessarily arising in some parts from Norman going, would be the more easily visible to the eye, and the great number of Norman buildings will also lead to this conclusion, that the style was constantly assuming a lighter character, and that the gradation is so gentle into early English, that it is difficult in some buildings to class them, so much have they of both styles: the same may be said of every advance; and this seems to be a convincing proof that the styles were the product of the gradual operation of a general improvement guided by the hand of genius, and not from foreign importation.

We propose to treat of the various forms and decorations of the arch under the several divisions indicated in the article Architectural.

ARCH, TRIUMPHAL, a structure which the Romans used to erect across their roads, or bridges, or at the entrance of their cities, in honour of victorious generals or emperors. They were of two kinds: temporary arches made of wood, on the occasion of a triumph, when the procession passed under the arch, and the conqueror had the triumphal crown placed on his head. These arches were removed after the ceremony. The others were permanent structures, built first of bricks, afterwards of hewn stone, or at least cased with, marble. Their general form is that of a parallelopipedon, which has an opening in the longer side, and sometimes a smaller opening on each side of the large one. These openings are arched over with semi-circular arches, and the fronts are decorated with columns and their accessories on lofty pedestals: the whole
is surmounted by a heavy attic, on the faces of which inscriptions were generally placed.

Triumphal arches were erected under the Republic. An arch of P. Cor. Scipio Africanus (Liv. xxxvii. 3.) is mentioned as having been built on the Clivus Capitolini. (See also Liv. xxviii. 27, on the arch of L. Stertinius.) The Fabian arch is mentioned by Cicero (Pro Plancio) under the name of 'Fabianus fornix': it stood by the Via Sacra, near the spot afterwards occupied by the temple of Antoninus and Faustina. The arch of Fabius, surnamed Allobrogus from his victory over the Allobroges. This arch is also mentioned by Seneca, who calls it 'Fabianus arcus.' The term used by Don Cassius for a triumphal arch is ἄρχαρχος. The arches of Stertinius and Scipio were ornamented with gilded statues; and that of Scipio with two horses also. Whether they precisely resembled the later arches as to their columns, relieves, and other accessory parts, we cannot say. As far as we can judge from medals, these early triumphal arches consisted of a single arch with a column on each side, without a stylobate; the arch was surmounted by a simple border as a kind of architrave.

Under the emperors these monuments became very numerous, and were overcharged with ornaments. Drusus, the stepson of Augustus, is mentioned as the first who had one raised to him after death, and Livius, the wife of Augustus, was the first woman to whom a similar honour was decreed. Augustus himself had several triumphal arches erected to him, of which the one at Rimini, where the Flaminian Way terminated, still remains, and serves as a gate to the town on the side towards Rome. Another arch, also erected to Augustus, though inferior in beauty to that of Rimini, exists at Susa, at the commencement of the road which leads over Mont Genèvre into France. Of the triumphal arches remaining at Rome, that of Titus is the oldest. It was erected to him after his death by the senate in memory of his conquest of Judea. This arch is ornamented with sculptures representing the triumph of the conqueror, and with the ornaments of the temple of Jerusalem which he brought as spoils to Rome. But arches were not erected solely to commemorate victories and conquests; they were also raised in honour of emperors for benefits conferred on their country on some particular occasions: such is the fine arch of Trajan on the old mole of Ancona. It is of white marble, and chaste in its style; the inscription states that it was raised by the senate and people of Rome to Trajan, Emperor and Cæsar, son of Nerva, the conqueror of the Germans and Dacians, high pontiff, &c., a most provident prince, for having at his own expense constructed the mole, and thus rendered the access to Italy on this side safer to navigators.

Central Inscription on Trajan's Arch.
Dacio. Pont. Max. Tr. Pot. XVIII. Imp. IX.
Cos. IV. P. P. Providentissimo. Principi.

On the Right.

On the Left.

Plotinae.

Marcianæ.

Divae.

Aug.

Marcianæ.

Aug.

Sect. Aug.

Bronze statues of Trajan, of his wife Plotina, and his sister Marciana, were placed on the summit of the arch, but they have been destroyed. Another fine arch in memory of

{[Arch of Constantine,]}

Trajan exists at Benevento; it is ornamented with fine relieves, and is in very good preservation. All these are single arches; but there are two smaller archways, one on each side of the great central one. These are consequently oblong in their shape, and have a heavier appearance than the single arch. Two of these triple arches still exist at Rome, that of Septimius Severus, and that called the arch of Constantine, which we have chosen for our illustration. The view here given is from an original drawing. The arch of Constantine is in the valley at the foot of the Palatine Hill, and near the Colosseum. It is the most complete of all the triumphal arches at Rome— that of Titus has
only a central archway, and that of Septimius Severus is more dilapidated, and more encumbered by accumulations of soil. The style of Constantine's arch is also, for the most part, like that of Trajan, and consists, as it consists, in great measure, of the materials of a similar monument which had been erected to Trajan. But at the same time, owing to its being chiefly built of old materials, and owing to want of skill in the architect and sculptor, it presents a more distant and more barbarous view, and some specimens of bad taste. The captive Parthians, and other sculptures, which were historically appropriate on the arch of Trajan, are here employed to decorate that of Constantine, and are of a much inferior value, replaced by a wall of an elliptical form, within which the monument stands. Accumulations of soil had raised the level of the ground nearly up to the bases of the columns; the excavation was made for the purpose of clearing away the rubbish, and the wall with the view of protecting the structure.

The number of marble arches, in honour of emperors and other personages, existing in ancient Rome alone, is stated to have been at one time thirty-six: only five or six are now remaining. Other arches are found in various parts of Italy, at Aquino, Aosta, Pola in Istria, &c.; several in the south of France, of which those of Nismes and Orange are the best preserved; several in Macedonia, at Aosta, at the gates of Constantinople, and in many other places belonging to the Roman period; several in Syria, and in Barbary, particularly one at Tripoli; and another at Constantinople, described by Shaw. In modern times, triumphal arches have been raised in imitation of the Roman ones. Those of the gates of St. Mary of Mount, St. Peter's, were raised in honour of Louis XIV. Bonaparte also had one constructed on the Place du Carrousel; it is a triple arch, and has all the heaviness of that particular species of structure. Another, and a much finer one, was begun by his order at Milan, on the opening of the famous road across the Simplon. It was interrupted by the overthrow of the French empire, and has since been continued by order of the Austrian government, under the supervision of the architect and engineer Perrier. It is now nearly finished. In London, two structures of the same kind have been raised of late years, a single arch at Hyde Park Corner, and a triple one in front of the Prisonal Palace. On Roman triumphal arches the reader may consult Pitiusus, Lexicon Antiquitatum Romanae, etc. Arcus.

The arch of Augustus at Rimini is sixty feet in height and twenty-seven in depth or thickness; the gateway is thirty-one feet wide, being the widest opening among all the ancient arches in Italy. The front is decorated with a Corinthian column thirty-two feet high. It is made of Istrian marble.

The arch of Septimius Severus is sixty-one feet high, seventy-two feet long, and twenty-two feet deep. The central archway is thirty-six feet high, and twenty-two feet wide. The side arches are twelve feet high and ten wide.

The arch of Orange, in the south of France, supposed, but upon no certain grounds, to have been erected in honour of Caius Marius, is seventy feet high and sixty-six in length. It is a triple arch.

ARCHEGEL, or properly ARKHANGELOK, 'the land of the archangel,' was one of the three roots from which the gigantic empire of all the Russians has sprung. 'Great is our land, and rich in fruits; but there reigns no order in it. Come, then, be princes unto us, and hold dominion over them.' The vast natural range in the north (Novgorod, Ruirk, Sineus, and Truvor, three brothers, chieftains of note among the warlike Varagos, or Varagie Russians, with whom both Normans and Anglo-Saxons claim kinship, descended from the Gulf of Bothnia, and divided the sovereignty of their adopted country among them. Ruirk selected Novgorod for his residence; Truvor established himself at Izbork; and Sineus, receiving the northernmost lands for his portion, took up his abode at Vologda. The White Lake. The three younger brothers having died without two years after their arrival, Ruirk, the survivor, in 864 became sole ruler over the three states, and the founder of a new empire, which is known among northern writers by the name of the 'Exarchate.' The name is connected, in some description given by Alfred the Great of the Scandinavian nations, as the seat of the extensive empire of Biarmia (or Permia), which rose at the mouth of the Dwina, and spread across the countries which range between that stream and the sources of the Volga. Tradition reports, that even in those early times navigators were accustomed to sail round the coasts of Norway in quest of the produce of Biarmia.

The Dwina divides Russian Land, and the range of country inhabited, and by more than one even at three hundred and fifty-thousand square miles. Including the 27,000 miles contained in the recent addition of the circle of Kem, we conceive that its superficial extent may be safely set down at upwards of 300,000,000 square miles. In its extent, therefore, it exceeds the superficial area of the whole of the Austrian dominions, and is more than three times as large as Great Britain. But its population does not exceed 3,000,000 souls.

The most eastern limit of this country is about 68° 58' N.; the most western about 59° 15' E.; and the most southern about 65° N. The extent of the country inhabited by the native inhabitants is about 3,000,000 square miles. The superinicial extent of this province is variously estimated; by some writers at two hundred and fifty square miles, by others at two hundred thousand, by others at three hundred and fifty-thousand square miles. In any respect, therefore, it exceeds the superficial area of the whole of the Austrian dominions, and is more than three times as large as Great Britain.
the Mezen, a considerable stream, which rises in the marshes of the steppe of Petahora, and flows in a north-westerly direction for nearly 300 miles. Its waters, in the Ural mountains, ranges over a distance of full 700 miles of dryly waste, and, before it crosses the boundary between the provinces of Wologoza and Archangelsk, receives the Usma and Elma, and then enters the sea, between the islands of Kouda and Lesenga, by way of the straits. The island of Lesenga is spotted with islands: it is navigable immediately after quitting the Ural mountains, but is locked up by ice for nine months in the year; its dryly waste banks are rarely the resort even of the hardy Samoiedes.

The province of Archangel abounds in lakes, separated by sterile rocks, in almost countless numbers; the most considerable lie in that part of it which is situated immediately north and west of the White Sea. Amongst these are the Imandra, Kouda, Topsoero, Angoeero, and upper and lower Koukouye.

The climate of this province, particularly the northern districts, partsakes both of the extremes of heat and cold. The length of the summer season is often oppressive; and the transition from heat too cold, on a change of wind, is frequently so instantaneous, that a man who has been working in his shirt is forced to have immediate recourse to his fur-cloak. But the climate becomes more intensely severe, as we advance from the north. The Mezen between the Mezen and Petahora is frozen up by the end of September or beginning of October; the Dwina, on the other hand, does not usually close until a month later, and not until the first week in May. In those parts which lie between the Petahora and Siberia, the Samoiede himself yields to the inclement cold: no stream is open until June, and scarcely one is free from ice by the middle of September. Spring, summer, and autumn are thus reduced to an interval of three months.

The northern districts of Archangel are wholly uncutlable, and its soil, even in the south, does not yield grain enough even for the support of its scanty population. The breast in use is a combination of meat, moss, litings of the bark of the pine, and grated roots; yet this food, coarse as it is, is unknown to more northern palates, which must be content with dried fish. The southern districts grow hemp and flax, and a few kinds of vegetables; and in some parts, on each side of the Dwina more especially, there is pasture ground of good quality. But Archangel contains a still unexhausted mine of wealth in its forests, which give profitable employment to the labourer, the artisan, boatman, mariner, shipwright, merchant, and even the more humble gleaner of the forest, which grow beneath their shade. The two principal species of timber are pine, pines, birches, alders, and larches, which are of great dimensions and lofty growth. These forests are the resort of a variety of wild animals, which abound in the inhabited districts. In the Taiga and in the forests of the sea-coast are the bear, wolf, rein-deer, squirrel, ermine, hare, martia, gluton, fox (both the common species and the beautiful polar-fox), wild duck and goose, swan, water-hen, and otter may be seen. The abundance of marine animals, in pursuit of which hunting parties resort to Nova Zembla in particular, where they build cabins with the wood they have brought with them, and pass the winter, employing themselves in catching seals, sea-cows, and morses, or in hunting the wild fox, or rein-deer. The seas, lakes, and rivers of Archangel furnish food to the inhabitants from their ample store of whitings, pikes, eels, salmon, perch, and other fish. The only domestic companions of man in Archangel are the horses, which, from their stock of this invaluable animal forms the criterion of wealth; hence the individual who has two thousand is accounted rich, but the man is poor who cannot muster more than thirty or forty. Archangel is but slightly supplied with horses and cattle, and they are in general of diminutive size; the districts of Kolmgorye and Shenkursk, however, which are rich in pastures, have formed an exception ever since the time of Peter the Great, when a large importation of horses of good quality was generated, were imported from Holland by that monarch: the calves of these species are kept warm, and fed on milk for nine months; at this age they weigh sometimes as much as six or eight hundred pounds, and are so white and delicate that the breed is so refined that they fetch uncommonly high prices. Neither sheep, swine, nor goats are bred in any considerable numbers; what little mutton is eaten is of indifferent quality, and the fleece is fitted only for making the coarse cloth termed wadmal. The country is also so well-stocked with game, that scarcely a district can be found where the inhabitants are not benefited by the sale of minerals; salt is the staple product of this province: it is obtained in various quarters, particularly in the neighbourhood of Totma, and from the waters of the Kouda and Lesenga by the process of boiling. Bog-iron is found in considerable quantities between 700 and 800 tons of it are exported annually.

The manufacturing and mechanical industry of the people is principally confined to ship-building, the preparation of pitch and tar, and, on a large scale, the manufacture of linens, which take up the leisure hours of the peasant's wife in the circles of Kolmgorye and Archangel, and constitutes a lucrative branch of their commerce with St. Petersburg, Moscow, and other Russian marts. In some years, 3000 tons of pitch have been casted down from one thousand barrows of wood, which the ports of the White Sea have despatched to the extent of 25,000l. in value to foreign parts. There are four refineries for sugar in the province, and seven rope manufactories, but only three of them can be said to be of any importance. From 400,000 to 500,000 deals are often exported from the capital in a single twelvemonth. Tallow also is shipped in very large quantities from the White Sea, sometimes to the extent of 2500 tons and upwards yearly; but the bulk of the produce of this province is destined for home consumption. The less important productions of Archangel which find their way outwards, are train-oil, hemp, flax, mats, canvas, skins, and furs.

The majority of the population of Archangel is of Russian extraction, in the proportion of ninety-five out of every hundred souls; the remaining portion consists of about 7000 Samoiedes, 6000 Syrianees (or Sireans), a Samoide race, who inhabit the districts lying around the upper banks of the Petahora, and 17000 Laplanders, besides a few Fins, who are domesticated in the circles of Kem and Kola. The tenets of the Greek faith are professed by all but a few thousand pagans, amongst whom the forcible conversion directed against them is of 1625 has, we trust, been as successful in respect of their souls as it has been of their numbers; for within five years from the sending out of the missionaries three churches were built for the use of the 3500 heathens who had been prevailed upon to embrace Christianity. These convertists consist almost exclusively of the Samoide hordes who inhabit that part of the province of Archangel which stretches from the Mezen to the frontiers of Siberia,—a tract of country than which Russia in Europe does not contain a colder, wilder, or more inhospitable climate. This unrelenting region, known as the esters of one another, though there is no trace whatever of their having deserved to be branded as cannibals, originally migrated from Siberia; but they are not the primi-
of them resorting to so distant a spot as Odesorsk in the month of February, where they exchange their wares for bricks. The natives breed in large numbers that many of them possess horses of herds of 1000 animals. Past-Oserak is about 150 miles to the N.E. of Mezen, and lies on a lake near the mouth of the Petchora. About 140 miles eastwards of Past-Oserak lies Ust-Zilima, on the right bank of the Zilima. The island of Ilmeno, which has a circumference of less than a mile, consists of six towns and four villages within its district: besides rearing rein-deer and raising barley, the inhabitants deal largely with the Russian traders in furs and the produce of their fisheries. The island is about 40 miles in circumference. The town of Naima (or Isehensanka-Slobodkia) on the banks of the Izhma consists of sixty-four houses, and has several villages within its jurisdiction. The rivers and lakes of the region are very productive fish.

The islands of Kalguiev, Varandeii, Waigatz, Novazembla, and Taworni, which are the chief among the insular dependencies of the province of Archangel, will be noticed under their respective heads.

ARCHANGEL (known amongst the Russians by the name of Gorod Arkhangelskoii, or town of the convent of St. Michael' the archangel) is the capital of the province of Archangel, which is the northernmost of all the Russian dominions. Its site is a low flat; it extends about two miles along the right bank of the Dvina, and is forty miles from the mouth of that river. It is not accessible to the seamen of other countries, except by the river Dvina, and a stream and a bar which runs across it, with only twelve feet of water, about five miles below the town. Archangel is the oldest port in the Russian dominions: in the eyes of our own countrymen, however, no circumstance can render it an object of greater interest than its celebrity in the annals of British enterprise. The discovery of a passage to the coasts of the White Sea has been truly said to have formed an epoch in the history of commerce, for it gave an entire new direction to the trade of the north; and from this point on, there was a rapid increase in the traffic of the region. The town of Archangel was already a flourishing place in 1533, when Richard Chancellor, the commander of a vessel which was despatched, in company with two others, to find out a north-eastern passage to China, navigated the White Sea and sailed up the hight of the Pechora, into which the Dvina pours its waters. From this point on, the town made its way to the court of Ivan II., who, being thus convinced of the practicability of navigating seas hitherto deemed inaccessible to the mariner, gave directions shortly afterwards for building the port of Archangel, which was commenced by Nashtchokin, the woiwode of those parts, in the year 1584, upon a spot previously selected as a homestead by the members of a religious establishment. Russia has always been the principal road to the north. In time of war, the national supplies were shipped in this port; and for a long period subsequent, no other port but Archangel in its whole dominions. It is now the chief mart of its northern trade, as it was, in its early days, the centre of all traffic and the chief commercial, manufacturing, and mining parts. The benefit of the discovery, after it had been made, was confined to our own countrymen, and was afterwards shared with the Dutch and Hamburgese. Archangel is mentioned in the travels of the Holstein ambassadors to Muscovy and Persia, as a considerable port in 1636; it is remarked, that from 300 to 400 ships, principally English and Dutch, were sometimes seen in the port. (Olearius, Voyage de Moscouri, p. 139.) The prosperity of the port received how-
people with multitudes, variously and actively employed; and the great road from Siberia is covered with travelers and traders, and carriers of the arts and sciences, from above 2000 houses, and its inhabitants do not exceed 15,000; in both aspects it stands much on a par with Berwick-upon-Tweed. Mixed with the native-born subjects of Russia are a considerable number of Tartars and Turks, who are almost without exception, merchants or mechanics. In a manufacturing point of view, Archangel is of minor importance: there are some sugar-refineries, and manufactories of canvass and cordage; there is also much ship and boat building going on; and there are several large factories below the town, in the government yard, with three slips for building ships of war. This establishment is protected by the lines of Nowodvina, which command the entrance into the Dvina, and are manned in summer by a gun-boat, and manned by merchant adventurers, which is deposited in the adjacent storehouses. The females employ themselves in spinning yarn, and making a coarse sort of linen, both of which are in much request in the interior of Russia. The houses are almost universally constructed of wood, the external covering being laid horizontally, and, in some instances, doubly covered, and coloured outside: most of them are two stories high; they form a comfortable residence, and, when inhabited by any other tenant, are occupied with every species of convenience, and indeed luxury. The most striking of the stone edifices is the Gostinni-Dvor (caravanserais, or court of the trading guests), an extensive mart for the export of furs, wax, and all the necessaries of life. It is composed of high walls, with six large towers, and a ditch. The churches are eleven in number; ten for the Greek and one for the Protestant form of worship; but most of them are built of wood, and the Greek churches gorgeously decorated within. The present is a building of some extent, and open to foreign as well as native seamen. But its greatest ornament is a number of open spaces, on which the merchants and dealers erect their stalls: here all articles of the same class are sold in succession rows, and they are of almost endless variety. There are several schools in the town, at the head of which are a seminary for ecclesiastics, a gymnasium, and academies for teaching navigation and engineering. Upon the whole, the Archangel is a well-built place; the town of some streets runs in a zigzag direction parallel with the Dvina, and are connected by narrow lanes; they are moderately broad, and kept tolerably clean, but, instead of pavement, are floored with timber in a rough state. Its supplies of provisions are brought from a distance, as the soil in the neighbourhood grows no grain or vegetables, and breeds no cattle; this is a consequence of its position—close upon the line at which the winter is cut off; the ocean, not far outside the mouth of the Dvina, under the 65th degree of latitude. An association was formed at Archangel in the year 1803, under the title of the 'White Sea Company'; it despatches a fleet of vessels every year on fishery expeditions to the northern seas, and occasionally to the Bering Sea, in the last of which the crews frequently winter. Here they contrive to maintain themselves without much difficulty by the chase, but they depend, both for their rude wintry dwellings and their fuel, on the timber thrown up by the ocean. Archangel is the seat of an archbishopric, and the residence both of a civil and military governor. The neighbouring island of Solobamska, which is formed by the Khushenka, contains an admiralty and marine-barracks. Archangel lies in 64° 32'-N. lat., and 39° 33'-E. long., or about 460 miles N.E. of St. Petersburg.

ARCHAEOLOGY, literally 'the study of antiquity or ancient things, from ἀρχαιός, ancient, and ἀγῶν, a disquisition. Though the term is often used, its meaning in this country is not always very exactly fixed; but there is nothing properly belonging to it which is not included under the heads of antiquity and antiquities. In general, the term archaeology is confined to the study of Greek and Roman art, but it is sometimes used to express generally the study of all that concerns the early history of any nation or country. The divisions of the subject are consequently very numerous, and a great deal of work on them will be noticed under respective heads such as Egypt, Greece, medals, sculpture, &c.

The present edition which the study of archaeology has received of late years, and is still receiving, seems to require now more labor under the separate heads, which are devoted to it. In this point of view, the Archæological Institute of Rome, founded in 1829, seems likely to be of great utility. (See Thesaurus der Archäologischen Nachrichten in Rom, 1829 and 1830.)

ARCHBISHOP. For what belongs to the episcopal character and office generally, we refer to the word bishop: we mean to confine ourselves in this article to what belongs more peculiarly to an archbishop, that is, an archbishopric. The word archbishop is of universal application, in every country, and generally throughout Europe, the archbishop has his own diocese in which he exercises ordinary episcopal functions like any other bishop in his diocese, yet he has a distinct character, having an admitted superiority and a certain jurisdiction over the bishop in his province, who are sometimes called his suffragans, together with some peculiar privileges. This superiority is indicated in the name. The word or syllabic arch is the Greek element ἀρχος, (which expresses the idea of chief, head, head of an order, or head of a family) and ἅρχω, to rule, to control, or to rule with authority. It is used extensively throughout ecclesiastical nomenclature, as may be seen in Du Cange's Glossary, where there are the names of many ecclesiastical officers into whose designations this word enters, who were either never introduced into the English church, or have long ceased to exist. Exalted officers of state have sometimes designations into which this word enters, as arch-duke. Why this word was used peculiarly in ecclesiastical affairs rather than in civil, it is not easy to explain; for the term archdeacon, which is used in civil matters, is explained by the term ἀρχοψιχος, for chief priest, occurs in the Greek text of the Christian Scriptures. Patriarch is a less obvious compound of the same class, denoting a chief or patriarchal with the quality of an high priest, to denote a bishop who has authority not only over other bishops, but over the whole collected bishops of divers kingdoms or states; it is analogous in significance to the word pope (papa), a bishop to whom this extended superintendence is attributed.

Whatever might be the precise functions of the episcopos (bisepou, bishop), the term itself occurs in the writings of St. Paul, Phil. i. 1, 1 Tim. iii. 2, and elsewhere; but the word archbishop (archisepou) is not found in the New Testament until the fourth century. Cyrilrus Archiæpiscopos Hierosolymitanae, and Celestinus Archiæpiscopos Romanorum, occur under these designations in the proceedings of the council held at Ephesus, a. d. 431. Other terms by which an archbishop was sometimes designated were primas and metropolita. The first of these is formed from the Latin word primus, 'the first;' and denotes simple precedence, the first among the bishops. The latter is a Greek term, which rendered literally into English would be 'the man of all matter else,' that is, the bishop who resides in that city where is the mother church of all the other churches within the province or district in which he is the metropolitan.

The term metropolita, as here used, points out to us the origin of whatever real distinction there is between bishop and archbishop, or, in other words, the cause of that elevation which is given to the archbishop above the bishops in his province, when it is not to be attributed to mere personal eminence or rank or to any ancient or present meaning title. The way in which Christianity became extended over Europe was this: an establishment was gained by some zealous preacher in some one city; there he built a church, performed in it the rites of Christianity, and lived surrounded by a company of clerks engaged in the same design and moving according to his directions. From this central point, these persons were sent from time to time into the country around for the purpose of promoting the reception of Christianity, and thus other churches became founded, offering or children, to use a very natural figure, of the church from whence the missionaries were sent forth. When one of these subordinate missionaries had gained an establishment in one of the great cities, or at the head of a country, from the city in which the original church was seated, there was a convenience in conferring upon him the functions of a bishop; and the leading design, the extension of Christianity, was more effectually answered than by.rectifying all the episcopal powers in the hands of the person who presided in the mother church. Thus other centres became fixed; other bishoprics established; and as the prelate who presided in the first of these churches was still one to whom precedence was due, and as he stood at the head of some other church, in accordance with the powers of a bishop, and so called, he was entitled to some superintendence over the newer bishoprics. archbishop became a suitable designation. Thus in England, when there was that new beginning of Christianity in the time of Pope Clovis, one of those who determined the course of the mission, gained an early establishment at Canterbury, the
capital of the kingdom of Kent, through the favour of King Edmund. Thus, in the second conversion, as it may be called, the first Christian church was established in the whole of the southern part of England. Paulinus, in like manner, a few years later, gained a similar establishment at Canterbury. The archbishopric was thus founded by King Edwin, who received Christianity, and built him a church at York, one of his royal cities, which may be regarded as the chief city of Edwin's kingdom. From York the light of the faith spread to the northern parts of England, as from Canterbury over the southern. It seems to have been the peculiar diligence and dignity of Paulinus, who procured for him the title of archbishop, and gave him a province, instead of a diocese only, as was the case with Edwin at York. The latter, indeed, was done by special act, under the authority, it is said, of Justus, an early successor of Augustine. But the prece- dence of the real English metropolitan is acknowledged in two circumstances: in the style, the one being primate of England, and the other the primate of all England; and in the rank, precedence being always given to the archbishop of Canterbury, and the lord chancellor of England being interposed in processions between the two archbishops.

There is evidence sufficient to show that Christianity had made its way long before the time of Gregory among the Roman inhabitants of Britain and the Romanized Britons; and it is not contended that either Scotland or Ireland owed its Christianity to the English bishops. Whence it seems to be a legitimate inference that the Welsh church is only a fragment of a greater church in which the whole of England and Wales was comprehended, the church into which, as to what is now called England, being destroyed by the Saxons, who were Pagans; yet some have contended that there was an archbishop at Caer-Leon; and others, on grounds equally uncertain, that bishops, under the deno- mination of archbishops, were settled in those early times at London and York.

The precise amount of rights of superintendence and control preserved by the archbishops over the bishops in their respective provinces, does not seem to be very secular- ly understood, by any means, but has been seldom or never exercised. Yet it seems to be admitted that if any bishop introduced irregularities into his diocese, or was guilty of scandalous immorality, the archbishop of the province in which his diocese lay might visit, inquire, call to account, and punish. He might, it is said, even depose. Whether he could depose is a more doubtful point.

One right he possesses of so remarkable a character as to require a special notice. Every bishop has the power of consecrating a new bishop within his own diocese, that is, the right of nominating the person who is to enjoy them. At every consecration of a new bishop, or every translation of a bishop from one see to another, the archbishop, according to the usage of the church, has the right of selecting one of these dignitaries or benefices to be filled up by his nomination whenever it becomes vacant. This is called the archbishop's option; and the right is now re- garded as belonging so much to the person of the archbishop and not to his office, that if the archbishop die before the incumbent of such benefice or dignity, the right of nomi- nating descends to the heir or devisee of the archbishop. This existed originally in the form of a demand of the arch- bishop on each bishop to provide for some one of his chap- lains.

The archbishop also nominates to the benefices or dignities pertaining to the bishops in his province, if not filled up within six months from the time of the avocation.

Certain nominations are nominally made to the Cathed- ral of Canterbury, or in the household of the archbishop. The archbishop has also certain honorary distinctions; he has in his style the phrase 'by Divine providence,' but the bishop's style runs 'by Divine permission,' and while the bishop is only installed, the archbishop is enthroned.

The archbishops may nominate eight clerks each to be their chaplains. The archbishop of Canterbury claims the right of placing them upon that station. This has no archbishops' coronation; and the bishop of York claims to perform the same office for the queen consort. The archbishop of Can- terbury is the chief medium of communication between the clergy and the king, and is consulted by the king's ministers in all affairs touching the ecclesiastical part of the constitution; and he generally delivers in parliament what, when unanimous, are the sentiments of the bench. The two archbishops have precedence of all temporal peers, except those of the house of Lords, and children of the crown; and惊奇 there is a place between the two archbishops. Before the Reformation, the archbishop of Canterbury occupied a very elevated station with reference to the whole church, having a general control over the episcopate, the archbishop of Canterbury being regarded somewhat in the light of a patriarch, presi- dent, as he was supposed to do, over the several kingdoms of England, Wales, Scotland, and Ireland.

The province of the archbishop of York consists of the six northern counties, with Cleveland and Nottinghamshire; to these were added, by Act of Parliament in the time of Henry VIII., the Isle of Man: in this province he has four suffragans, the bishop of Man, the bishop of Durham, the bishop of Carlisle, and the bishop of Chester. Of these, the bishop of Carlisle was founded by King Henry I. in the latter part of his reign, and the bishopric of Chester by King Henry VIII.; so thinly settled was the see of Christianity over the northern parts of the kingdom in the Saxon times. The rest of the kingdom forms the province of the archbishop of Canterbury, in which there are twelve bishoprics of Saxon foundation; the bishopric of Ely, founded by Henry I.; the bishoprics of Chichester, Gloucester, Gloucester, Peter- 

Vagog, founded by Henry VIII.; and the four Welsh bishoprics, of which St. David's and Llandaff exhibit a catalogue of bishops running back far beyond the times of St. David and St. Augustus. The bishoprics of the English foundation are London, Winchester, Rochester, Chichester, Salisbury, Exeter, Bath and Wells, Worcester, Hereford, Liechfield and Coventry, Lincoln, and Norwich. The dioceses of the two English archbishops, or the districts in which they have ordinary episcopal functions to perform, are, for Can- terbury, the greater part of the county of Kent, a portion of that county forming the diocese of Rochester, a number of parishes distinct from each other, and called Peculians, in the county of Sussex, with which it has not a share of the property of property thus created, wils are generally proved in the court of the archbishop of Canterbury, as the Bank acknowledges no probates but from these.

Lives of all the archbishops of Canterbury and York are to be found in an old book entitled De Prae- 

labilibus Anglicum Commentarius. It is a work of great research and distinguished merit. The author was Francis Godwin, or Godric, and was published in 1616. A new edition of it, or rather the matter of which it consists, translated and recast, with a continuation to the present time, would form a useful addition to our literature. There is also an octave volume, published in 1729, by John le Neve, containing lives of all the Pro- 

testant archbishops, but written in a dry and uninteresting manner. Of particular lives there are many, by Strype and others; many of the persons who have held this high digni- 

ity having been distinguished by eminent personal qual- 

ities, as well as by the exalted station they have occupied.

St. Andrew's is to Scotland what Canterbury is to Eng- 

land; and while the episcopal form and order of the church existed in that country, it was the seat of the arch- 

bishop, though till 1470, when the pope granted him the title, he was known only as the Episcopal Maximus Scots. In 1491, the bishop of Glasgow obtained the title of arch- 

bishop, and had three bishops placed as suffragans under him.

In Ireland there are four archbishops, Armagh, Dublin, Tuam, and Cashel. Two of these, Tuam and Cashel are, by the Act 3 and 4 Will. IV., c. 37, to be reduced to bishoprics within six months from the time that the provisions of the bishops of Ireland and Scotland may be found in that useful book for ready reference the Political Register, by Robert Beaton, Esq., of which there are two editions.

To enumerate all the archbishops and archbishops' coronations, to whom the rights and office of archbishop are attributed would extend this article to an unreasonable length. The
principle exists in all Catholic countries, that there shall be certain bishops who have a superiority over the rest, forming the persons next in dignity to the great pastor pastorum of the church, and that the power subsisting by each, for these ecclesiastical distributions of kingdoms were not made with foresight, and on a regular plan, but followed the accidents which attended the early fortunes of the Christian church. But, of the archbishops, some of the principal enjoyed no small portion of political independence and power. Three of them, viz. those of Treves, Cologne, and Mentz, were electors of the empire. In France, under the old regime, there were eighteen archbishoprics, all of which, except Cambrai, Archbischoepis, founded during the second, third, and fourth centuries; the foundation of the archbishoprhip of Cambrai was referred to the sixth century. The French have a very large and splendid work, entitled Guilia Christiana, containing an impartial survey of the history of each province, and of the several subordinate sees comprehended in it, and also of the abbeys and other religious foundations, with lives of all the prelates drawn up with the most critical exactness.

The word suffragan, used in this article, may require some explanation. A suffragan, in the more ordinary sense of the term, is a kind of titular bishop, a person appointed to assist the bishop in the discharge of episcopal duties; and among them are included those who were entitled to the rank of King Henry VIII. To the introduction of a considerable number of suffragan bishops of this class, and some persons who were actually consecrated. But every bishop within his province is sometimes spoken of as a suffragan of the archbishop, and, in fact, little thought has been raised respecting the origin of the word suffragan, which is by some supposed to be connected with suffragers or votes, as if the bishops were the voters in ecclesiastical assemblies; but more probably, if connected with suffragat, at all, the term has a reference to their claiming to vote in the election of the archbishop. A great question respecting the right of election of an Archbishop of Canterbury, between the suffragans of his province and the canons of Canterbury, arose in the time of King John, and is a principal occurrence in the contest which he waged with the pope and the church.

ARCHDEACON. In contemplating the character and office of the bishop in the early ages of the church, we are not to regard him as a solitary person acting alone and without advice. He had a species of clerical council around him, persons who lived a kind of collegiate life in buildings attached to the great cathedral church, each of whom, or at least several of whom, possessed distinct offices, such as those of chancellor, treasurer, precentor, and the like. These persons are now often called canons; but the most general name by which they are to be known, as the institution existed in remote ages, is deacon. A deacon was a person whose practice was to assist the bishop in the disguise of the diocese, especially when the bishop required particular and authentic information, and to report to the bishop the actual state of things. Hence it was, that the archdeacon was spoken of by very early Christian writers as being the bishop’s eye; and from this power of inspection and report the transition was easy to the delegation to him of a portion of episcopal authority, and empowering him to proceed to reform and redress, as well as to observe and report.

If this is a just account of the origin of the archdeacon’s power, it is manifest that originally the power would be extended out over the whole of a diocese; but at present it is confined within the archdeaconry. In the work of the Valor Ecclesiastieus of King Henry VIII., there are fifty-four archdeaconries or districts through which the visitatorial and corrective power of an archdeacon extends. This distribution of the dioceses into archdeaconries cannot be assigned to any certain period; but the common opinion is, that it was made some time before the conquest. Each of these districts, namely, archdeaconries bearing the same name and certainty as other and larger districts are assigned to the bishops and archbishops; and the archdeaconries are entitled to certain annual payments, under the name of tithes and vicarages, from the benefices within their archdeaconries.

As the archdeacon in ancient times intruded upon the choriposicus, so in recent times has he extinguished the authority and destroyed almost the name of another officer of the churches, namely, the deanery. The archdeaconries are still subdivided into deaneries, and it is usual for the archdeacon when he holds his visitations to summon the clergy of each deanery to meet him at the chief town of the deanery. Formerly, over each of the deaneries a subordinate officer, called a dean, presided, whose duty it was to observe and report, if he had not even power to correct and reform; but the office has been laid aside in some dioceses, though in others it has been re-established. But where it has been superseded, the duties devolve upon the archdeacon. It may be added, that though the office of rural dean has been found extremely useful, no emolument whatever is attached to it.

The archdeacons are nominated by the respective bishops. Their duty now is to visit their archdeaconries from time to time; to see that the churches are kept in repair, and that everything is done conformably to the canons and consistently with the decent and orderly performance of public worship; also to keep a proper register of births, marriages, and deaths; to punish the warden of matter of public scandal. They have the power in their courts to enforce reform or to punish the contumacious; an appeal, however, always lies to the superior court of the bishop.

In the revenue attached to the office of archdeacon, we see the inconvenience which attends fixed money payments in connexion with offices which are designed to have perpetual endurance. It arises chiefly from pensions paid by the incumbents. These pensions originally bore no connectible ratio to the whole value of the benefice, and formed a sufficient income for an active and useful officer of the church; but now, by the great change which has taken place in the value of money, the payments are little more than nominal, and the whole income of the archdeacons is very inconsiderable. The office, therefore, is generally held by persons who have also benefices or other preferment in the church.

Catalogue of the Kings of England, such as archdeacons may be found in a book entitled Festi Ecclesiastie Anglonum, by John le Neve.

ARCHELAUS, a Greek name composed of two words, meaning rule and people. Moreri has distinct articles on the subject. As an English word, it means a king, and we find a list of authors so called, in the index to Fabricius’ Bibliotheca Graeca, with some account of them in the body of the work. We shall not notice.

ARCHELAUS, king of Sparta, known only as one of the reigning kings when Lycurgus remodelled the constitution.

2. ARCHELAUS, son of Perdiccas, king of Macedon, who succeeded his father B.C. 413 (Clinton), early in the year. The chronology of his reign has been a subject of controversy; and some writers have erroneously supposed that he was succeeded by a son of the same name. Not much is known of him; the most certain facts are comprised in one of the following instances. He was the son of Perdiccas, having become king, built the fortifications now in the land, and cut straight roads, and set the military affairs of the nation on a better footing, as to the provision of arms, horses, and other equipments, than all the eight kings who had been after him (ibid. ii. 10). He was reconciled with the history of Athens through one event, the revolt of Pydna, a valuable sea-port of Macedonia, towards the close of the Peloponnesian war. He besieged that town, and took it B.C. 413, and extinguished the last vestiges of the confederacy, by rendering it harder to call in foreign aid, he removed the city farther inland by a distance of twenty stadia, about two miles. These scanty indications seem to point him out as a wise and useful prince. Though he improved the military state of the country, he seems to have cultivated peace, for the only war in which we know him to have been engaged, is that for the reduction of Pydna: the few other notices of his reign refer either to his private character, or
to his patronage of arts and literature. The tragic poet Euripides resided for some time at his court, and died there. Plato is said to have been 'very dear' to him; and he sent a pressing invitation to Socrates, who declined to accept it. Zeuxis visited and executed many pictures for him, which already in his lifetime became objects of great resort for strangers. He established games at Dium in honour of Jupiter and the nine Muses, which, from the description, 'magnificent religious festivals and dramatic contests' (Boriov, s.v. Academicians), and it is probable that in consequence he became a place of great resort for strangers. He established games at Dium in honour of Jupiter and the nine Muses, which, from the description, 'magnificent religious festivals and dramatic contests' (Boriov, s.v. Academicians), and it is probable that in consequence he became a place of great resort for strangers. He established games at Dium in honour of Jupiter and the nine Muses, which, from the description, 'magnificent religious festivals and dramatic contests' (Boriov, s.v. Academicians), and it is probable that in consequence he became a place of great resort for strangers.

The character of this prince, however, has been drawn in darker colours by Plato, who says, that Archelaus was of illegitimate birth, the son of Perdiccas by a slave, and that he gained the kingdom by a series of murders. (Gorg. 471, vol. iii. p. 209, ed. Priestley.) His private character was open to various imputations, for which the reader who is curious on this head may consult Bayle; and there is the tradition that he lost his throne by a murder in his bed. (Polyb. vii. 22.)

3. ARCHELAUS, an eminently general in the service of Mithridates, king of Pontus, and the opponent of Sylla when the Mithridatic war was carried on in Greece. In the celebrated siege of Athens, when that city was taken by Sylla, he threw himself into the Peiraeus, and defended it obstinately. Compelled at last to evacuate his stronghold, he retreated into Thessaly. He was twice defeated by Sylla, after which he received instructions from his master to make peace on the best terms which could be obtained. Being apprehensive of danger from the jealous temper of Mithridates, he went over to the Romans, after which he was well received. (See Appian, Mithridatica; Strabo, l. xii. and xvii.)

4. ARCHELAUS, son of the preceding, obtained the dignity of high-priest of Serapis, and was made a temple sacred to Enos, to which he attached a considerable tract of land and numerous slaves were annexed. He served in the expedition to Egypt of Gabinius, to re-establish Piennae Auletes on the throne then occupied by his daughter Berenice; but having gained the affections and the hand of Berenice under the false pretense that he was the son of Mithridates, he went over to her party, and after a six months' reign was slain in battle against the Romans.

5. ARCHELAUS, son of the above, succeeded him as high-priest of Comana, and was expelled by Caesar, B.C. 47, to make room for Nicomedes the Bithynian. Between his wife, Gliaphya, and Mark Antony, an intrigue is said to have subsisted; and from Antony.

6. ARCHELAUS, son of Archelaus and Gliaphya, received the kingdom of Cappadocia, B.C. 36. He fought on Antony's side at the battle of Actium, and yet had the rare good fortune to retain his kingdom under Augustus, and even to enlarge it by the acquisition of the Lycaonian, Bithynian, and part of Cilicia. Incurring the displeasure of Tiberius, as it is said, because he neglected the future emperor during his exile at Rhodes, he was summoned to Rome, where he died, A.D. 16, apparently by a natural death brought on by age and infirmity. He is said to have conspired against his grandson, on hearing that Archelaus bore the same name as his own, and thus acquired a claim to his throne. Archelaus, the Milesian, an eminent philosopher of the Ionic school, and the last who presided in it in direct succession from Thales. He succeeded Diogenes Apolloniates as the recognised leader of that school; and was the pupil of Anaxagoras, the predecessor of Diogenes. Removing to Athens, he left no one to occupy his chair; and it may be from this source that Plutarch (Periogr. viii. 16) tells us, that he presided in it, publicly what Anaxagoras only taught in private (for Anaxagoras clearly taught the same or similar doctrines before him), that Archelaus is said to have transferred the Ionic school of philosophy to Athens, where he became celebrated and Socrates and others are said to have numbered among his hearers. He was called 'physicus,' either because physical doctrines formed the most prominent part of his system, or because he was the first who openly taught them. The physical doctrines of the Ionic school; and Suidas says, that he composed a work on physics (συναντία φυσικά), his principal doctrines, so far as we are acquainted with them, are these:

The principles of all things he taught to be air and infinity (τὸ ἀείντων). What he meant by infinity is a question which Brucker, in his history of ancient philosophy, professes himself unable to decide. Some, however (as Plutarch, Periogr. viii. 1.), say that he supposed infinite air, by its rarefaction and condensation, to be the cause of all things.

The principle of motion he defined to be the mutual succession of hot and cold: the hot being in motion, and the cold stationary.

The sun he thought to be the largest of the stars; the earth round or egg-shaped, and in the centre of the universe.

He taught that men and animals were originally generated out of mud or slime by the heat of the earth, and he attributed mind to both alike.

He taught, like his master, Anaxagoras, that everything was made up of small parts similar to itself as wood of atoms of wood, metal of atoms of metal, bone of atoms of bone, etc.

Speech he defined to be motion of the air; but this correct view is also attributed to Anaxagoras.

He maintained the dangerous doctrine, that just and unjust are produced by the same law, nothing is either one or the other. It appears probable that by law he meant solely human institutions; but we do not know enough of his doctrine to assert positively that he meant to exclude a moral law of conscience derived from the Deity.

Archelaus seems to have commenced teaching at Athens about B.C. 450, in the interval between the first and second visit of Anaxagoras to that city (see Clinton on that year); but the dates of his birth and death we do not find clearly laid down. (Diog. Laert.; Brucker, Hist. Philos. vol. i. p. 518; Fabricius, Bibl. Gr.)

ARCHELAUS, bishop of Carrhæ in Mesopotamia, is remarkable only for his dispute with the heretic, Manes, about A.D. 278. He published an exposition and a refutation entitled Acta Disputationis, &c., in Syriac, which were translated into Greek by Hesychius. A fragment of this work is extant, edited by Valesius, in the notes to his Socrates (pp. 197, 292, lib. iv. c. 29); and again in a more complete form by Zaccagnius, in his 'Collectanea Monumentorum veterum Ecclesiae Graecae,' Rom. 1698. (Fabricius, Bibl. Gr.)

ARCHELAUS, the second son of the fifth wife of Herod the Great; his mother, Malthakha, was a Samaritan. His father's last will declared him heir to the throne. Immediately after the death of Herod, A.D. 4, he exercised the regal power, but did not assume the title till his nomination should be confirmed by the Roman emperor. As soon as he had celebrated the obsequies of his father, he received the homage of the people. The Jewish nation having long groaned under the yoke of Herod, received with joy the fair promises which the regency of Archelaus seemed to indicate the commencement of his reign, from the policy of Archelaus. But before he received the imperial sanction to his authority, he gave abundant proof of a temper as cruel, and a purpose as tyrannical, as those which had characterized the reign of his predecessor. On the feast of the Passover, a number of fictitious Jews stationed themselves in the temple, and instigated the populace to demand that Archelaus should avenge the death of two favourite teachers who were executed during Herod's reign, and murder some templiers. He, with the assistance of his guards, seized the ringleaders, but the rabble killed most of the soldiers. Upon
this he employed the whole force of his arms against the rioters, and 3000 of them were massacred. The rest escaped to the neighborhood of Antipas who presented himself in person before Augustus at Rome, and solicited the ratification of his power on the grounds of being the successor appointed by his father, and of his attachment to the Roman cause. He was, however, repulsed by many members of his family, who produced a former testament of Herod, in which Antipas was named as heir to the throne. Petitions against his appointment were also presented to the emperor by the Jews, and the question was committed to the confirmation of the authority of Archelaus, on the ground of his having already exercised injustice and cruelty, and they requested an alteration in the form of government. Archelaus was also accused of retaining the legacies of Herod. The Jews, however, had attempted to consider that it would be impossible to accede to the demands of the Jews, but he placed only the districts of Judaea Proper, Idumaea, and Samaria, forming about half of the dominions of Herod, under the government of Archelaus. The rest, with some small exceptions, was divided between Herod Antipas and Philip. These three princes were not called kings but ethnarchs, and their territories were not called kingdoms but ethnarchies. Archelaus built the city called Philadelphia from a foundation of Josephus (ed. Hudson, i. 865), that Archelaus was built before the tenth year of Archelaus's reign. He married Philopatra, widow of his brother Alexander, by whom she had children: this was a direct violation of the Jewish laws. Israel was, indeed, a country under two tyrants: one, the emperor of Rome, under whose administration, in the tenth year of the reign of Archelaus the Jews again appealed to Augustus. Their complaints appearing well founded, and being accompanied by accounts of frequent insurrections, the emperor dispossessed Archelaus of his authority, banished him to Vienna in Gaul, and confiscated his property. It is supposed that he ended his days in the place of his exile, leaving no posteriority.

To understand the history of Archelaus in connexion with the preceding and subsequent circumstances, the reader must refer to Josephus, On the Jewish War, from book i. chapter 28, to book ii. chapter 8; and the Antiquiti, book xvii. Compare ἐνιαυτόν ἐν θρόνῳ ἔτει, ed. Breithaupt, v. 35, from page 497 to page 498, and also 564.

ARCHENHOLTZ, JOHANN WILHELM VON, was born at Danzig in 1745. He entered the Prussian army, in which he served during the whole of the seven years' war, and was made a captain. He afterwards retired from the service, and travelled over a considerable part of Europe, and at last settled at Hamburgh, where he published several works, which became very popular in Germany. The first work that established his literary reputation was his Archæologia Britannica published in 1771, in which he did not the journal of a tour, but a methodical description of the two countries, especially with regard to their social and moral features, and their political institutions. The part concerning England is the most elaborate, and may be considered a singular instance of the universal acceptance of this country given to a foreigner. Archenholtz had visited England repeatedly and stayed there nearly six years between 1779 to 1775. He had been likewise several times in Italy, and had resided there about three years. He dedicated his book to his friend Wieland, who was then at Weimar. The work went through several editions, and was translated into French. In the preface to the second German edition, in 1787, Archenholtz referred to the changes of injustice and asperity towards Italy with which he had been reproached. In fact he had placed in juxtaposition two countries widely dissimilar; he had viewed Italy with the eye of a political and moral philosopher, rather than with that of a politician, and was acquainted with the details of government, and the point of view which he chose was the most unfavourable to that country. Italy has changed considerably since that time, and many of Archenholtz's observations are no longer applicable. A series of aspersions is more to the taste of a malicious, side-displeased many persons on the continent; he cannot, however, be called a blind admirer, for he points out many faults in the English institutions at that period, and exposes prevailing prejudices and the vices and follies of London. The next work of Archenholtz was A History of the Seven Years' War, in which he collected the information scattered through many memoirs and records of those memorable campaigns, and especially consulted the valuable work of Major Tempelhoff of the Prussian artillery, Ger-
history of many different nations; but some people, the antient Britons for instance, did not use the bow. The first notice which we find of it is in Genesis (xxii. 20), where it is said that Ishmael the son of Abraham 'dwelt in the wilderness and became an archer': a bow-shot too is mentioned in an earlier verse of the same chapter as a measure of distance. In the Greek mythology we find Apollo armed with the bow and arrow (Homer, Iliad, i. 45), and Hercules also, as described in the Odyssey (xi. 606). The use of these weapons we may therefore conclude to be of very high antiquity among the Greeks. In the war of Troy, the main force of the Greeks appears to have consisted of soldiers who had heavy defensive armour, but the soldiers of Phocietes were archers. The Cretans maintained their reputation as skilful bowmen to a late period in their history; and we find Meriones, the companion of the Cretan king Idomeneus, carrying off the prize from Teucer himself (Iliad, xxii. 681). Teucer, the brother of Ajax, who came from the island of Salamis, excelled in the use of the bow and arrow, which appear however to have been considered less honourable weapons than the spear and sword. Ulysses in the Iliad fights with the spear and sword, but in the Odyssey we find the strength of the suitors tested by the bow which Ulysses had left at home, and which he afterwards used against his domestic enemies.

In the later times of Greece, archers formed a part of the light-armed troops, in the same manner as the Sagittarii among the Romans afterwards formed a part of the Velites. Procopius records it as a great improvement when the Roman auxiliaries were instructed to draw the right hand to the ear. The bow was a part of their equipment, even after the time of the Antonines, as we see in the representations of the sea-fight on the walls of Medinet-Habou, at Thebes in Egypt. (Egypt., Antiq., vol. ii.) It was also, as we learn from Procopius, the fashion with the antient Persians.

The time when the use of the long-bow commenced in England, as a military weapon, is unknown. That which the Normans used at the battle of Hastings was the arbalest or cross-bow. In the reign of Henry II. we find several facts recorded which show the continuance of the use of the cross-bow; and in that of Henry III. we find cross-bowmen forming the vanguard of the army. As a military weapon of England, the arbalest, in all probability, was last used at the battle of Bosworth in 1485, though as late as 1572 Queen Elizabeth engaged by treaty to supply the King of France with 6000 men, armed partly with long, partly with short bows. It was also used on the Continent in the wars of the sixteenth century.

From the reign of Edward II. the mention of the long-bow becomes frequent in our history. At Crécy, at Poictiers, and at Agincourt, as well as in several battles which were gained over the Scotch, the victory is ascribed to the English bowmen; and it is particularly noticed that at Crécy the rain, which had slackened the strings of the Genoese cross-bows, had not weakened the effect of the long-bows which our countrymen used. Edward III. enjoined the use of the long-bow in two precepts addressed to the sheriffs of counties; and in the reign of Richard II. an act was passed......
memorating ancient distances about 800 yards. The Baron de Tott says, in his Memoirs, Paris, 1783, tom. ii. p. 107, 'Les empereurs Tures ont eu presque tous la vanité de pré-
parer et de dresser des armées qui rivalisaient avec les plus grandes de
leurs empereurs have had the vanity of wishing to acquire this kind of celebrity.'

Aescham has enumerated fifteen sorts of wood, of which arrows were made in England in his time, namely, bristle, oak, service-tree, alder, blackthorn, beech, elder, aspe, and salow. Of these, asp and ash were preferred to the rest, the one for target-shooting, the other for war. Whistling arrows have been once used on fields of battle of the time of Edward IV. They were chiefly used, it is believed, for giving signals in the night. The Chinese have used whistling arrows from time immemorial. The arrows shot from cross-bows were called quarrels, or bolts. They were usually headed with a large square pyramid of iron; but sometimes other forms given to them.

For many of the materials of this article, we are indebted to Barrington's Observations on the Practice of Archery in England, printed in the Archaeologia; and to the late Mrs. Banks's Manuscript Collections on Archery, preserved in the British Museum.

ARCHES, COURT OF, is the supreme court of appeal in the archbishopric of Canterbury. It derives its name from its residence in the Arches of the Temple, commonly called the Arches of the Lawyers. The term Arches, from the Latin arcus, bow, was called the Arches in 1189, by Henry the Second's inquisition, to distinguish the court from the preceding one. The court consists of a bishop, who is the chief and ordinary jurisdiction in all spiritual causes arising within the province of Canterbury, and it has original jurisdiction in substantia of legacy given by wills proved in the prerogative court of that province. The Dean and Chapter of the Arches is the Court of Chancery of Doctors of Law practising in the Ecclesiastical and Admiralty Courts, incorporated by royal charter in 1688, and the advocates and proctors who practise in these courts receive their admission in the Arches Court. The judge is also a general appellate jurisdiction in ecclesiastical causes arising within the province of Canterbury, and it has original jurisdiction in substantia of legacy given by wills proved in the prerogative court of that province. The Dean and Chapter of the Arches is the Court of Chancery of Doctors of Law practising in the Ecclesiastical and Admiralty Courts, incorporated by royal charter in 1688, and the advocates and proctors who practise in these courts receive their admission in the Arches Court. The judge is also a general appellate jurisdiction in ecclesiastical causes arising within the province of Canterbury, and it has original jurisdiction in substantia of legacy given by wills proved in the prerogative court of that province. The Dean and Chapter of the Arches is the Court of Chancery of Doctors of Law practising in the Ecclesiastical and Admiralty Courts, incorporated by royal charter in 1688, and the advocates and proctors who practise in these courts receive their admission in the Arches Court. The judge is also a general appellate jurisdiction in ecclesiastical causes arising within the province of Canterbury, and it has original jurisdiction in substantio
than a fly preserved in amber: nor are we inclined to think, though he was the intimate friend of many illustrious men at Rome, that the peculiar acquirements and the refined and rhetoric (Arch. c. 11), that his talents were of that high order which Cicero would have us believe. He had undertaken to celebrate, in verse, the grand event in the orator's history—the consilium of Catiline—and nothing more was required to add the laurel wreath to his laurels. So, when he came to Rome in the consulship of Marius and Lutatius Catulus, b.c. 102, and lost no time in recommending himself to these leading persons by a poem in celebration of their victories over their enemies. It was, in fact, the poetic laurel of those days: he was the intimate friend of Lucullus, and we find him chantiing the praises of that luxurious Roman in a poem on the Mithridatic war. It was chiefly the influence of Lucullus that he was admitted into the Roman Senate, and that he was appointed consul of the prosperous and powerful Greek cities in the south of Italy, and one whose citizens were entitled to all the privileges of Romans. It was thus that Archias became a naturalized citizen of Rome. Why a certain Gratius should have contested this right, we have no means of discovering; but as the public archives of Heraclea had been destroyed by fire, Archias was unable to produce any legal document in proof of his claim. The result of the trial, which took place at least after the consilium of Catulus, was in favor of Archias, and he was permitted to produce the registry that the jury resisted the eloquent harangue of the orator and the influence of the leading men of Rome. If we could be certain that the epigrams published under his name, in the Anthisucia Orac. oeo, were his productions, we should feel more certain in our conviction. They are in general below mediocrity, but as there were several of the same name as the poet, we cannot decide to whom they really belong. These epigrams have been published separately by Ullius, Animadvers. Histor. et Crit. in C. Ort. pro Archia, Erfurt, 1737; and by Hubelmann, in his edition of Cicero's Orationes for Archias, Lemos, 1800, 8vo. We may observe, that lately an attempt has been made to prove that this oration of Cicero in defense of Archias is not genuine, but that the oration was written by Angelo Mai, in the Ambrosian library at Milan, of a commentary on the oration by Aeneas Pedanius, which flourished a.d. 30, puts the matter beyond any reasonable doubt. (See the work to which we allude by Schroter, Oratio qua vulgo furta pro Archia rec. suaeque Observationes adjecit. Lips. 1818; and the opposite view of the question by Platz, in the Krit. Bibliothek von Seebode, 1820.)

ARCHIAC (in Greek αρχιάκος), an honorary distinction bestowed on Greeks in the times of the Roman emperors, and still employed in some of the continental countries. Physicians generally occupied a very subordinate station in Rome during the republican period: in fact, no Roman was permitted to practice the peculiar art of a physician at that time; and the Greek physicians who went to Rome were not at first favourably received. Julius Cesar at length bestowed the rights of Roman citizenship on the foreign physicians practising at Rome; and the Emperor Augustus, after his recovery from a dangerous illness, not only conferred on his own physician, Antonius Musa, the honours of knighthood, but is said to have exempted all physicians from the payment of taxes and other public burdens. The Emperor Commodus gave the title Archiacer (chief of the physicians) to his medical attendant, Andromachus the elder, well known as the inventor of a celebrated compound preparation called Therica. It is probable that the Emperor only intended to express, by this title, the confidence he had in the peculiar skill of his physicians. Thus, after that, soon afterwards, the Archiacer were charged with some kind of superstition over the medical profession. Thus Gulin says of Andromachus: "It appears to me that he was considered as a kind of medicine, or, in Latin, superinus medicus, 'superintendent of the physicians.' At a later period, however, the rank or office of the Archiacer seems to have undergone some change: it was invested with a dignity understood, viz., the Archiacer of cities, and those of the court. The first law regarding the Archiacer of cities (Archiaci populares) was given by Antoninus Fuscus. He ordered each such city that had Archiacer to have ten physicians, distinguished by the above name, and wholly exempted from the payment of taxes and public burdens: thus it appears that the exemption of all practitioners, if ever it existed, was found too extensive a privilege. At Rome, there were fourteen Archiacer appointed by the people for the service of the city, besides two for the vestal virgins, and another for the gymnasia: they were elected by the citizens and proprietors, and approved by their colleagues. In later times, the Archiacer of a higher rank appear to have had the sanction of the emperor; and it was not improbable that this sort of exemption was required for their admission. Besides enjoying the privileges alluded to, the Archiacer derived from the towns various remuneration in kind (annuaria commoda), as well as that of the poor patients gratuitously, but in treating other persons they were authorized to take fees like their professional brethren. They formed medical committees or colleges in each city, and superintended the public health, and the state of the medical profession, and the like. They were the priests of the healing art and of the fountains, the temple of which was built in the Campus Martius, and dedicated to Diana Curtila, the goddess of health. Thus a decree of Constantine the Great says, "We order rewards and salaries to be given to them, that they may the more readily imbue many pupils with liberal studies and the said arts." There is a variety of laws relative to the Archiacer, shewing that they were the members of the medical profession as deserving and requiring the attention and protecting care of government. The physicians attached to the imperial court took the title of court physician (archiacer militari), and were usually invested with certain rights, privileges, and distinctions of rank, which became more important during the reigns of the later emperors, when strict rules of precedence were established for all persons connected with the court and government. The Council of the Archiacer (archiaceres) was equal in rank to the dukes and to the vicars of the emperor. In modern times, the name of Archiacer has, in imitation of the antient fashion, sometimes been assumed by physicians holding public appointments in cities, but more frequently by the physicians of kings and princes. In Sweden and Denmark, however, the dignity of Archiacer still exists, as the highest honour conferred on medical men: in Sweden there are only two Archiacer, who act as physicians to the king. ARCHIDAMUS. Five kings of Sparta are known to us by this name. They were of the royal line of the Procleides, and were not the least distinguished of their family. The first lived before the historical age of Sparta, and his name, mentioned by Herodotus (vii. 121), is the only memorial left of his existence.

ARCHIDAMUS II., son of Zeuxibamus, succeeded to the throne when his grandfather, Leuctrichus, was banished from the country for some suspicion of emigration proceedings in Teissiax to be influenced by a bribe from his opponents. Archidamus reigned from b.c. 469 to 457; and his character, as drawn by Thucydides and Diodorus, exhibits the same tenacity of purpose, and foemen; and foresight, steadiness of purpose, and gravity of deportment, are the more prominent qualities which he displays. It was in the fourth year of his reign (b.c. 464) that Sparta was nearly annihilated by the violence of an earthquake, an opportunity which the Messenians did not fail joyously to seize, with the hope of regaining their independence. The presence of mind displayed by Archidamus on this occasion saved what remained of the city. He was soon after again king of Sparta, but this time for ten years; nor does his name again appear till we find him pleading the cause of peace in the important council held by the Lacedemonians before they resolved on the Peloponnesian war. His voice was not listened to by the Athenians and Messenians, and a declaration of war was the result of their deliberation (b.c. 431). So much confidence, however, had they that he would perform his duty, that they placed him at the head of the troops to be led against the Athenians. He was now fiftieth year of age. He was not an orator, but a solid and profound man, with a sort of disquisitions on the art of warfare, and a readiness to notice his proceedings in the war, as they had little effect in deciding the contest. He was succeeded by his son Agis II., probably in b.c. 425. After this, Archidamus is silent. ARCHIDAMUS III., the son of the celebrated Agesilaus, succeeded his father b.c. 361, and died b.c. 338. We find him in command of the Spartan troops during his
father's lifetime, &c. 367, and gaining a battle against the Arcadians and Argelians, which is known in history as the Arcadian victory (φρυς δασφερείς). Not one of the Spartan army was left alive as a result of this disastrous defeat, however, employed for the purpose of deepening and improving the tints of other dyes, and it imparts a bloom which it is difficult to obtain from other substances.

ARCHIL (also called ORCHIL, in Chambers's Dict. of Arts and Sciences), litmus, or tournesol, is a blue dye procured from the roesia tinctoria and ceanora tartarea, which are indigenous especially in the Canaries and Cape Verde Islands. The colouring matter of these plants appears to be a peculiar vegetable principle which has been called erythrone: it may be extracted either by means of alcohol or ammonia, but the latter is employed by those who manufacture the colour, which is generally sold in small flat pieces, and known by the name of litmus.

The blue colour of litmus is soluble in water and in alcohol: a strong infusion, when looked at in mass, is purple, but it turns blue on contact with pure hydrogen, caused by candle-light. Acids redden the colour of litmus, and this effect is produced even by the weakest of them, as carbolic acid and sulphuric acid; when mixed with the latter, and kept for some days in a closed vessel, the colour is lost, but by exposure to the air, or by boiling, the colour is restored. Sulphurous acid and the hypochlorites also bleach litmus. These effects appear to be the result of denitration, for the blue colour is restored by the action of oxygen.

Archil is employed by chemists to ascertain the presence of acids in solution: for this purpose, the infusion or spirituous tincture is sometimes used; generally, however, paper has been heated, or has been dried in a current of air, and dried is preferred, and well known by the name of litmus. The term is extensively employed for the purpose of deepening and improving the tints of other dyes, and it imparts a bloom which it is difficult to obtain from other substances.

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ARCHIMEDES, the most celebrated of the Greek geometers, and one of the few men whose writings form a standard epoch in the history of the progress of knowledge, was born in Syracuse in Sicily. He died at an advanced age in the year 287 B.C.: he was killed when that town was taken by the Romans under Marcellus, B.C. 212, aged seventy-five years. Euclid died about the time of the birth of Archimedes, and Apollonius of Perge was about forty years his junior. Eratosthenes was born about ten years before him.

The life of Archimedes was written, according to Eutocius, his commentator, by Heraclides, but the work is not come down to us, and that which is extant from the top of the mountain, or of the cliff, on which he brought together from the works of the principal are Polybius his contemporary, Livy, Plutarch, and Cicero. We, once for all, acknowledge our obligations to the life of Archimedes in Rivault's edition of his works, Paris, 1615; and also to that in M. Porcher's translation, Paris, 1689.

Archimedes was related to Hieron, the second prince of that name, who came to the throne of Syracuse when Archimedes was a very young man. The reign of this prince, including the time that his son Gelon also bore the royal title, lasted about fifty-five years, during the greater part of which Archimedes remained at Syracuse under their patronage. All that we know of his life during this period, independently of the results of his scientific labours which fill our minds, is contained in the following incidents. The well known story of Hieron's crown (or Gelon's crown, according to some) is as follows:—Hieron, or Gelon, had delivered a certain weight of gold to a workman, to be made into a votive crown; and it was mentioned, that the shield on which the weight, which was afterwards suspected to have been alloyed with silver. The king asked Archimedes how he might detect the cheat: the difficulty being to measure the bulk of the crown without melting it, a regular figure. For this, silver being, weight for weight, of greater bulk than gold, any alloy of the former, in place of an equal weight of the latter, would necessarily increase the bulk of the crown. While thinking on this matter, Archimedes went to bathe, and on stepping into the water, he perceived that he was as much afloat as if he were only in water. A very simple fact, that a quantity of water, of the same bulk as his body, must flow over before he could immerse himself. It immediately struck him that by immersing a weight of real gold, equal to that which the crown ought to have contained, in a vessel full of water, and observing how much water was left when the weight was taken out again, and by afterwards doing the same thing with the crown itself, he could ascertain whether the latter exceeded the former in bulk. In the words of Vitruvius, 'As soon as he had laid upon this method of detection, he did not want a moment, but jumped joyfully out of the bath, and running naked towards his own house, called out with a loud voice that he had found what they who suspected in the crown, by the water, c.4, c.4, I have found it, I have found it.' According to Proclus, Hieron declared that from that moment he could never refuse to believe anything that Archimedes told him. For the same reason he presided in designing the exact quantity of sand to be used for the construction of the sphere see GRAVITY, SPECIFIC.

The apothegm attributed to him, that if he had a point to stand upon, he could move the world, arose from his knowledge of the possible effects of machinery, and, however it might astonish a Greek of his day, would now readily be admitted to be as theoretically possible as it is practically impossible. He is reported to have astonished the court of Hiero by moving a large ship, more than usually loaded, with only the point of a pencil, and he made it a standing joke that on this occasion the king pressed him to exert himself in contriving machines for the defence of the city.

He is said to have travelled into Egypt, and while there, observing the necessity of raising the water of the Nile, proposed which the river did not reach, to have invented the screw which bears his name (see SCREW OF ARCHIMEDES). The same, in mentioning this screw, says it was employed to drain the holds of ships. Diodorus (i. 34) expounds a very curious story which he says was his invention. It is certain, from the preface to the Quadrature of the Parabola, that Conon of Alexandria was well known to Archimedes, which is some presumption in favour of it being true. After the death of Hieron, the misconduct of his successor Hieronymus, the son of Gelon, provoked a rebellion, in which he was killed. The successful party sided with the Carthaginians, and the Romans accordingly dispatched a land and naval armament against Syracuse under Appius and Marcellus. Among all the extraordinary stories which have been told of the siege, so much seems clear—that it lasted three years in spite of the utmost efforts of the besiegers—that the Syracuseans were so successfully defended by the machines constructed by Archimedes—and that the city, after the siege had been some time converted into a blockade, was finally taken by surprise, owing to the carelessness of the besiegers. In this dire strait, Polybius states that catapults and balistes of various sizes were successfully used against the enemy; that in their nearer approach they were called by arrows shot not only in rows, but through machines constructed in numerous places; that machines, which theRomans called stones of or lead of a weight not less than ten talents, discharged their contents upon the Roman engines, which had been previously caught by ropes; that iron hammers or hooks attached to chains, were thrown as to catch the prow of the vessel, which were then overturned by the besieged; and that the same machines were used to catch the assailants on the land side, and throw them to the ground. Livy and Plutarch reproduce the same account; but the curious story of setting the Roman ships on fire by mirrors is first mentioned by John Tzetzes and Zonaras, writers of the twelfth century, who cite Diodorus and Eratosthenes for the same thing. In the sixth century, though he mentions that Archimedes set the enemy's ships on fire, says it was done with πυρος, which may refer to any machine or contrivance throwing lighted materials. Lucian also, who lived in the second century, says that ships were set on fire, but states that it was effected. Montucut is of opinion that this report arose from the joining together of two others, namely, that Archimedes wrote a treatise on burning mirrors, and that he did burn the Roman ships; both very credible stories. But their junction must, in our opinion, rank with the many curious things said of Archimedes in later ages. It is difficult to say at what period after his death discoveries respecting an illustrious man will stop: thus, in 1615, was published a work of a less learned hand, which maintained that language the lives of the Sicilian martyrs, that of them, a lady named Lucia, was a descendant of Archimedes, and an ancestress of the Bourbons.

After the storming of Syracuse, Archimedes was killed by a Roman soldier, who did not know who he was; Marcellus, it is said, had given strict orders to preserve him alive. According to Valerius Maximus, when the soldier asked who he was, Archimedes, being intent upon a problem, begged that his diagram might not be disturbed; upon which the soldier put him to death. According to another account, he was in the act of carrying his instruments to Marcellus, when he was killed by some soldiers who mistook him for a spy. On being asked why he continued his request, expressed during his life, a sphere inscribed in a cylinder was engraved on his tomb, in memory of his discovery that the solid content of a sphere is exactly two-thirds that of the circumscribing cylinder. But it was afterwards found, covered with weeds, by Cicero, when he was residing in Sicily as questor.

The fame of Archimedes rests upon the extraordinary advances which he made, considering the time in which he lived, in pure geometry, in the theory of equilibrium, and in numerical approximation. In the first, by an axiom already mentioned (see Arc), and a similar one with respect to curved surfaces, and by the method of EXHAUSTIONS (which was also employed in Greek algebra), he made the first real approach to the differential calculus as can possibly be done without the aid of algebraic transformations. In the theory of mechanics, he was not only the first but the last of the antients who reduced anything to demonstration from evident principles; indeed, up to the time of Stevinus and Galileo, no further advance was made. We proceed to notice his writings, stating very briefly the most important of his own discoveries only. The works which have come down to us, of which the best is the Sphere and Cylinder, are:

1. Two Books on the Sphere and Cylinder. Here he finds the surface of a right cylinder, a right cone, and a sphere—that a hemisphere is double of a cone of the same base and altitude. He also describes the two-thirty-fifth same base and altitude—that the surface of the circumscribing cylinder (the bases included) is half as great again as the surface of the sphere, and consequently that the surface of the cylinder (not including the bases) is exactly
equal to that of the sphere—he also finds the surface of any spherical segment, and the solidity of a spherical sector. In the second book, he shows how 3 is a sphere equal to a given sphere, and how to cut it into segments having a given ratio; to make a segment equal, either in surface or solidity, to one, and similar to another, segment. Also he shows how to cut off a segment which shall have a given ratio to that which is inscribed.

2. On the Measurement of the Circle.—It is here shown that the area of a circle is equal to that of a triangle which has the circumference for its base and the radius for its altitude, and also that the circumference of the circle exceeds the three times the radius, by a line which is less than 10 parts out of 70, and greater than 10 parts out of 71, of the diameter. This is the celebrated approximation of Archimedes, and amounts to saying that the ratio of the circumference to the diameter lies between 3 1/7 and 3 10/71. It is now known to be 3 1/712 very nearly.

3. On Conoids and Spheroids.—By a conoid is meant the solid formed by the revolution of a parabola or hyperbola about its axis. Spheroid has the usual meaning. Archimedes here shows that a segment (or part cut off by a plane) of a paraboloid conoid is half as much again as its inscribed cone, whether the base be perpendicular to the axis or not, the axis of the conoid being the parallel to the principal axis of the cone. The character of the conoids is the same; different segments of the same conoid, having equal axes, are equal; or, more generally, that different segments of the same conoid are as the squares of their axes; because to find the ratio of the segment of an hyperboloid of one sheet to its inscribed conoid, having the centre of the spheroid in its base, is double of its inscribed cone; and generally, how to compare any spheroidal segment with its inscribed cone. In this treatise is also shown, probably for the first time, how to find the area of an ellipse, by means of that of a circle.

4. On Spirals.—The spiral of Archimedes, the method of forming which appears to have been suggested by his friend Conon, is thus made: a point moves uniformly along a straight line, which when light is set equal distances about a given point in it. Archimedes shows how to compare the areas described by the moving point in its various revolutions, and various other properties, which the little importance of the subject will excuse us from noticing. As an effort of geometry, it is, however, not inferior to the preceding, and it is one of the most difficult of his works.

5. Two Books on the Equilibrium and Centre of Gravity of Plane Surfaces.—The axiom on which Archimedes sets out is, that equal weights suspended at equal distances on opposite sides of a pivot are in equilibrium. He then shows the well-known property of the lever—given the centre of gravity of a whole plane, and of one of its parts, he can determine the lever—be it a straight line, or a curve—by which the weight of the centre of gravity of a parallelogram, triangle, and trapezium. In the second book he shows how to find the centre of gravity of a parabolic segment, or the difference between two segments of the same parabola, having different bases.

6. Pammmites, better known by its Latin name Arene-
ritus.—This is a mathematical toy, but abounds in curious information. It appears from it that Archimedes had written a system of numeration in a work addressed to one Zeuxippus, resembling that of modern times in having units of different orders carried to a great extent—that he approved of the system which he attributes to Aristarchus, which places the sun properly in the center of the system, instead of the earth—that he was aware of some attempts having been made to measure the earth, which, from their result, as stated by him, could hardly have been those of Eratosthenes—that no instru-
ment could have been by which the apparent diameter of the sun could be measured within 4°—and that plane trigonometry was totally unknown at that time. The object of the work is to oppose those who held that the grains of sand on the sea-shore are either infinite in number, or at least so numerous that they cannot all be counted. By a fall of the apparent diameter of the sun, and making arbitrary supposi-
tions as to how many times the real diameter is contained in the earth's distance, and this again in the sphere of the fixed stars, Archimedes shows that no number will admit the sphere of the diameter of the fixed stars to be greater than 10,000,000,000 of stadia. Then supposing a sta-
dium to be 10,000 finger breadths, and a sphere, which is only the 40th part of a finger-breath, to contain as many as 64,000 grains, Archimedes shows that the number of grains containing one of these spheres is less than 1 followed by 63 ciphers.

7. On the Quadrature of the Parabola.—Archimedes here shows that any segment of a parabola is fourth-thirds of a triangle, having the same base and the same altitude.

8. Two Books on Bodies Floating in a Fluid.—This work does not exist in Greek, but was translated by Tar-
aglia from a mutilated Latin manuscript; the first book was published in 1548, and both together in 1549. That Archimedes did write such a work is certain, from the testi-
mony of Strabo (Cassubon, p. 54). These two books contain the conditions of equilibrium of a floating body in general, and are implied to have been written preceding the postulates and the Two Books on the Sphere and a Cylinder; and of a conoid. It is less necessary to describe this book particularly than any other, because, the use of algebra excepted, it contains all the conditions of a modern work on the same subject.

There is also a book of Lemmas attributed to Archimedes, translated from the Arabic in 1659, and republished by Borelli in 1661. Both Archimedes and his commentator Eutocius refer to some such work; but the very common name of Lemmas has led some to doubt if this was the work in question.

The works of Archimedes are written in Doric Greek, the prevailing dialect in Sicily. The text is for the most part in tolerably good preservation; the style is clear, and has been considered between the Thracian and the Greek geometers. His books are mostly addressed to a friend named Dositheus. The demonstrations are long, but rigorous; and M. Peyrard, in calling Archimedes the Homer of geometry, does him a similar service which is perfectly admissible as to the strength of praise it conveys, if in no other point. The commentaries of Eutocius which have come down to us, are those on the Sphere and Cylinder, the Measurement of the Circle, and the Equilibrium of Planes.

We can only briefly touch upon several remaining points. It is known from Pтолемей that Archimedes observed or calculated several solstices, for the determination of the length of the year. He is said to have been the first who constructed a machine for representing the motions of the sun, moon, stars, and perhaps of the planets. The doubt is from Delambre, who does not, however, appear to have re-
membered that Cicero (Tusq. Quest.) says that Archimedes 1 tuvo, soles, quinque errantium, motus in sphera turi-
gaviti.' Pappus cites a treatise of Archimedes on the con-
struction of this sphere, as also does Proclus. A large num-
ber of works which have not come down to us is attributed to Archimedes; such as a treatise on Burning Mirrors, a treatise on the Parabola, published at Louvain in 1548. There is no great evi-
dence in favour of the genuineness of either. The antients attributed to him more than forty mechanical inventions; among which are the endless screw; the combination of pulleys; an hydraulic organ, according to Tartulian; a machine called the helix, or screw, for launching ships, ac-
cording to Athenæus; and a machine called loculus, which appears to have consisted of four pieces, by the putting together of which various objects could be framed, and which was used by boys as a sort of artificial memory. It is impossible to understand what is meant by such a description. This constant tendency to attribute inventions to Archimedes does not show the impression which his name left on posterity.

Among the principal editions of the works of Archimedes we must notice the partial edition of Taraglia, Venice, 1543; the two complete editions, contained in the obsta-
tus, accompanied by the commentary of Eutocius; the whole Greek and Latin, Basel, 1541. This last edition d-es not contain the treatise on Floating Bodies, nor the Lemmas. Vossius states that the manuscript which had been brought from Constantinople fell into a Portuguese library in Italy, and was afterwards conveyed into Germany by Regiomontanus. There is also an edition by Commandine, Venice, 1558, containing only part of his works; by Riviart, Paris, 1615, containing the Greek of Eutocius, in the complete edition, reduced to the modern language, only, the demonstrations being the Latin of Riviart, except in the Arenearius, which is complete; this edition has been much censured by several more modern editors, but Mon-

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tus and Vosains unites in speaking wall of 1; by Turelli, Oxford, 1792, the best, perhaps, of all. The last-mentioned edition was purchased by the University of Oxford after the death of the editor, and is the only one which contains the various readings. We have also the Latin translation of Borelli, 1661; the passage of Torelli, 1670; the whole of Olaus Magnus, 1655; an edition of which is lost by shipwreck except one copy, and which was reprinted in 1618; the abridgment of Barrow, in 1675; and finally, the French translation of Pouyart, Paris, 1689, undertaken at the request of the Institute of Turin, and the work of the Cosmopolitan Variety, which is by much the most convenient version which has yet appeared. A German translation of all the works of Archipede, made by Ernst Nixe, appeared at Stralsund in 1624, in 4to.

ARCHEPILAGO. This archipelago, as we have seen, is the collection of several islands, the chief of which is the Sicily, the name of which is generally known by this name, when not qualified by some word prefixed, contains those islands which lie between the shores of Greece and Asia Minor. There are, however, other groups so called in our charts, the principal of which are the Aleutian, Changos, Solomons, Dangare, Queen Adelaide's, Corea, Lombok, and Solomon's, the two last forming part of Polynesia. The origin of the term Archipelago appears rather doubtful; the second part of the term certainly is pelagius, the sea, a Gregory, and the first part is from the Greek archi, a chief, possibly a corruption of Argonaut. [See Argosian Sea.]

ARCHEPILAGO, ALEUTIAN, or FOX ISLANDS, an extensive group on the N.W. coast of America. [See Alaska.]

ARCHEPILAGO, CHAGOS, in the Indian Ocean, extends from the south end of Diego Garcia (or Chagoo) Island, in 7° 29' S. lat., to the north of Speaker's Bank, in 4° 40' S. lat. and from the meridian of 72° to 74° E. It is composed entirely of coral islands, of which Diego Garcia is the largest; they have all very deep water close to them, and are covered with tall coco-nut trees. These islands abound in land-crabs, green turtle, and have a plentiful variety of fish; fresh-water may be had by digging eights or ten feet deep. There is a port in Diego Garcia, which, however, is difficult of access. The tide rises from six to seven feet, and the current generally sets through the group to the N.W.

ARCHEPILAGO, DANGEROUS. This appellation has with good reason been given to a group of half-formed islands in the South Pacific Ocean, lying eastward of the Society Islands, and between the parallels of 14° and 26° south. They are exceedingly numerous, but they are nearly all of coral formation, and consist of narrow ribands of coral rock, generally describing a circular figure, and enclosing a lagoon, in many instances of great depth. These ribands rarely exceed an eighth of a mile in width. The inhabitants live very much on breadfruit, to which they all have the pandanus, and some the coco-nut tree on them. The eastern side is universally the better formed, and covered with vegetation: this is owing to the westerly current caused by the trade-wind, which deposits all floating substances, among which are the seeds of trees, on the eastern side of the island.

Salas Rock, Pitcairn Island, and Gambier's Group, are volcanic; and it may be presumed that the same confluence of heat and moisture has given rise to a formation on which to erect his stupendous structure. One island (Elizabeth) has attained a height of seventy or eighty feet, is formed of compact coral, and well covered with such stunted vegetation as may be expected from the absence of good soil. It has no lagoon, occasional instances occurring of small islands without one, though rarely. The surf, which breaks violently over them on all sides, is the best safeguard for ships; in the night it may be heard from six to eight miles, and the islets are sometimes called the S.E. tree, the wind, which however prevails nearly east, but in the winter months there are frequent and heavy gales from the westward. Fresh-water may be obtained by digging in the sandy beach. Many are inhabited, though evidently not by the same race. Canoes driven off the Society Islands have been the means of peopling some. There is a tide-rise of from three to three and a half feet, but the surf prevents the direction of the tide from being ascertained. Plovers, ringdoves, curlews, and sandlings, terns, tropical birds, and game of various sorts are found among them; and the specimens of shells are such as have been brought from various parts of the world.

ARCHEPILAGO, GRECIAN, includes all the islands situated in the north-eastern quarter of the Mediterranean sea; they are bounded by the shores of Roumelia (a province of Turkey, corresponding to the Attic Thrace) on the north, Asia Minor on the east, and the Negropont and Greece on the west, comprising a portion of sea which lies in the direction of N. by W. true, with a breadth of nearly 110 miles from Candia to the coast of Roumelia, and a breadth, from the Negropont to the Asiatic shore, of 100 miles.

This sea was called by the Greeks and Romans the Aegean Sea, and the islands were distributed between two chief groups: those to the westward, now considered as part of Europe, were called Cyclades, from their being supposed to lie in a somewhat circular form; the smaller and more southern islands along the Asiatic coast obtained the name of Sporades, or 'scattered islands.' Of the Cyclades the principal are—Santorin (1), Anafi (2), Strogoud (3), Polioandros (4), Sikinos (5), Nio (6), Amorgo (7), Milo (8), Argentiera (9), Siphon (10), Paros (11) with the small island of Antiparos near it, Naxia (12), Serpho (13), Syra (14), Rhenea (15), Leros (16), Hydra (17), and Euboea (18). Of the Sporades the principal are—Piscopi (22), Nisari (23), Cos (24), Calymna (25), Patmos (26), Nisaria (27). There are also on the Asiatic coast a large island of Samos (28), Sciso (29), and Paros (30). Further to the northward are Andros (31), Imbros (32), Samothrace (33), Tenedos (34), Miletus (35), Skyro (36), and the Skiatos (37) group off the Trikiti Channel. Many of these islands are of volcanic formation; others are composed almost entirely of limestone, and of which the Parian, from Paros, which was formerly most worked, is often mentioned by ancient writers. They exist almost in countless numbers; some are beautifully fertile and picturesque, though all the smaller islands are mere masses of rock, almost entirely destitute of vegetation. The productions of the islands are wine, oil, gum-resin, raisins, figs, silk, honey, wax, olives, and various fruits, especially the lemon and orange: cotton is grown in small quantities at Milo and other islands, and might be cultivated to a great extent. It is remarkable for its brilliant white hue. Some of the larger islands contain sulphur, alum, iron, and other minerals. An extensive sponge fishery has also been carried on. The islands are the resort of the Sporades, which are noted for their fine sponges. The fisheries are at so low an ebb, that commerce is confined chiefly to the interchange of articles of daily consumption, and is carried on principally in small kiffs, in which the fishers often one island is another. The islands are of always being able to reach a port in the event of being overtaken by bad weather. These kiffs are open boats, sharp at each end, and carrying one large spritsail, part of which is always drooping in the water. All the islands are thinly peopled, and some indeed may scarcely be considered inhabited. As their religion imposes on the people four lents a year, when meat may not be eaten, fish becomes more a necessity than a luxury, in consequence of which it is usually killed, either on the spot or for the fishers. There are, however, no regularly established fisheries; the supplies are obtained by any who think they can make a livelihood by fishing in their small boats: nets are most commonly used, and the fish caught are chiefly herring, milkfish, and mullet, both red and grey, which are large and well flavoured. The men are a fine, hardy, and athletic race, and as their insular position renders them necessarily habituated to the sea, they are justly considered good sailors. Their dress consists of a large shirt, and jacket, with a collar, very full breeches, with a red sash round the waist, a small red cap fitting close to the crown of the head, and shoes resembling our slippers: the legs and throat are generally bare; they wear moustachios, but never beards, and though the hair is usually long, the Albanians, yet the hair is made to lie back, and falls down the neck to a great length. The women are generally considered beautiful; in no part of Greece does the character and expression observable in the face of the
ancient statues so decidedly show itself, and especially among the Cyclades. The women's dress is very simple; the only peculiarity being a long jacket, generally trimmed with fur, and a red cap. When not employed in their household occupations, which are laborious, their time is taken up with spinning cotton, and knitting, or weaving.

Their religion, like that of their countrymen on the mainland, is of the established Greek church; and as they are very superstitious, almost every point of their islands has its little chapel dedicated to some saint, where the boatmen can offer up their prayers or thanksgivings. In many of the islands, however, Catholics are numerous. The difference of faith provokes much jealousy and hatred, and it is notorious that during the late war for independence, the Roman Catholic portion of the islanders inclined rather to the Turks, than to their own countrymen of the Greek church. This was more particularly the case at Tino and Miconi.

The mode of threshing is still that mentioned in Scripture—tredding out the corn by oxen yoked together and driven round a circular enclosure.

All the islands are high: the mountains have an average elevation of 1500 to 1800 feet, but Mount Elias of Milo rises to the height of 2036 feet above the sea. Many of the islands exhibit, in the remains of antiquity yet visible, traces of their former prosperity and importance.

The climate is more equal and temperate than that of the surrounding continents, the heats of summer being tempered by cool refreshing sea-breezes and prevailing northerly winds; even in the more northern islands the winter is never felt with such severity as on the neighbouring mainland. The N.E. or Etesian winds, called by the fishermen 'Meltem,' a corruption probably of mal tempo, blow with great fury, especially about the equinoxes; the general period of their duration is three days. The true scirocco, with its oppressive state of atmosphere, does not blow in the Archipelago; and it is curious to observe the sea-breezes taking the direction of the various gulfs and inlets, though differing several points in bearing. In winter the navigation of these seas is, to say the least, an anxious task, on account of the numerous islands and rocks, which occasion sudden flaws and eddies of winds, and a short, high, confused sea. A remarkable feature is the very great depth
of water: at the distance of less than a mile from the shore there is generally no bottom with 150 to 200 fathoms of line. The Ananes rocks, 10 miles south-west of Milo, and the Calyori, 30 miles west of the south point of Scio, rise up almost to the surface, though they were not seen by the Bouches. Throughout the Cyclades more especially, the Darendelles current is felt, and sets strong through the narrow channels between them; but to the north, along the coast of Euboea, the streams are due southward.

The rivers that empty themselves into the Archipelago are more deserving of notice from their classical associations than from their magnitude or commercial importance; indeed the south-western shores offer no river navigable even for small vessels. Those of Thessaly, those of Peleus, and Thrace, however, the Peneus, the Axios, the Smyrnis, and the Hebrus, admit the larger class of craft, though in all of them the mouths are much obstructed by shoals and sand-banks. On the north, the Hes- mus and Mesander are the chief rivers. The coasts around the Aegean are deeply indented with gulfs of considerable length, the principal of which are Nauplia, Egina, Egrios, Pirghi, Channel (leading to Zeetouni and Tailand), Salonica, Cassandra, Monte Santo, Contessa, Saros, Acharvi, Smyrna, Scala Nova, Hassen Kalesi, and Boood (or Cos). Some of these are separated from each other by remarkable peninsulas, especially those of Pallene, Sithonia, and Kassandra. The islands are vast and continuous throughout the world; the steep and almost inaccessible sides of the mountain descend abruptly into an unfathomable sea. See Atysos. Among the chief mountains in or near the Cyclades is the most noted Delphi in Euboea, the mountains bordering on the coast of Thessaly, Athens, and Elis in the island of Milo.

On the division of the Roman empire the islands formed a portion of the eastern dominion, and continued so till the year 1163, when the Venetians captured Andros, Lesbos, Samos, and Scio, in revenge for an attempted aggression of the Emperor Alexius on the territories of the republic. In 1207 an edict was issued at Venice, authorizing the nobles to equip armaments for the reconquest of portions of the empire. Several of the islands were thus taken possession of as private estates by the victorious adventurers; the most celebrated among whom was Marco Sanuto, who in the same year made himself master of the island of Naxos, with the title of Duke of Naxos. Having added to his conquest the islands of Paros, Antiparos, Santorin, Anaphi, Argentieri, Milo, Spina, and Polichandro, he asserted his independence of Venice, and assumed the more comprehensive title of Duke of the Archipelago. Some of the other islands were occasionally recaptured by the Greeks, but this dynasty continued uninterrupted in the same family for a period of nearly three centuries, till 1566, when, in consequence of those attacks, it was finally taken by the Turks. In 1662, the Turks, while sacking the island, allowed John Crispo, the then reigning duke, to retain his dominions on condition of becoming a vassal to the Porte. Barbarossa plundered the other islands which still remained appanages of Venetian noblemen. In 1667, the duchy of Leucus, the last of the Cyclades, having become a prisoner in the Seven Towers, a governor was appointed by the sultan, and all the islands then became united under the dominion of Solyman. It is singular that no institution worthy recording, and no monument of art, remain to preserve the remembrance of the long period of the ducal government.

In 1686, Morosini again laid some of the islands under tribute. The Venetians, though they were watered with the ducal dower, they again detached from the Ottoman dominion. The islands were, however, entirely freed from the Turkish presence by the expeditions of the Knights of Malta, who, making frequent descents, carried away slavery all the Mussulmans, Turks, Greeks, and Jews, and officers, leaving them in a manner independent, and masters of the land, subject only to a tribute levied as land and capitation taxes. For this purpose the captain general of the islands was usually employed to make an annual tour with the fleet in such force as to keep the knights in awe, and enforce the speedy collection of the taxes.

The important taxes of Candia, Cyprus, Corfu, Lesbos, Lemnos, Mitilin, Tenedos, and Thasos, were set apart for members of the imperial family; Nicaria and Samos, for the muifs; Andros, Tino, Scio, and Syros, for other officers of the divan. In 1776, the Russians became masters of some of the Cyclades, which they evacuated by treaty four years afterwards. They remained tributary to the Porte till the breaking out of the revolution in 1821, shortly after which most of them eagerly embraced the cause of liberty, and continued as such until the establishment of the Turkish empire. The intrepid behaviour in their small vessels against the Turkish fleet became the admiration of Europe, and contributed greatly towards the establishment of their national independence.

All the Cyclades are now a portion of the Greek kingdom, but most of the other islands still remain under the Turks. In many of the islands they build vessels, and in others they are more in the habit of ship-building; their ship planks are imported chiefly from Trieste. Their models are beautiful, but being hurriedly and slightly turned out, often with unseasoned wood, their vessels do not last long. The places rig is universal.

ARCHIPELAGO, CARIBBEAN. [See Antilles.] ARCHIPELAGO, COREAN, an extensive cluster of islands on the western coast of Corea, discovered by the Portuguese in 1580. They are all high mountains, which rise from the sea, and are well wooded to the summits. None of them appear to exceed three or four miles in length, but all are in some degree cultivated; the fields are divided by stone walls. From the tops of one of the highest 135 islands were counted, forming a circle a little over 8 miles. As we descended from each other. They appeared to be all inhabited, and the natives resembled those of the mainland of Corea; they cultivate corn and feed cattle for their own consumption, but subsist chiefly on fish; there are no domestic animals among them. The rise and fall of tide is considerable, but among so many islands the direction must of course be various. They extend from 34° to 36° 45' N. lat., and from 129° to 137° W. long. (HALL and M'CLOED. [See COREA.)

Besides these there are many groups of islands to which the term Archipelago is applied by some geographers; thus all the islands to the north and east of Madagascar, from Bourbon to the Seychelles, and from Rodriguez to the main, are called the Madagascar Archipelago; the islands of the Egyptian Archipelago. On the N.W. coast of America are small clusters, called George Third's, Prince of Wales's, and Pitt's Archipelagos [see COOK, VANCOUVER, P英Rous], and on the western coast of the Bermuse empire, near the Andamans, are two chains of small barren islands, called the Mergui and Tanasserim Archipelagos. The term has also been applied to the Philippines and many other groups. A list of twenty-six groups called Archipelagos is given in the Encyclopaedia Metaphysique (Geographie Physique), most of which, such as the Azores, Canaries, &c., are as properly called Archipelagos as those here noticed; but as they are generally known by other special names, and not by that of Archipelago, we prefer describing them as such, who, with the assistance of the archipelago in the sense here given, may still be used as proper names.

ARCHIPELAGO, GREAT CYCLADES, a group of large islands in the south Pacific, so called by the French navigator Bougainville; they received from Cook the name of New Hebrides, by which they are now generally known. [See NEW HEBRIDES]

ARCHIPELAGO, LACCADE, a group of low islands, opposite the Malabar coast, and separated from it by a channel 135 miles wide. They are surrounded by and interspersed with coral reefs, which are steep, with no soundings between them. Some of the islands are well inhabited and afford good fresh water; they abound in turtle, and are so low, that at a small distance the trees only appear above the surface of the sea. The reefs are of about six feet, but the tides are not regular, and the currents are very strong: the largest island is about six miles long and one broad. To the northward of the group is an extensive coral bank of twenty-five to thirty fathoms, also a reef of coral. It is 8° broad, and 100 fathoms in length and very narrow. The extent of the channel is from 100° to 150° 20' S. lat., and 73° to 74° 20' E. long. (Houborg.) [See LACCADES.]

ARCHIPELAGO, MESSENE, a small island, to the S.E. of New Guinea, about 400 miles in length, and 160 at its greatest breadth. The largest islands do not exceed thirty miles in length; they are very high and are covered with wood from the summit to the shore. They have coral reefs interspersed with coral reefs and islets, which are covered with cocoa-nut trees; these reefs are steep, like all others of the same formation. The current sets through the channels to the N.W. at the rate of about half a mile an

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hour. Some of the islands are populous and fertile, but the natives are warlike and treacherous, and are supposed to be cannibals: they are of middling stature, of a copper colour, with woolly hair: they tattoo, and go nearly naked, but are found to have a set of teeth to about the number of those in aromatic plants, as most of the articles obtained from the natives were highly scented. Their canoes, some of which are fifty feet long, have their sterns and sternposts prolonged to a great height, but, like the rest, are ornamented with bamboo and pigs, as are also the cabins. In battle the natives use slings chiefly, but also darts and tomahawks, and a wooden shield for defence. The group is contained between 9° 45' S. and 12° south lat., and 146° 50' and 15° 40' east long. (Boiguville, C. 11, p. 282.)

ARCHIPELAGO, MALDIVE, in the Indian ocean, to the S.W. of Ceylon, a chain of innumerable low islands and reefs, extending about 470 miles nearly on a meridian line. The large islands abound in coconuts, cocoa-nut trees, and are generally inhabited by a race of Hindoos, but most of the other islands are mere barren rocks and sand banks. The greatest breadth of the range is about twenty leagues; it is formed of large groups or clusters, called by the natives Atolls. An Atoll is a bank rising from an unformable depth on which islands and rocks are situated; these prevail generally round the margin of the bank, though many exist within the area thus formed, that is, the islands themselves do not extend as far as the main body of the same bank, which affords anchorage within the area. There are thirteen large Atolls from five to ten leagues in diameter, with several other detached islands and rocks in the channels that separate them. The archipelago is of wide extent, having no soundings till close to the reef, but within the reefs there is a moderate depth of water fit for anchorage. The currents set strong through the channels with the prevailing monsoon. The native boats, taking advantage of the monsoon, trade to Bengal in coir, cowries, &c., and return with rice, sugar, and piece goods. The geographical position is from lat. 7° 6' N. to 9° 40' S., long. 72° 48' to 73° 48' E. (Horsburgh.) [See MALDIVES.]

ARCHIPELAGO, FLINDERS ADELAIDE'S, on the S.W. coast of Patagonia, lies between Lord Nelson's Strait and the northern entrance to the Strait of Magalhaens on the western side. These islands are separated from the main land by an intricate channel, varying from two to five miles in breadth, called Smyth's Channel. They consist of numerous elevated islands with sharp rugged peaks and serrated ridges, separated by narrow and deep passages. Sir John Narborough touched here in 1670, and the S.W. island of the group still bears his name. This Archipelago is at present under examination; it is contained between 51° 50' and 52° 42' S. lat., and 74° 07' and 75° 10' W. long. (Horsburgh."

ARCHIPELAGO, RECHERCHE DE L', a very scattered and intricate labyrinth of reefs and islands on the south coast of New Holland. It is said to be inhabited, and does not exceed four miles in length: they are all barren and arid, producing little vegetation, and nothing esculent. They have attained some elevation from the accumulation of sand, like the opposite coast, this action giving a certain rendered dangerous. Water and wood, both in small quantities, may be procured on some of the islands; penguins, seals, and sharks are very numerous; the only quadruped seen by those who have visited the spot is the kangaroo. This group was named by D'Entrecasteaux in 1791, when the search of La Perouse: the largest and western portion of the islands lies off the bay of Espérance; the rest lie scattered to the eastward. The whole are included between the parallels 37° 35' 40' S. and 47° 30' south, and meridians of 121° 35' to 124° 9'E. (Australian Memoir; D'Entrecasteaux's Voyage.)

ARCHIPELAGO, SOLOMON'S, a chain of large islands, east of New Guinea: the islands are sixty miles in length; they are very high, and thickly wooded from the summit to the beach; they appear to be but thinly inhabited by different races, some very black and others copper-coloured; the former have soft woolly hair, the latter long and black; most of them are so poor that they have neither pens for their bodies, and both sexes paint their faces; the ears are pierced and the orifices distended by rings of different kinds, and an ornament is also worn through the septum of the nose. The men are armed with spears, and their copper colour in girdle round the waist. In war they use bows and arrows, spears, and clubs; shields made of wicker-work are also used as a defence. Their canoes are skilfully constructed of pieces neatly joined together; the head and stern are high, and in general ornamented with mother-of-pearl; some of them are between fifty and sixty feet in length, and about four wide. The inhabitants are treacherous, and said to be constantly at war with the neighbouring islands; they are supposed to be cannibals.

The group was first discovered by Alvaro de Mendana in 1567, and was again visited by M. de Surville 200 years later. The group was not surveyed, and undergone a survey, though frequently touched at by vessels during the last fifty years. Nothing is therefore known of their government, religion, or customs; the wild boar appears common, with locuries, cockatoos, and aquatic birds: there are also small numbers of wild goats and a few antelopes. The geographical position is from lat. 5° to 11° S., long. 154° 40' to 162° 20' E. They lie parallel to the Louisiades in a N.N.W. direction, and are about 240 miles distant from that Archipelago. (D'Entrecasteaux.)

ARCHIPELAGO, SOLOO, a group of islands, about sixty in number, lying between the S.W. point of Mindanao, and the N.E. point of Borneo, and consisting of some large islands, especially Sooolo, Bec, and Basseddien, with many smaller ones, and coral reefs or (river) appearing the navigation of the group very dangerous. All the islands are subject to a rajah, who resides at Sooolo town in the island of that name, which is thirty miles long, twelve broad, and contains 15,000 inhabitants; its mountains are generally high, and there are several good harbours; bullocks, poultry, and other live stock, with fruit and vegetables, may be had in abundance; but the natives are all weak and sickly from smallpox and other diseases against attacks. The group is comprised between lat. 4° 30', and 7° 0' N., and long. 116° 30', and 122° 30'. See Sooolo (Horsburgh).

ARCHITECTURE is sometimes defined to be 'the art of building.' We shall presently examine in what sense this definition ought to be explained, and how it ought to be limited.

The Greek term for architect is ἀρχιτεκτόν (architecton), which we find applied by Heraclitus to a shipbuilder, and by the same sense as the word architect now is: he informs us, that Rhoeus, a Samian, was the architect of or architect in the great temple of Samos. We thus learn from positive testimony, that before the great buildings of Athens were erected, the term architect and the profession of an architect were distinctly recognized among the Greeks. But Herodotus also uses the word architect in the passage just referred to in another sense: he applies it to a person who made a tunnel by which the city of Samos was supplied with water; and this is an instance in which building, or construction, properly speaking, can hardly be said to have been employed. The great increase in works of this class in modern times has led to new designations, such as that of civil engineer, who is connected with the superintendence of public works, roads, railways, tunnels, &c.; and though the engineer may often have occasion to build, and may also with propriety decorate, common usage has placed a determinate bound between civil engineering and architecture.

In ascertaining the present meaning of terms, it is sometimes useful and often necessary to ascend to their primary signification, and to trace their historical progress. The Greek word architekon signifies the chief fabricator or maker; and the word architect itself means originally, a worker in wood, a carpenter, a house-builder, a ship-builder, &c. (See Iliad, xv. 411; xxiii. 712; Od. xvii. 384.) It is not, however, limited to those who were skilful in the use of tools of metal; but (as indeed all artificers) with a qualifying term as in A new building, &c. (Hymn to Venus, l. 12) it had a more extensive signification. We believe that a fair examination of the earliest uses of this word will lead to an opinion that it signified primarily a workman in wood; and consequently the Greek term architecton, and the Roman architectus (which is a borrowed word with a Latin ending), would properly signify the chief-carpenter. It seems to be a fair inference, that this primary signification of the Greek word was still employed, and that the architect was first employed in construction; and it appears to confirm the opinion, which is established by other independent considerations, that the architectura of the Greeks derived its name from the art of building.

It is impossible to assign an exact meaning to the term architecture by any short definition. Architecture is not merely the 'art of building,' or of working materials of
exhibited and preserved. This remark applies with equal truth to all nations that have left behind them examples of some definite style of building. The great ecclesiastical structures of western Europe exhibit a character in appearance very different indeed from the models of Greek and Roman buildings. They gradually deviated from the heavy and rounded Norman arch, the type of which is undoubtedly the origin of the Romanesque arch, the great ecclesiastical and especially in many of the civil structures of Germany, France, Flanders, and England, a distinct and new character of architecture may be seen.

This distinction became again so marked in the several countries of western Europe that it is of opinion that the Gothic or pointed styles of architecture, and various continental countries, have each a separate character, though they may all have had a common origin. The observation of Mr. Rickman has accordingly led us to assign to English architecture a distinct character and history. As England, then, possesses an architecture of her own in the numerous ancient structures that adorn the country, and cultivate the spirit of national design and the ornamental parts we shall adhere to some one of the great models.

The architecture of a people is an important part of their history. It is the external and enduring form of their public life; it is an index of the state of knowledge and social progress. Some speculative, indeed, would regard the noble monuments which decorate our own country, only as the marks of servile submission to a hierarchy. But it may safely be asserted that the work which has made in the arts is mainly due to the influence of religious systems; and that the great improvements which have thus been gradually effected have at last descended to the humblest dwellings.

We have considered that the architecture of a country is inseparable from its history; and it is for this reason, among others, that we propose the subdivision, which the reader will see at the end of this article. We remain, however, may not be inappropriate on the supposed origin of the forms of architecture, and here we speak with reference to that of the Greeks. Whatever connexion, or rather resemblance, there may be between Greek and Egyptian, and between Egypt and Semitic architecture, it is appropriate to consider these forms separately. It is difficult to conceive that a Greek temple is anything else than the improved and decorated form of a wooden construction. That which was used for the ordinary construction of dwellings, before baked clay or stone, seems natural, because it is more easily worked and more readily adapted to any required form. A rude cabin with its upright posts, its horizontal cross timbers, and its roof of wood, presents enough as a basis. A rectangular chamber for the inmates, a partition to screen them from the sun, posts to support it, with sloping roofs to carry off the rain, present all the essential elements of a Greek temple. Such an edifice, probably, was the most ancient form of the temple of Nicaea, in Asia Minor, which tradition attributed to Agamedes and Trophium. This venerable monument of antiquity was preserved by the care of the emperor Hadrian, who ordered it to be cast with a new edifice. (Pausan. Arcad. 10, 2.) In the agora or public place of Elia, the same traveller saw a curious structure in the shape of a temple, but without walls; the roof was supported by columns of oak. An old man told Pausanias that it was the tomb of Ogyxus. (6. 24.) In opposition to some one moderns, it is a matter* which admits of proof, it is alleged, that we do not find barbarous nations, who use wood or sticks for their huts, adopting a construction such as we have described, and that this style is inapplicable to the architecture of such a people. The wonder would be if we did find a barbarous nation possessing these elements of knowledge, for a nation that had them would soon cease to be barbarous. But all nations have not an architecture of their own; nor have all nations a style of sculpture of their own, nor do all
nations possess the power of forming geometrical figures and reasoning on their properties; and yet all these are the essential elements of architecture. For reasons which we cannot understand, the same faculties are not given to all the children of men: to some races is given the power to invent, to others a capacity to receive the inventions of others; but to some is denied the power of even receiving and adapting what others have invented.

Though we conceive, then, that Grecian architecture arose from the rude fabric of a wooden dwelling, we do not conceive that the edifice of stone attained either the beauty of proportion or the richness of ornament, till it called in the aid of sculpture. Building, that is, the putting together of timber frame-work, may be older than sculpture, but sculpture combined with building produced architecture. From the Homeric poems we deduce only very vague ideas as to the structure of temples and palaces; we find no distinct indication of the arrangement of columns, which are the very essence of Greek architecture. But the arts of design, and even the arts of working in metal, had attained some excellence. (See in the Iliad, book 18, the description of the shield of Achilles.) We find epiphetá derived from metal applied to the house of Alcinous and other buildings, from which we infer that they were structures of wood, and that the decorations were of metal; but we find no trace of columnar arrangement, or of an edifice of stone. (Odyssey vii. 84. &c.; iv. 45. &c.) Even in the time of Pausanias (x. 5. 11) there still existed at Lacedemon the temple of Minerva, called the 'house of copper,' from which it would appear, that this and other antique temples were mainly of wood, and ornamented with metal.

That the oldest material of sculpture was wood, is a fact in itself probable enough, and attested by the authority of Pausanias (viii. 17). Many of these wooden statues of high antiquity remained after the wooden temple itself had been exchanged for a more substantial edifice of stone.

We believe, then, that Grecian architecture was only the improved and decorated wooden edifice, and that the ornamental parts of the stone structure, even in their simplest form, were derived from the art of the sculptor. The sculptor and the architect, in fact, were often united in the same person; and even when it became usual to separate these arts into two distinct branches, we can have no doubt that the skill of the architect, and the taste, at least, of the sculptor, were generally combined in the same individual. We believe this was the case also with the old cathedral architects of England, who frequently not only adapted the exterior forms of their edifices for the reception and display of sculpture, but had good taste enough to take care that these ornaments were in harmony with the whole design, and worthy of the edifice which was to receive them. Specimens of sculpture of great excellence may be observed on the exterior of many of our cathedrals: for instance, on the west end of Salisbury cathedral.

In attempting to discover what was the model of the wooden construction which we have assumed to be the parent of the architectural edifice, we meet with a variety of theories which are unsatisfactory. But it seems to have escaped the observation of many writers, that the nation to which Europe is indebted for the elements of its architecture is also the nation to which we are indebted for our knowledge of geometry. That law of the mind which gave birth to the simple forms of the triangle, the circle, and the square, gave to man the elements of all his works of art. We are not aware of any nation that has had a system of architecture which has not also had a style of sculpture; nor do we know of any nation that has carried architecture to perfection, or even to a degree of excellence in its kind, that has not also had a system of geometry and arithmetic.

Without such an extension of these general remarks as would interfere with the details belonging to the separate heads into which the various styles of architecture are divided, we could not attempt to bring down the history of the art to our own days, and trace its various stages of application in the public and private edifices of our own and other countries. We have therefore only to mention that the terms of architecture must be sought under their respective heads, as Arch, Architecture, &c.; that the general principles of construction will be found under Building, and of architecture, as a fine art, under Proportion; and that the more important styles and names of architecture will be thus distributed:

- **Babylonian Architecture**
- **Celtic**
- **Chinese**
- **Egyptian**
- **English**
- **Etruscan**
- **Gothic**
- **Greek**
- **Hindoo**

The principles of military architecture will be treated of under Castle, and Fortification; those of naval architecture under Ship; and the most approved principles of domestic architecture under House.

ARCHITRAVE, from a Greek word and a Latin one, meaning, when put together, the principal beam, is the lower
part of any structure supported by pillars, or the lower beam which rests upon the columns and joins them together, on which the whole entablature (or ornamental part which comes immediately above the columns) rests. It was also called the Greeks and Romans epistyle, or that which is on the columns. Thus, when pillars support an arch, the vousoirs (see Arch) supply the place of an architrave, by which name they are sometimes called. In the same way the flat-beam, or row of stones coming immediately above a door or window, is called the architrave. The architrave may have only one face or two, that is, may appear as one beam, resting on and joining the contiguous columns (see the temple of Ptolemy), or as two beams, the upper of which projects a little in front of the lower, as at a in the preceding cut. The proportions, &c., will be described under the heads of Grecian and Roman Architecture.

ARCHIVE, or ARCHIVES, a chamber or apartment where the public papers or records of a state or community are deposited sometimes, by a common figure, applied to the papers themselves.

By some the word archive is supposed to have been derived from the Greek ἀρχεῖον (Archex), a term used by Josephus in the sense of public registers, and considered to have been transmitted to us through the Latin of the middle age. The Greek word archelon seems, in its primary signification, to mean a council-house or state house, or a body of public functionaries, as the Ephori at Sparta. (See Aristot. Politic. book ii.; and Pausan. iii. 11.) Others derive it from archa, a chest; such, being in early times, a usual depository for records. So Isidorus, Orig. lib. xx. c. 9 —’’Archon dictas, quod arcaet vacum atque prohibet. Hinc et archivum, hinc et arcuam, id est secretum, unde castori acentur. ’’ It is called Archon, because it does not allow (arc-est) us to see what is in it. Hence also Archivum and Arcanum, that is, a thing kept secret, from which people are excluded, (arc-entur.)

The Temple of Saturn, built in the time of the Republic, was the chief repository of the archives as well as of the public treasures of ancient Rome. In England the archives of the Court of Chancery are kept partly (i.e. to the year 1483) at the Tower of London, and partly in the Rolls Chapel, Chancery-lane. The national archives of France are preserved in the Hotel Souabe at Paris; those of the Courts of Justice, in La Sainte Chapelle at the Palais de Justice.

ARCHIVOLT, or ARCHIVALT, means, literally, the principal turning; arch, and is applied to any ornamental band or moulding which runs round the lower part of all the vousoirs of an arch.

ARCH-LUTE, a large lute, or double-stringed theorbo (see THORBO), formerly used by the Italians for the base parts, and for accompanying the voice, the form of which is given by Mersenne and Kircher in the next cut. In the early editions of Corelli's Sonatas, the principal base staff is assigned to the violone (double-base), or arsienuto. According to Kircher (Musurgia, lib. vi.), this instrument had fourteen notes, the highest whereof was A, the fifth line in the base, the lowest the double G below; and possessed considerable power. It was about five feet in extreme length, and proportionally large in the body. As Lucinius does not notice the arch-lute in his Musurgia, printed in 1536, it is to be inferred that it was invented subsequently to that time. At the commencement of the last century this instrument was much in use; Handel employed it in many of his early operas. The office of Lutenist still continues as part of the establishment of the Chapel-royal, though the place has been a sinecure for nearly a century.

ARCHON, a Greek word written in Roman characters, signified originally one who had rule or command, either civil or military. In modern usage it is known only as the title of certain magistrates of the Athenians, of whom we propose to give some account in this article.

On the abolition of regal government at Athens (see CODRUS), the chief power was still intrusted to a single magistrate, or archon, without the title of king (basileus), which was more directly associated with the idea of arbitrary rule. The new office was hereditary; at least it is said to have been enjoyed successively by lineal descendants of Medon, the first archon, who was himself a son of Codrus, the last king. The Athenians were fond of attributing to Theseus the origin of their democracy; by which probably they meant, that many of his regulations had a popular tendency, and that his general reformation of the state, which was favourable to that part of the population which had possessed no political rights, was accompanied by a permanent relaxation of regal authority. (Plut. Per. Thes. c. 25.) The prerogative of the archon was still further limited; for he was made responsible to his fellow citizens for the acts of his government. (Paus. iv. 5, 10.) Tradition tells of thirteen hereditary archons, after whom the chief magistrate was appointed to his office for ten years, but was still taken from the Medontidea, or de-
secedants of Medon. We have the name of Charops and of five others after him as decennial archons. (Voll. Patere, 1. 6.) Another event at the close of the year was the appointment of Newton as a decennial archon. He limited the duration of the office to a single year, at the same time dividing the charge of administration between the chief magistrate and eight others, thus forming a council of state, which consisted of nine magistrates or archons. He is said to have brought the system of archons under the general designation of The Nine. These officers had their distinguishing titles and duties, of which we shall presently speak, when we have carried a little farther the general narrative. In the mean time we have seen that the first archon was, like his royal predecessor, the head of the government. The decennial archons had, doubtless, the same place and character, and the annual magistrates for a time exercised collectively the political power before vested in the archons as a single ruler. To maintain the same number, and in great measure the particular civil duties assigned to them, remained unaltered whilst Athens continued to possess an independent government; but the course of events wrought a most important change as to their position in the state. This change, to which in earlier times there was a gradual approximation, was effected mainly by the increased activity of the ecclesia, or popular assembly, which received its first impulse from the regulations of Solon. No longer were the ecclesiarchies of the curing of the Neile and of the Cisteans, and was confirmed by the consequences of the Persian war, by which the thetes, or lower class of citizens, which supplied the naval strength of Athens, were taught to value the service and administration of the polis. From this time that the ecclesia interfered habitually and directly with the government of the republic, the actual minister of state was the person who enjoyed the confidence of the people, which neither the office of archon nor any other office could procure. The inevitable consequence was, that the archons sunk from ministers of state into municipal officers of high rank. We have thought it worth while to point attention to this fact, from having had occasion to observe that young students of Athenian history are sometimes perplexed by the apparent inconsistency of the accounts given them of the first appointment of archons with the little notice bestowed upon these magistrates in the general history of the republic. The want of important public measures, and of the persons who originated and executed them, whilst the name of archon seldom occurs in Grecian history, except as marking the year in which certain events took place. (See Thucyd. ii. 2.) Pericles, without the office of archon, to which it was not his chance ever to attain, enjoyed a degree of power which was not possessed during the freedom of the republic by any other citizen. Perhaps no one who read with the least attention would find the difficulty, if he were not in some measure led to it by popular works on Grecian archons, or by the confusion of facts and authorities without sufficiently discriminating the times to which the different statements refer.

The annual archons, from their first appointment down to the time of Pericles, were taken from the council of nobles, to which class all political power seems to have been confined. This is rather assumed from what we know of the progress of civil and political society at Athens, than asserted on any a priori ground of weight. The establishment by Solon of a timocracy, or government in which the political power was distributed with reference to property, put an end to the claims of noble blood; but since the archons were by this regulation taken from the wealthiest class of citizens, or from the richest few, it is probably still continued chiefly to supply the archons for each year, till the celebrated law of Aristides, enacted about B. C. 479, threw open the office of state to the whole body of the magistrates, of which, the next year, the time of qualification was requisite in an Athenian citizen for the office of archon but fair fame and freedom from bodily defect.

The mode of appointment presents some difficulties from the nature of the information. It appears that the archons were originally elected by suffrage, and the elective franchise was probably confined to the noble class from which they were taken. By Solon, eligibility to the office, and perhaps the right of suffrage, were enlarged, but the mode of appointment remained the same. In after-times, and even as early as the first Persian invasion of Greece, the appointment was by lot. The case of Aristides seems to have been an exception to the general rule, and may be attributed, per-haps, to his high character and eminent services. (Aristot. Polit. 2, 9, 3; Herod. 6, 109; Plut. Vit. Arist. c. 1. p. 481, Reisk.) From this time the archons are said to have been eager to avail themselves of the double opportunity offered by the new mode of appointment and the law of Aristides. It seems that the poorest of them declined the honor of the archon, as a mark of the respect which was shown them a burden-some honour. (Xen. Rep. Athen. 1, 3.)

Of the nine archons, one, usually termed the archon, was chief, and had the title of epónymus (ἐπώνυμος), or name-giver, because the year in which he served the office was called by his name, as e.g., 415 B.C. was called by the name of Aristides; and distinguished by the names of his consuls. Thus his name appears at the head of all public decrees (see Dem. De Cor. Thucyd. 5, 19), and generally in all solemn records of state. Of the remaining eight, one was called the king (διάσωλος), another the polemarch, and the last six had the general title of thémistothete. Before admission to their office they were subjected, like other public officers, to the examination, called dokimasia (that is, trial or examination), for the purpose of disqualifying them from their office. (Schol. Arist. Pol. c. 3.) From this time that the ecclesia interfered habitually and directly with the government of the republic, the actual minister of state was the person who enjoyed the confidence of the people, which neither the office of archon nor any other office could procure. The inevitable consequence was, that the archons sunk from ministers of state into municipal officers of high rank. We have thought it worth while to point attention to this fact, from having had occasion to observe that young students of Athenian history are sometimes perplexed by the apparent inconsistency of the accounts given them of the first appointment of archons with the little notice bestowed upon these magistrates in the general history of the republic. The want of important public measures, and of the persons who originated and executed them, whilst the name of archon seldom occurs in Grecian history, except as marking the year in which certain events took place. (See Thucyd. ii. 2.) Pericles, without the office of archon, to which it was not his chance ever to attain, enjoyed a degree of power which was not possessed during the freedom of the republic by any other citizen. Perhaps no one who read with the least attention would find the difficulty, if he were not in some measure led to it by popular works on Grecian archons, or by the confusion of facts and authorities without sufficiently discriminating the times to which the different statements refer.

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is hardly necessary to observe that in the early periods of regal government, kings were almost universally the chief magistrates; it is commonly supposed that the title of this archon was intended to denote the transfer of an important part of the king's prerogative to the magistrate who, in the department of religion, supplied his place.

The office of the polemarch was doubtless at first instituted that which the name implies, to command in war; and even as late as the battle of Marathon, we find the polemarch Callimachus acting an important part in the council of war which preceded it, and commanding in virtue of his office. The polemarch was charged with the engagement: but, in later times, when the generals of the republic were immediately chosen by the people, the polemarch was confined to the discharge of civil duties, and particularly had cognizance of matters which concerned the streams and moats (residences, &c. of the nobles) in the city. The engagements of the works attributed to Archytas are chiefly known from the quotations of Stobaeus. (See Schmidt, Diss. de Archytà Tarentinó, Jena, 1683; Navarre, Tentamen de Archytà Tarentinó, Vita atque Opuscula, Haft. (Copenhagen,) 1819; Montučic, History of Mathematics, 1652, &c.)


ARCSIS-SUR-AUBE, a town in France, in the department of Aube, and the capital of an arrondissement to which it gives name. It is ninety-three miles S.E. of Paris, and sixteen miles N. of Troyes, the capital of the department. It is on the S. or left bank of the Aube, which begins to be navigable here, and by means of this river it communicates with other navigable streams, the Aube, Moselle, Loire, and Sarthe, and by means of canals, with the Seine, Loing, and Oise. There are manufactories of cotton hose here; and a tribunal de première instance, or subordinate court of justice, under the jurisdiction of the assize court of Paris. The population in 1826 was about 3000.

ARCSI was invented in the 2nd century B.C. and has since then been much enlarged and improved: 45° 32' N. lat., 4° 39' E. long., from Greenwich.

The arrondissement of Arcis comprehends ninety communes, and has an extent of about 309 square miles.

ARKENHOLZ, JOHN, a Swede, was born in Finland in 1695. He studied at Upsal, after which he travelled over Europe, and resided at Paris a long time. There he wrote, in French, Considerations Politiques sur la France par rapport à la Suede, in which he spoke unfavourably of the former country, and censured the administration of Cardinal Fleury. Having communicated his MS. to several persons, he was arrested on his return to his own country and obliged to apologize to the cardinal minister, King Frederic I., of the house of Hesse Cassell, appointed him, in 1744, librarian and keeper of the cabinet of medals at Cassell, where he remained for twenty years. He wrote, in French, Les Mémoires de Christiane, Reine de Suède, 4 vols. quarto, Amsterdam, 1741, also Lettres sur les Lettrés et les Poètes, 8vo. Frankfort, 1756, and Recueil des Sentimens et des Propos de Gustave Adolphe, Stockholm, 1769. From Arkenholz's MS. account of that prince, joined to other Memoirs, and the history of Gustave Adolphe, the most admired of the Swedes, and published in French at Amsterdam in 1764, and afterwards translated into German under the title of Geschichte Gustav. Adolphi, 2 vols. 8vo. Berlin, 1775. Arkenholz's manuscript on France and Sweden was published in his lifetime, 1761, in the Bibliothèque of Paris. He had been commissioned by the states of Sweden to write the history of Frederic I., but he never completed it, his mental faculties having grown weak; he died in 1777, at the age of eighty-two.

ARCOLE, a village in the Venetian States, about fifteen miles S.S.E. of Verona, lies in the midst of a low marshy country, through which the Alpone flows, a torrent which comes from the mountains near Vicenza, and empties itself into the Po; and the town is situated on the left or eastern bank of the Alpone, farthest from Verona. The ground between the left bank of the Adige and the right bank of the Alpone is one imperious marsh, intersected, and divided by the river Bonale, which leads to a narrow bridge over the Alpone, and to the village of Arcole beyond it. It was along this causeway that the French, under Bonaparte, having crossed the Adige at the village of Roveo, advanced on the morning of the 15th November, 1796, to the view of the Austrian army under General Alvincii, which was then posted on the heights of Caldero near Verona. Two battalions of Croats and Hungarians were posted at Arcole, with some artillery, and they advanced to meet the French. Three times the French column attempted to storm it, amidst a shower of grape-shot and musketry, and three times it was repulsed with great loss. Bonaparte himself was thrown from the causeway into the marsh, and was near...
being taken. At last General Guyeux, with 2000 men, having crossed the Adige farther down, at the ferry of Albaredo, below the confluence of the Alpone, marched by the left bank of the latter stream, where the ground is firmer, and took possession of Arcore. General Alvimar, however, discovered the French movement, and, on the evening of the 15th, made a premature attack on the village. Next day (16th) the battle became general between the two armies, and the village of Arcore was again the main point of the contest. The French attempted to re-
pegs their losses by raising a new bridge, but this was again repulsed with tremendous loss. Almost all their superior officers were killed or wounded. Thus passed the 16th, the Aus-
trians retaining possession of Arcore for that night. On the 17th, Bonaparte, having thrown a bridge over the Al-
forme, was in evidence, directly opposite a column with a column by the left bank, whilst another column ad-
vanced by the famous inusineway. The latter was repul-
ised as before; but Augereau, after a sharp contest, succeeded in gaining possession of the village. General Alvinzi then made his retreat upon Montebello and Vicenza. This was the hardest fought battle in Bonaparte's first Italian cam-
paign, and one in which he showed great personal courage. The Austrians lost about 4000 killed, and as many were taken prisoners. The French lost 4000 killed and wounded, but this was not made known, but it must necessarily have been very great. Bonaparte's obstinacy in attempting so many times to cross the bridge in front, instead of turning it, as he had done on the 15th, had been strongly censured. [See Bonaparte, Napoleon.]

ARCON, JEAN CLAUDE D', a native of Pontar-
lier in Franche Comté, in 1733, showed an early inclination for the military profession. He became an expert engineer, and wrote several treaties, among which may be enumer-
ated, Correspondance sur l'Art de la Guerre, and Réflexions
d'un Ingénieur en réponse à un Tacticien, duodecimo, Am-
sterdam, 1773. In 1780, the war of France and Spain against England gave him an opportunity of displaying his talents on a larger scale. The Spaniards were besieging Gibraltar without success, when D'Arcon devised a plan of attack, by means of floating batteries, which were to be incompetent to the siege of Gibraltar. This scheme was approved by the Spanish government, ten ships of from 600 to 1400 tons were cut down, each forming a battery of from nine to twenty-one guns, and manned by crews of from 250 to 700 men. The front of the batteries was covered with thick layers of squared timber, a sloping roof protected them from shells, and the exterior of the floating machine was lined with cordage and hides. In order to pre-
vent combustion from red-hot balls, a reservoir was placed in each battery. The water could reach the engines supplied by certain channels through every part of the fabric, so as to keep the wood constantly wet. Each floating battery was set in motion by a single sail. The ten batteries were to form a close line at 400 yards distance from the wall, and from that position were to advance and overtake the land-batteries, by bomb-vessels and gun-boats, and by ten Spanish ships of the line. The equipment of this vast armament was made in the port of Algésiras, and 40,000 men, French and Spaniards, were assembled for the expedi-
tion, of which the Duke of Crillon, the conqueror of Minorca, had the chief command. The Spanish admiral, Moreno, commanded the fleet. The first nobility of Spain re-
paired to the spot to witness the attack, and the Count d'Arco (since Count de Duras) and Duke of Bouillon were in the bat-
tle. The French fleet was attacked in the night of the 26th and 27th; the floating batteries moved forward, but were unable to gain the positions assigned to them; the wind, the roughness of the sea, and perhaps want of skill, entirely disconcerted the plan. The two largest, the Talía Pedra and the Pastora, anchored in advance, the rest some distance behind. The cannonade began soon after ten o'clock; and 400 pieces of heavy artillery were playing at once from both sides. General D'Arcon, in the finest weather, with red-hot balls, which seemed to have no effect, till seven o'clock in the evening, when the Talía Pedra, in which D'Arcon was embarking, was discovered to be on fire. A red-hot ball, says D'Arcon, had lodged in the side, and could not be extinguished. The fire of the enemy frustrated all our efforts to arrest the progress of the flames. An order was precipitately given to wet the powder, and this caused a general explosion. The whole was consumed in a moment, concealed by the clouds of smoke, we became too much ex-
posed, and it was found impossible to extinguish the flames. The smoke proceeded at first from the outside, and after-
wards from the interior of the vessel. The flag, with a chain running through it, was raised over the hatches, from which the vessel might be removed from its dangerous situation. The officer charged with this commission could not collect a sufficient number of sailors for the purpose. In fact, panic and confusion had seized them when they found that the batteries were not incombustible. D'Arcon repaired at midnight to the admiral's ship, but he was referred to the general-in-chief, who was absent; he was, however, informed that orders had been given to abandon the vessel, and that the garrison should retreat. Soon after, most, the Talía Pedra and the Pastora, seem, at this time, to have caught fire, so that the other eight might probably have been saved. Such is D'Arcon's account in his Mémoire pour servir de suite à l'Historie des Guerres de la France du Siège de Cadiz, 1783, and it explains pretty clearly how the catastrophe occurred, without attributing it, as some French biographers have done, to perfidy and jealousy on the part of the English commanders. There was no abandonment, no mutiny, both by the French and Spanish commander. D'Arcon himself was evidently mistaken with regard to the security of his batteries against red-hot balls. D'Arcon after-
wards served in the French army at the time of the revolu-
tion, and assisted in the conquest of Holland. In 1795 he published Considérations Militaires et Politiques sur les Fortifications, in which he condensed all that he had previously written on the subject. He was made a senator in 1799, and died in 1809. (See the account of the siege of Gibraltar in Cox's Memoirs of the Kings of Spain of the House of Bourbon; and Captain Drinkwater's Account of the late Siege of Gibraltar, &c., Lond. 1785.)

ARCOIT, a considerable district of Hindostan, forming part of the Carnatic (see CARNATIC). The territory thus named is subdivided into the two districts of northern and southern Aroit; both of which are under the government of the Madras Presidencies. The district of southern Aroit is in the 11th and 14th parallels of north lat., and the 76th and 80th degrees of east long. Northern Aroit is bounded on the north by Cuddapah and Nellore; on the east by the district of Chingleput and the sea; on the south by southern Aroit; and on the west by the Nadivaram. It is watered by the river Cuddapah, of which the headland of Cuddapah is part. Southern Aroit is bounded on the north by the northern division of Aroit; on the east by the sea and the Chingleput district; on the south by Tanjore and Trichinopoly; and its western boundary is the district of Salem and the Balaghat region. This district comprehended Pondicherry, during the time in which that settlement was in the hands of the English. Chingleput, the Jaghire, or tract obtained by the East India Company in 1750 and 1763 by gentry in the name of rocot, in 1800, return for services rendered to his father and himself, was also formerly included within the limits of Aroit.

It was doubtless owing to the frequent wars of which these districts were the scene that it was found necessary to institute a system of military systematization, which was occasioned; during the infancy of the British empire in the Carnatic, that the condition of the country and its inhabitants be-
came so deplorable. The agriculture of Aroit depends for its prosperity upon irrigation; but it spoiled, upon the death of the minerals which ran down the mountain, to restore the sea-bed, and to prevent the water-courses from rivers, springs, and wells, were scarcely in a better condition. The peace of the country being restored, and an improved system of in-
amagement having been adopted by the Company's government about the time just mentioned, the prosperity of the dis-
}
Five years after that time, in 1825, the total population was stated by the Bombay Collector to be 1,547,312, nearly two and a half times what it had been twenty years before.

The lands throughout the districts are for the most part held by an industrious race of yeomanry or small proprietary cultivators, either in severity, or in joint village community.

The whole of these districts were, in 1801, formally ceded by treaty to the East India Company by the nabob of the Carnatic, Asim ul Omrah. On this occasion the British government undertook to adjust the claims made by the creeds of the Cuddalore and the Madras, against the Company, and the peace of the land was made to extend throughout the whole of the country.

The southern division includes Cuddalore.

The chief rivers of the district are the Palar or Punnair, which rises in the Carnatic, and flows north-east as far as the Vennamalai, part of Balalgattu, and the western pollams or zeemindaries. The southern division includes Cuddalore.

Fig. 1.

AROCOT (City). The Musulman capital of the Carnatic is built on the southern side of the Palar, in 19° 34' N lat. and 79° 23' E. long. It is a place of very great antiquity. For an Indian fortress, Arocot was a place of some strength, having been a regularly built citadel. Since the cession of the Carnatic to the East India Company, principal changes in the defences of the place have been destroyed, part of the extensive area of the fort has been brought under cultivation, and the only use now made of the ramparts is to constitute a defence against the inundations of the Palar, for which purpose alone they are kept in repair on that side of the city.

The town, which is inclosed by walls, is almost entirely of modern erection. It contains the palace of the carrier nabobs of Arocot; the principal gateway of the palace is entirely, but the rest of the building is a heap of ruins.

The nabob, Anwar ud Deen, was killed in battle, and the place was taken in 1749 by Chunda Sahib, who favoured the French interests in the Carnatic. In two years, the city with its garrison of 1100 men surrendered to 200 Europeans and 300 Sepoohs under the command of Captain (afterwards Lord) Clive, who had subsequently to defend his conquest, which he did successfully, against a very superior French force assisted by numerous allies, and whom he obliged to raise the siege at the end of fifty days. The fort subsequently fell into the possession of some natives who espoused the cause of the French, but it was again taken by the English under Colonel Coote, in the beginning of 1760, after the battle of Wandawoo. In 1780 it surrendered to Hyder Ali, and suffered greatly, both while it was in his hands and afterwards, through the mismanagement of the French, and the want of resources. After the capture of the place, and state into which it then fell, the city has been recovering since it passed, in 1801, into the possession of the English.

The principal inhabitants are Mohammedans, who speak the Hindustanee dialect. The bed of the Palar, which is broad, is half a mile wide; and on the west side the water at very low times is so swollen by the rains that its waters would inundate the streets but for the embankments already described.

Arocot is 73 British miles from Madras, 723 miles from Bombay, 1079 from Calcutta, and 1160 from Agra. (Mill's History of British India, vol. ii. p. 15.) The Hindostanee; Report of a Committee of the House of Commons on the Affairs of India, 1832.)

AROCOT CIRCILE. The term aircete is derived from the Greek, and signifies' the round or bounding of the horizon, meaning the constellation of that name. Arctic circle had formerly a different signification from that which it now has. Among the Greeks it meant the parallel to the equator, by which the stars above the horizon. The term developed before the horizon. The term developed before the horizon. (See Strabo, C. g.) Similarly the antarctic circle (if the phrase were used) would be a parallel which which therefore separates those paralels which are always above, from those which are partly above and partly below, the horizon. (See Strabo, C. g.) Similarly the antarctic circle (if the phrase were used) would be a parallel which which therefore separates those paralels which are always above, from those which are partly above and partly below, the horizon. Thus every different latitude had a different arctic circle; and in the latitude in which the astronomy was first cultivated, the great bear just swept the sea, and did not set, whence the boundary circle obtained its name.

In the modern sense of the term, it is one fixed circle, or nearly so; and the first use of it as such is found in the celebrated treatise on the sphere, by Holywood, better known by the name of Sacrobosco, published in the twelfth century. For the complete meaning of the term, we refer to Day. We can only here briefly remind the reader that at the equator all days are equal; the day of the summer solstice is the longest, and the day of the winter solstice is the shortest. The meridian P B p A moves towards the sun round the earth, because, as the sun is always on the meridian of some place, and any conclusion respecting day and night drawn from one meridian holds good for any other, we may conceive
not see the sun, and the rotation round the axis, $P$, brings every part of the earth under $O \Pi$ when its night begins. $M \Pi$ and $m$ are the arctic and antarctic circles. By cutting out a semicircle equal to $O \Pi$ and placing it in different positions on the second figure, the following will appear, on a line going to the left:

1. At the summer solstice (when $V$ is at $U$) all circles above $M \Pi$ will be in light for twenty-four hours, and all below $m$ in darkness: and vice versa at the winter solstice.

2. At the equinoxes ($V$ is at $A$) every circle will be in light for twelve hours, and in darkness for the other.

3. During the passage from the equinox to the summer solstice ($V$ moves from $A$ to $U$), at every moment some circle above $M \Pi$ emerges entirely into light, and an opposite circle below it into darkness. The same thing occurs in the other direction.

4. No circle lying between $M \Pi$ and $m$ is ever entirely in light or entirely in darkness.

Hence, to find the duration of light at any place above the arctic circle, that is, to find during what part of the year the sun performs his daily rotation entirely above the horizon, look in an almanac for the times before and after the summer solstice, at which the declination of the sun is equal to the polar distance (or latitude subtracted from 90°) of the place. Between those two times there is the same amount of daylight as between the mean latitude of Novara Zembla (latitude 75°, polar distance 15°) and the sun's rising and setting points given in the almanac for the year in question. For the longitude of the place, the same is true for the winter solstice.

The arctic and antarctic circles are the boundaries which separate the frigid from the temperate zones, as they are called. The part of the earth included within each of the two is about $4^{a} \frac{1}{2}$ per cent. of the whole surface of the globe. The best known points through or near which the arctic circle passes are Cape North in Iceland, the Medeslant whirlpool, the mouth of the Ob, Behring's Straits, and the south of Melville Island. For discoveries of land within the antarctic circle see Antarctic Ocean.

The arctic and antarctic circles of the heavens occupy positions with respect to the celestial poles similar to those occupied by the same circles on the earth. Thus a traveller going round the arctic circle would always have some point of the pole within his sight, but that is not always the case with the sun. The term is hardly ever employed by astronomers.

In all that precedes we have taken no notice of refraction, the effect of which is to raise the sun a little towards the nearest pole at every point of the globe, thus lengthening the day and diminishing the night. In some latitudes the effect would be very considerable, and would increase the duration of light by as much as a day.

ARCTIC FOXES, or the species of fox (Curtis Lagopus), celebrated for the beauty and fineness of its fur, which has long been considered a valuable article of commerce. The colour of the fur, as is the case with all animals which inhabit very high latitudes, varies according to the season. It is blue in summer, and pure white in winter. In the latter state that the fur is most esteemed, not only on account of its colour, but likewise because it is of a closer and finer quality than at any other time. The skin is not so valuable as at all seasons, but those which have a thin coat of fur, like those of the common hare, which defends them from the severity of the snow, and is a character likewise common to most other northern animals. For a more detailed account of the form, habits, and uses of the Arctic fox, see the articles Fox and Fur Trade.

ARCTOMYS. [See MARMOT.]

ARCTOSTAPHYLOS, or bear-berry, is a genus of plants till lately considered the same as arbutus, from which it is essentially distinguished by its berries containing only from one to five, instead of a great many seeds. The common bear-berry, $A. ussuriensis$, is found wild in the mountainous parts of England and Scotland, and generally over the whole of the north of Europe. It is a trailing shrubby plant, with leathery dark green entire leaves, which are broadest at their upper end. The flowers are white, tinged with pink, small, and in clusters. The berries are small, and red like those of the Hawthorn. The whole plant is so astringent that it has been employed by the tanner with success, and also in dyeing a greyish black colour; it is no doubt the same property which has made it celebrated for its efficacy in gravelly complaints, and in discharging the urinary stones. When cultivated it requires to be grown in peat earth.

ARCTURUS, or a Bootis, a star of the first magnitude in the constellation Bootes. It derives its name from two Greek words: arktos, the bear, and oura, the tail, in allusion to the fact that in the latter constellation, it is very nearly in a right line drawn through the two hinder stars of the tail (ζ and α). It rises N.E. by E. at Greenwich, and is on the meridian in about 4 hours after rising: which takes place at half past seven A.M., on the 1st of January, and about two hours later for the first of every succeeding month. Its mean places are as follows:

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<th>Year</th>
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<th>Declination</th>
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Formerly the conclusion was sometimes drawn that Arcturus was the nearest star to our system, from its being a brilliant star with so decided a proper motion. This, which was but a faint presumption at the time, is now overthrown by the known facts. There are many such stars (ζ Cassiopeiae, for example) which have much larger proper motions.

ARCY, GROTOFF, A singular excavation in the mass of a hill which stretches into the valley of the little river Cure, a feeder of the Yonne in France. It is in the department of the Yonne, about a league south of the little town of Vermont. A narrow path over a hill covered with wood leads to the entrance of the grotto, which contains a number of apartments, some of which are more than 1500 or 1600 feet in length; they rarely exceed 100 feet in depth. In the first two apartments are found large blocks or masses of stone lying in greater or less profusion on the ground; and in the second apartment is a small pool about 12 feet in diameter, the depth of which is not known. The waters are clear, and the bottom of it is in some places, and in others are distinguished by the number and variety of the crystallizations which either hang from the roof (stalactites), or rise column-like from the ground (stalagnites); they are formed by the water which filters through the over-arching rocks, and forms a deposit about the orifice from which it issues, as well as on that part of the ground on which it drops. As the crystallizations rise from below are exactly under those depending from the roof, the entrance of the grotto, undercurrents and traverses it, emerging on the other side, and having sufficient stream to turn a mill, and to other subterraneous waters. It is acknowledged, however, that the stone with which the cavern is built was taken from the bottom of the river, and if so, the caves, to whatever their origin may be ascribed, have been at least enlarged in some parts by the hand of man.

In the Dictionnaire Universel de la France (Paris, 1844-45), several caverns are described as abandoned stone-quarries in which time has obliterated the traces of human labour; but the writer of the article in the Encyc. Methodique ascribes them to the effect of the waters of the Cure, (one channel of which, on its way to the sea, has a very large cavern) with a deposit from the grotto, undercurrents the entrance of the grotto, undercurrents and traverses it, emerging on the other side, and having sufficient stream to turn a mill,) and to other subterraneous waters. It is acknowledged, however, that the stone with which the cavern is built was taken from the bottom of the river, and if so, the caves, to whatever their origin may be ascribed, have been at least enlarged in some parts by the hand of man. (Encyc. Methodique: Del. Univ. de la France; Malte Bruns.)

ARD, ROCHE. [See PATAY.

ARDAGH, now a decayed village in the county of

*Note: The text contains several errors and inconsistencies, which may affect the accuracy of the transcription and understanding of the content. The text is a mix of geological and astronomical information.*
Longford, in Ireland, about five miles S.E. of the town of that name, was once a place of considerable importance: as it gives name to a barony, one of the six into which the county is divided, and to a bishopric now united with the archbishopric of Tuam. The parish, a rectory in the diocese of Ardagh, had a population in 1821 of 4942 persons. There is a church, and some remains of the ancient cathedral, which appears to have been a small building, though, as it is said, as large as the church of Ardagh. In the year 1764, it is reported to have been erected not long after the conversion of the natives. There is also a free school for fifty children (thirty-two boys and eighteen girls), twenty of whom are educated at the expense of their parents. Ardagh. There are two fairs, viz., April 5, and August 26.

The see of Ardagh has undergone great changes. It was founded in the middle of the fifth century; united in 1568 to the see of Kilmacrenan; separated in 1628, but reunited in the following year. During the reign of Queen Elizabeth, the see was placed on the list of those which had been erected not long after the conversion of the natives. It is the see of Dun na nEamhain, though it is in the ecclesiastical province of Armagh.

It is a small diocese, containing only twenty-five benefices, which comprehend thirty-seven parishes; it extends into six counties. It is separated from the diocese of Tuam by that of Elphin. It has a dean and archdeacon, but no chapter. The temporalities are destined, upon the first vacancy of the see, to form part of the fund for defraying the expenses of the bishops of Tuam and vestry commissaries. Ardagh is in 53° 30' N. lat., and 7° 20' W. long.

ARDREA (Viellet), the heron, a genus of birds under which Linnaeus comprehended the cranes and several others, now divided into distinct genera by modern naturalists. M. Viellet followed Buffon in making four divisions of the herons; but Temminck, who has paid peculiar attention to these birds, arranges them under one genus and two sections. We prefer, however, on account of its distinctness, the arrangement of M. Viellet, which has been partly followed by Lesson, Drapiez, and Baron Cuevill. The genus Ardrea, as limited by Viellet, is thus characterised:

Bill strong, straight, or slightly curved, compressed, ensiform, sharp, and rich horn; iris yellow; feet and tibial plate, very small; tarsus short; toes or the side, just at the base, flat, slender, and slightly curved. The genus Ardea, as divided into the following two sections by M. Viellet, is limited by Temminck.

1. The section Ardea, limited as divided into the following two subsections by M. Viellet, is thus characterised:

Bill straight, or slightly curved, compressed, ensiform, sharp, and rich horn; iris yellow; feet and tibial plate, very small; tarsus short; toes or the side, just at the base, flat, slender, and slightly curved. The genus Ardea, as divided into the following two sections by M. Viellet, is thus characterised:

2. The section Ardea, limited as divided into the following two subsections by M. Viellet, is thus characterised:

Bill straight, or slightly curved, compressed, ensiform, sharp, and rich horn; iris yellow; feet and tibial plate, very small; tarsus short; toes or the side, just at the base, flat, slender, and slightly curved. The genus Ardea, as divided into the following two sections by M. Viellet, is thus characterised:

Among the genera separated from Ardea, are Anthro-
podites, Balaenoptera, Grus, Cariama, Nyctigone, and Ciconia; but considerable difference of opinion seems to exist with regard to this classification. The advantages of the section Ardea have been proposed. The bitterns, however, though popularly distinguished from the herons, cannot, we think, with much propriety be separated from Ardea.

ARDBIL, one of the principal towns of Azerbaijan, is situated at a distance of 30 miles from Tabriz, at 48° 15' E. lon. from Greenwich, in a fertile plain encompassed by hills, at a distance of three hours' march from Tauris (or Tebriz), and about seven and a half from the western border of the Caspian Sea. Most of the gentry, and a great part of the inhabitants, live at 39° 5' 10" 50' N.; Olearius at 38° 5'. A chain of hills, which separates Azerbaijani from Gilian, keeps off the noxious winds that prevail in the sultry lowland of the latter province; it is probably in allusion to this circumstance, and to its advantageous situation, that the inhabitants of Ardebil attached the name of -Ardebil to the town, which is on this account called Ardebil-i-Firuz, 'the abode of happiness.' But still it is not a very healthy place, being exposed to great changes of temperature. The trees about Ardebil do not begin to bud before March, and the fruit trees, excepting the apricots, are not touched. The great part of the place is much affected by its position near the mountains. The town is of importance as an emporium in the caravans of Tiflis, Derbend, and Baku, with Isphahan and the Caspian. Ardebil is remarkable as having given birth to the dynasty of the Sardars, or daim rulers of Persia: two of the ancestors of this family of kings, Sheikh Safiuddin and Sheikh Heider, are buried here; and their tombs are held in high veneration, as the sepulchres of the Mosaic sect. Ardebil contained a fine library, which was sent to Russia when the place surrendered to Count Soukhotline. This library is described by Olearius (tt. 638, Amsterdam ed.). A small river, the Balutukh, runs through the town, which is subject to inundations when the snow on the surrounding hills begins to melt. The great mountain range of Sefidjan, next to Ardebil, the highest peak of this country, is about twenty-four miles west of Ardebel; its height is roughly computed at about 13,000 feet. In the neighbourhood of Ardebel, there are several hot and mineral springs.

ARDCHEE, a department in France, including nearly the whole of the former district of Vivaris (so called from the town of Viviers); the remaining part of Vivaris, which is of small extent, is included in the department of Aube, and is bounded on the north and north-west by the departments of Aube and Loire, from which it is separated by the range of the Cévennes. On the west it has the department of Lorraine, and on the south that of Gard. The eastern boundary along the whole length of the Rhône is bounded on the north and north-west by the departments of Loire and Haute Loire, from which it is separated by the range of the Cévennes. Mezen, which is just on the boundary, is 5920 feet in height, and Gerber de Jones, from which the Loire rises, is 5125 feet. The department of Ardchee, which includes 4576 square miles, has 18392 inhabitants (of which 12,579 are males and 5713 females, according to the census taken in 1831). Its capital is Mâcon, which, with 15558 inhabitants, is the chief town of the department. Its capital is Mâcon, which, with 15558 inhabitants, is the chief town of the department. Ardchee is in elevation to almost any in central France. From these high lands descend the streams which by their union form the Saine, the Doux, the Róeu, and the Ardeche, which fall into the Rhone in the order from north to south, in which their names occur. Of these the Ardeche alone appears to be navigable. The northern and western parts of the department abound in granite and sandstone, and in coal, iron, and copper. The wines of St. Peray and Cornas are famous, and the finest kaolin for porcelain. Near Tournon, on the banks of the Rhône, are several lead-mines, and indications of copper have been observed near St. Laurent les Bains, in the western part of the department.

The lower grounds along the bank of the Rhône, and in the southern districts near Aubenas, produce the mulberry and the vine; the more mountainous parts yield the chestnut and the walnut, and afford pasturage to herds of cattle. The wines of St. Peray and Cornas are much esteemed. On the loveliest summit the snow lies eight months in the year: the department, from its unequal elevation, has a great variety of climate.

The capital of the department is Privas (population 4000), on the river Céneze, an insignificant stream which flows into the Rhone. L'Argentière (population near 3000) and Tournon (population 3600) are sub-prefectures or capitals of arrondissements. But these towns, which derive much of their importance from their political rank, are inferior in population to Annony in the north, and Aubenas and Le Bourg St. Andeel in the south of the department. These have respectively 8000, 5000, and between 4000 and 5000 inhabitants. Aubenas is the granary, and the wine and chestnats of Ardchee. It has this well-appointed fair in the year for the sale of silk, which their mulberry trees enable the inhabitants to produce. The cotton manufacture is carried on here; and in the neighbourhood are dye-houses, tan-yards, and other manufactures. Tournon is the capital of the department of Privas, and St. Andeel are the remains of an ancient temple of the Gauls, among which are some nearly defaced bas-reliefs. For other of the places above-mentioned, see Privas, Ar-

Dene, Tournon, and St. Andeel. Ardchee is in the bishopric of Viviers, a small town on the Rhone, a little north of the Bourg St. Andeel already noticed. It is within the jurisdiction of the Cour Royale (Assize Court) of Niemas; and sends three members to the Chamber of Deputies. The inhabitants of the department are said to be the most superstitious. (Malte Brun; Daut; Dict. Géog. de la France; Encyc. Methodérique.)

ARDCHEE, a river of France, which rises in the Côtes-d'Or, and descending from the Monts de Buisson, now and then turning S.E. empties itself into the Rhone a little above Pont St. Esprit (D. of Gard), forming, in the lower part of its course, the boundary of the department of Ar-

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That mighty Arden held even in her behalf of praise;
Her one hand touching Truth, the other Satan's side.

Upon the division of England into shires, this immense
wild was divided between different counties, and only that
part which was situated within eight miles of the City of
London, or twenty miles above its outfall. This natural bridge
consists of a very hard greyish limestone rock, forming an arch
through which the river flows.

It has been used as a passage over the river ever since
the first medieval.. It was mentioned in 1323, or 1732 English feet above the surface of the water.
The arch has an elevation of ninety French, or between
ninety-five and ninety-six English feet, and the breadth near
the top is about 153, or 173 English feet. The length of this tunnel or arch is not given by our authorities.

Geographers have spoken of it as originally a work of na-
ture, but perfected by the hand of man. The writer of the
article Adur in the Encyclopédie Méthodique (Oeug.
Physique) is of opinion that the river has worn this passage
through the rocks round which it once took its course; having
first effected a small opening, and gradually enlarged it.
On the other hand, Malte Brun (Geographie Universelle)
affirms that the arch does not exhibit any marks of the rock
having been worn away by the stream; and denies, not only
that the original arch was formed, but even that it has at all
enlarged the opening. He considers it a natural cavern formed
by the joint action of the stream and the rain water, and
observes, that a tendency to decay is one of the char-
acteristics of the kind of limestone which compose the
mass. (Encyc. Méthodique; Malte Brun.)

ARDEN (or ARTHUR), a market town, in the
barony of Loughgiel, in the county of Down, forty-three
miles N. by W. of Dublin, on the Liffey and Ferry road. It is
pleasantly situated on the river Dee, which is a small
stream uniting its waters with those of the Lagan, and
flowing into Lough Neagh. The town had in 1821 a popu-
lation of 3588 persons, and the rest of the parish contained
1773. The living is a vicarage, which has been united
from time immemorial with those of Shenlis, Smermore,
and Stackallen, and from the latter period with the rectory
and vicarage of Kilnedock. The united parishes are in
the diocese and province of Armagh. There are in the
town two schools on Erasmus Smith's foundation, one containing
eighty-four boys, and the other eighty girls, on the Lancas-
terian system.

Ardee returned two members to the Irish Parliament, but
lost its franchise with the Union; it has four fairs in the
year. It gives the title of baron to the Brabazon family,
earls of Meath.

Ardee was antiently a walled town, and defended also
by a strong castle, erected by Roger de Pippard, lord of
Atherde, about the close of the twelfth or the beginning of
the thirteenth century. There were two monastic establish-
ments, a monastery of monks and a Convent of nuns; the
rule of St. Augustin, founded in 1297 by the above-men-
tioned Roger de Pippard, and a Carmelite friary, the
church of which, filled with men, women, and children, was
besieged and taken by the Irish under the command of
Seamus Warghe, in the year 1313. Near the town is a remarkable mound called Castle Guard, of
ninety feet perpendicular height, 600 feet in circuit at
the base, and 140 feet at the summit. It is tastefully
planted, and is surrounded by a deep and wide trench,
or, according to other accounts, a double ditch and vallum
("embankment"). The remains of two structures, one seem-
ingly a castle or tower, and the other a kind of parapet,
are on the summit. These mounds, which the Irish call
rath, and attribute to the Danes, are more numerous in
the county of Louth than in any other county. (Carlisle's
Top. Dict. of Ireland; Traveller's New Guide through
Ireland, &c.; Beaumont's Mem. of a Map of Ireland, &c.;)

ARDEN, the woodland district of the county of
Warwick. This name, which, from its occurrence in the northern part of France and elsewhere [see ARDENNE], we may sup-
pose was a common Celtic designation for a forest, was given
to this most extensive of the ancient British forests.

It is said to have reached from the banks of the Avon to the Trent
on the north, and to the Severn on the west; and to have been boundled on the east by an imaginary line from Burton
upon Trent on the north, to the meeting of the rivers of Wat-
ling Street and the Foss-way on the border of Warwickshire
and Leicestershire. Drayton, in his "Poly-albion," (the
13th song) says,

Several places preserve the name, as Henley in Arden-
Hampton in Arden, &c. (Dracony Poly-albion, with Sel-
den's illustrations, by Glanvile, 1755; and the Marshal's Review of the Agricultural Reports of the Mid-
land Counties.)

ARDENNES, a mountainous, or rather hilly region on the
northern frontier of France, Belgium, and Holland, and
Molselle, situated partly in France, in the Grand Duchy of
Luxembourg, in the Rhenish provinces of Prussia, and in
Belgium. The name of the region is ancient; the Ardu-
ennia Silva is mentioned by Julius Caesar (Bell. Gall. I. v. vi.)
by Strabo (Geogr. I. iv.), and by Tacitus (Ann. i. iii. 42).

The Ardennes is one of the northern departments in the
modern subdivision of France, and is a part of the ancient
provinces of Picardy and Champagne. The Ardennes, or,
the region generally called so by the inhabitants, extends
from the hills of Thiérache in Picardy, on the left of
the Meuse, to those of the Hautes Fagnes and the banks
of the river Roer, in the form of a half moon; and the hilly
parts of the Ardennes and Luxembourg, as well as the mountainous
district east of the Eifel, which contains numerous extinct volcanoes, belong to the same system.

The mean elevation of the Ardennes, according to Damont
(Mémoire sur la Constitution Physique de la Province de Légde, Bruxelles, 1830), is about 47 English feet above the
level of the sea; its highest point, La Baraque Michel, is 650 metres, or 2230 feet. The mountain
Schniefel, in the environs of Prum, according to Stein-
haekel, in 1839, is 2132 metres, or 7009 feet high; and
logiques, observes, that the Ardennes afford a proof that
the direction of streams is not always a sure indication of
the general slope of a country; that the table-land of Langres,
in the department of the Haute Marne, which forms the
water-shed of rivers which flow into the North Sea, the
Atlantic, and the Mediterranean, has, on that account, been
considered as one of the most elevated parts of France, and
that it has been supposed that, from that point, there is a
slope to the north west, and south; that the table-land of
Langres is only 1495 feet above the level of the sea,
whereas the river Meuse, which rises at the foot of it, trave-
verses, between Mezières and Givet, 136 miles to the north,
a table-land which has an elevation of more than 1460 feet.

The Ardennes, according to the same writer, is a
mountainous; there are extensive tracts where only very
low hills or gentle undulations are observed. But in those
parts which are traversed by the more considerable rivers,
which flow into the Meuse, such as the Baise, the Aisne,
and the Wargi, and the Roer, the surface is broken into a multi-
itude of valleys, and extremely deep and very narrow
gorges, with steep sloping or precipitous sides, 500 feet high.
These great water-courses form, as it were, principal trunk,
from which a number of secondary valleys branch off, sur-
rounding the whole surface of the neighbouring country. Thus
the Ardennes contain both hilly and flat districts; but these
last are lofty table-lands, having the same general elevation
above the sea, and being composed of the same materials.

The prevailing rocks of the Ardennes are clay-slate,
grauwacke-slate, grauwacke, conglomerate, quartz-rock,
and quartzose sandstones in various modifications of colour
and internal structure, with now and then, but very rarely, some
thin beds of limestone and of calcareous conglomerates.

These rocks are in strata generally bearing N. E. and
S. W., often highly inclined, sometimes vertical, but seldom, if
ever, horizontal. They maintain a considerable uniformity,
both of composition and stratification throughout large tracts.
The slaty rocks are abundant, and afford, in some places,
excellent roofing slates; there are extensive quarries of
these along the banks of the Meuse, and they are carried
forward into great distances from the facility of the river-naviga-
tion. Excellent whitestones, both for course and fine cuttery,
are largely exported. The Ardennes have hitherto proved
but poor in metallic substances except iron; but the lead
mines of Longvilles and Triviers, of Spontainy and Moutiers,
were productive. Near Liéneux, an oxide of manganese is
worked.
in a mine open to the day. On the borders of the region towards the west there are some rich iron mines. The cele-
brious waters of Spa issue from these slaty rocks.

The country of the Ardennes is in general sterile; and even in the best part of it, which constitutes the French depart-
ment of Ardennes, there is only about a third of the land in arable. There are extensive heaths which can only be approached in the three driest months of the year. These heaths are called Fagnes, and the most elevated part of the region on the south-east is called Les Hautes Fagnes. There are extensive forests of oak and beech. The latter are valued highly in the Low Countries. Large deer and other game occur but seldom. The people of Belgium, living on the bor-
ders of the Ardennes, call them the Neat-Pari, that is, Noir-
Fagne, 'black country,' because it contains no limestone, and has a black or dark-looking soil. Around the villages there are patches of land which have been brought into cultivation by means of a process of paring
and burning, called essartage; it consists in taking off the turf and burning it on the ground, and by this process the soil is rendered capable of yielding three successive crops; the first year, rye, generally of a very good quality; the second year, oats; and the third year, potatoes; but after these crops have been got off the land, it must lie fallow for six, twelve, or even twenty years. Meadows and regularly cultivated lands occur only in the valleys.

The rearing of cattle, sheep, and horses, is carried on to a great extent. The mutton is celebrated for its excellence, but some of the milk produced here makes dear ewe-milk cheese is made. The oxen, sheep, and horses are of a small breed. The hardy and valuable Ardennes ponies and little horses appear to be indigenous. They were as hardy in the time of the Roman occupation of Belgium as they are now. For a long time,...
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tient round towers (see Antrim town) nearly a hundred feet high, and built mostly of a dark kind of marble; but this feature is not uniform. The walls of the cathedral are crowded with tombs, on one of which is the effigy of a bishop rashly sculptured in relief.

Ardfert was once the capital of Kerry, and had a university of high repute. The bishopric of Ardfert, or Brandon, or Brandon, to whom the cathedral was dedicated, erected a sumptuous abbey here in the sixth century, but it was burned as well as the town, in 1089. The town suffered a similar fate again in 1151 and 1179, on which last occasion the abbey was entirely destroyed.

Within the demesne formerly belonging to the earls of Glandore and barons of Ardfert (titles now extinct) are the remains of an ancient monastery, forming a most picturesque addition to these remains, according to Sir R. C. Hearne, who visited them in July, 1806, consist of the tower-vane, and a great cluster of the cloisters, which are in tolerable preservation. The architecture of the building does not speak a very antient date. There is some difference of opinion as to its origin; Smith (Nat. and Civ. Hist. of Kerry) ascribes its foundation to Thomas, Lord of Kerry, in 1263, in which he is followed by Archdale (Monast. History of Ireland), who says it was founded by the Earl of Pembroke, in 1319.

It is thought to occupy the site of the former monastery founded by St. Brendan, and was destroyed when the town was burned in 1089 and 1179.

There are three fairs in the year at Ardfert, and no population amounted, in 1089, to 2411, or 2481 in the whole parish. It was a parliamentary borough before the Union, and sent two members to the Irish House of Commons; it is still governed by a portreeve and twelve burghers. In 1621, there was an Edwin of the town, forty boys and twenty-one girls. 52° 19' N. lat., long. 9° 39' W. from Greenwich.

Ardfert is so near the sea, that single trees, or even rows, are destroyed by the wind; yet there are fine plantations in the grounds of the late Earl of Glendine.

ARGLASS, a town in Ireland, in the barony of Lecon, county of Down, a short distance E. by N. of the town of Killough, which is 100 miles N. by E. of Dublin. It lies upon the shore of the mouth of the harbour, and is separated from the bay of Killough from that of Ardlglass; the road between the two towns leads round the head of the first-named of these bays, a distance of about five miles, but this may be very much shortened by crossing the sands when the tide permits.

Ardglass lies on a small rocky bay or creek about 150 fathoms wide, and extending, at high water, 500 fathoms inland, with three or four sandy coves along its shores, divided by small sand banks and ledges on the west side has been built up so as to form a kind of pier, at the extremity of which is a light-house; and as there are always three or four fathoms water at the entrance, it is very suitable for a safe harbour.

The harbour is, however, far from secure when the south-east wind is the most violent on this coast, sets in. (Report of the Commissioners of Irish Fisheries for 1822.) It is inhabited chiefly by fishermen. The population of the whole parish was only 976 in the year 1812; the inhabitants of the town not being discriminated. It is the centre of one of the districts or stations into which the Irish fisheries are divided. In the year ending the 4th of April, 1820, there were employed within the district 268 sailing, and 300 row-boats; 2441 fishermen, and probably about 300 other persons, as fish-curers, net-makers, coopers, sail-makers, and other artificers connected with the fisheries, and depending on them for support. In 1822 there were two packets to the Isle of Man. The harbour has been within a very few years substantially repaired by W. Ogilvy, Esq., and government have lately made a grant towards the erection of a pier. There is a school on the foundation of Erasmus Smith, the school-boards for which was built by Mr. Ogilvy: it contained in 1826 about 120 pupils, half of whom were boys and half girls.

Ardglass was once a corporate town of considerable importance, and was represented in parliament. In the time of Queen Elizabeth it was, next to Newry and Down, the principal place in the county. Some authorities make it the second town for trade in all Ulster, Carneck-fergus coming third. Several reigning princes place its former strength and greatness. A range of buildings 234 feet long and 20 broad in the clear—250 feet long and 24 broad, according to Seward, Topogr. Hibem., which are probably the outside of the external walls, washed and plastered, and washed by the sea on the north end and the east side. On that side there are only spike-holes; but on the west side, or front, are sixteen arched stone doors, alternating with the windows, of fifteen square feet each. Three of these windows, two connected with the building, the third, now a little detached, but which probably at first constituted one extremity, as the remaining two windows occupy the centre and the other end of the building. The whole building has been divided into small compartments in two ranges, each 80 feet square, with a staircase in the centre. The lower rooms are about seven feet high; the upper, six and a half; there is a small water-closet in each of the latter, the drain running down through the flagging into the sea, and leading into the sea also. These rooms, feet square, with broad-flagged floors supported without any timbers. The building is surmounted with a battlement, at least on the side next the sea.

This singular erection is termed by the inhabitants the new works, although they have no tradition as to its use, which, however, its construction seems sufficiently to point out. It appears to have been intended for the secure deposit and sale of the goods of some merchants who came from beyond sea.

The town is about 11 miles by sea, and 13 by land, from the harbour, in a line running south and west. The town is about a quarter of an hour's sail from the town by sea.

The town is built of large, square, red bricks; the roofs, square, each with a finial building than any of the rest. In the great rebellion of Tyrone (in the reign of Elizabeth) it was defended by Simon Jordan, the owner, for three years, until the garrison was relieved by the Lord Deputy, Montgomery.

The parish of Ardglass is in the union (i.e. united parishes) of Ballinlough, in the diocese of Down, and ecclesiastical province of Armagh; but it has been erected into a perpetual curacy, and a new church built. The old church of Ardlglass, dedicated to St. Peter, was removed in 1813, on account of the dreadful massacre of the whole congregation at the Christmas midnight mass by the sects (clans) of the McCarthans. (Antrim and Present State of the County of Down; Seward's Topogr. Hibem.; Parliamentary Reports.)

ARDANMURCHAN. [See Argyllshire.]

ARDHO, a village in Scotland, in the district of Strath- allan, county of Perth, where there are the remains of a permanent Roman station, supposed to be in the most perfect preservation of any other station of this nature in the temporary Roman camps. The station is on the right of the great military road from Stirling through Crieff to the north Highlands, and close upon the little river Knaic or Knaig, a broad and a fast-flowing water.

This station is supposed, by General Roy, to be the Lindsey of Richard of Cirencester; and to have been founded by Agricola in one of his northern campaigns, perhaps in the fourth. It was on a road carried by the Romans from the wall erected by them between the Firths of Forth and Clyde into Strathmore beyond the Tay, and which crosses the river Knaig immediately below the station. The accompanying plan, from General Roy's Military Antiquities of the Romans in Britain, will shew the relative positions taken to strengthen it. Its form, according to the general practice of the Romans, is rectangular; its dimensions are about 600 feet by 430 within the entrenchments; and its four sides, and almost a square, having its diagonal points. On the north and east sides, where the works are most perfect, there are five ditches and six ramparts. From the nature of the ground the direction of the outer rampart varies; the aggregate breadth of all the works on the north-east side, where intoxicated by the line C D, is 180 feet, and that of the works on the north side, where intersected by the line C D, is more than 270 feet. The pretorium, or general's quarters, is near the centre, but not in it; it is a rectangle, 98 feet by 65, and 50 feet square, having its sides about 70 feet, but its sides are not parallel to those of the station. On the south side of the latter the works have been much defaced by the process of cultivation, and

* A monk of Westminster, author of History and Map of Novum Britannia, written about A.D. 1658, the MS. of which was discovered in Denmark in 1577.
on the west by the modern military road from Stirling towards Inverness. Three of the gates remain. The entrance at the prætorian gate crosses the entrenchments, not at right angles, but obliquely. There is a road out of the camp on the south side; but whether it coincides with the remaining (decumanus) gate is not clear from the plans. The Roman stations and camps had usually four gates: the prætorian, in front of the prætorium or general's quarters; the decuman, at the back of the same; and the right and left principal gates. From an inscription on a sepulchral stone dug up at this place, it appears that a body of Spanish auxiliary troops lay in garrison here.

The west side of the camp is protected by the river Knaig, the banks of which, as the section shows, are very steep. The level of the camp is sixty feet above the river. The prætorium, which has from time immemorial been called Chapel Hill, has been at some time enclosed with a stone wall, and has the foundations of a house ten yards by seven. The whole station has been of late years enclosed with a high stone wall in order to preserve it.

There is said to be on one side of the prætorium a subterraneous passage, supposed to extend under the bed of the river, but the entrance having been closed about 1720, to prevent hares, when pursued, from taking refuge there, it is not known where the passage is. Search has been made for it, but in vain. Previous to its being closed, a man who had been condemned in the baron court of some neighbouring lord, consented, upon condition of pardon, to explore it: but after bringing out some Roman spears, helmets, and bits of bridles and other things, he descended again and was killed by the foul air. The articles brought out were carried off by the duke of Argyll's soldiers after the battle of Shrewsbury in 1715, and were never recovered.

The camps are a little way, north of the station on the way to Crieff, and are of different magnitudes. The largest of them has a mean length of 2800 feet, and a mean breadth of 1950, and was calculated to hold between 25,000 and 26,000 men. The military road enters the camp by the south gate, and has levelled half of the small work which covered it, leaving the other half of it standing. On the east rampart of this camp is a small redoubt, on a gentle eminence; the only thing of the kind in the temporary camps of Agricola in these parts. The area of this camp is marshy, and some parts of it appear to have been always so.
The second camp is smaller, and its ramparts obliquely intersect those of the last. The northeast and part of the east and west sides remain entire. Its length is 1910 feet, and its breadth 1349. It would contain about 14,000 men, according to the Roman method of encamping. The area is drier than that of the great camp. No traces of it have been found in the modern surveys or by Agricola in his sixth campaign; the smaller one after the larger, when he had divided his forces. The part of the rampart of the first included within the second was not levelled. The lower parts of the ditch, where they approach the river Knasig, are now demolished.

The third camp is immediately adjacent to the station, and was probably an addition to it. Its mean length is 1060 feet, and its mean breadth 990, so that it would contain about 4000 men. It was stronger than the great camp, and was formed subsequently to it, the works of the great camp having been defaced by its rampart, and the part included within it has been levelled either by the Romans or others since their time.

In this part of Scotland are the remains of two other Roman stations, but neither of them are so perfect as that at Ardross. One of them, at Strathgath or Strathgath, on the river Earn, about six miles and a half N.W. of Ardross, is thought to be the Hieron of Richard of Cirencester; and between this and Ardross, about two miles and a half from the latter, is a small post called Kain’s Castle, supposed to have been a look-out for both stations, the remains of which are very perfect.

The other station, of which only slight vestiges remain, is in the neighbourhood of West Desligon Ross, near the junction of the rivers Rough Huil and Earn, about eight miles and a half N.W. from Strathgath, and eight and a half N.W. from Strachath. Near it are the remains of a small temporary camp, whereof great part of the inte- 

tracements and the four gates (which are covered in a manner similarly curious) remain entire. This station, General Roy supposes to be the Victoria of Richard of Cirencester, and the camp that of the ninth legion, which was attacked by the Caledonians in the sixth campaign of Agricola. About half a mile S.W. of Ardross, at the Grin- 

in Hill of that name, is a circular Roman fort (Roy’s A 


datamary Antiquities of the Romans in North Britain: Sir John Sinclair’s Statistical Account of Scotland)."

About a mile west of Ardross was a castrum of extraordinary dimensions, viz., 192 feet in length, 30 feet in sloping height, and 45 feet in breadth at the base. (Gordon’s Itinerarium Septentrionale.) The stones have been now mostly carried away to form enclosures for the neighbouring farms; but a large number of them which was a shuttle and seven feet long, has been preserved, together with a few large stones around it. (Sir John Sinclair’s Statistical Account of Scotland)

ARDOSSAN, a seaport and parish in the district of Cunningham, the most northern division of Ayrshire in Scotland, is about ten miles from the town of Kilmarnock. The port had previously considerable natural advantages, being sheltered by a large island (Horse Island) off the coast. The works were carried on under the auspices of the late earl of Eglinton, who bestowed upon them much trouble and expense. The harbour was to form one outlet of a canal intended to connect the Clyde with this part of the coast, and the projectors seem to have hoped to render Ardrossan the port of Glasgow. The harbour has been for many years in a state to receive shipping, and is considered as one of the safest and most capacious and accessible on the west coast of Scotland. A circular pier of 900 yards* was finished in 1811; but the progress of the wet dock and other works was suspended by the Lord Eglinton’s death in 1820. The canal (begun in 1807) has never been finished. It has been carried from Glasgow past Paisley to the village of Johnstone, a distance of eleven miles, at an expense of 90,000l. A railway has been commenced from Ardrossan to the canal, which will thus complete the communication, though not in the manner first designed. Baths have been constructed at Ardrossan, which render it somewhat attrac- 


tive and watering-place.

There are several ruins of an old castle, the remains of which indicate it to have been of considerable extent. It was in a great degree demolished by Cromwell, who used the stones of it for the erection of the fort of Ayr.

* This is the statement in the Enc. Britannica, last edition; but we suspect it is an exaggeration of the Lord Mr. Talbot, who estimated it at 600 yards as the intended length of this pier.

The theatre has a medium length of six miles. Its greatest breadth is about five miles, and its least not more than three. The kirk is close to the town of Saltcoats, part of which is in this parish. (See Saltcoats.) The population in 1831 was 8494. Ardrossan is in the presbytery of Strathclyde, and the synod of Glasgow and Ayr. It gives the title of baron to the family of Montgomery, earls of Eglinton. (Sinclair’s Statistical Account of Scotland, &c.)

ARDSTRAW, an extensive parish in Ireland, in the county of Tyrone. (See Newry.)

ARE, the modern French measure of surface, forming part of the new decimal system adopted in that country after the revolution; it is obtained as follows:—the metre or measure of length, being the forty-millionth part of the whole meridian, as determined by the survey, is 32408167 English feet; and the area is a square, the side of which is 10 metres long. The following denominations are also used:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Conversion Factor</th>
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<tbody>
<tr>
<td>Decare</td>
<td>10 ares</td>
</tr>
<tr>
<td>Hectare</td>
<td>100 ares</td>
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<tr>
<td>Chilire</td>
<td>1000</td>
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<tr>
<td>Myriare</td>
<td>10,000</td>
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<tr>
<td>Deciare</td>
<td>1/10 of an ares</td>
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<tr>
<td>Centiare</td>
<td>1/100 of an ares</td>
</tr>
<tr>
<td>Milliare</td>
<td>1/1000 of an ares</td>
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The area is 100 square metres, or 947.068175 French sq. feet, or 1076.44144 English sq. feet.

The hectare is generally used in describing a quantity of land. It is 24711685 English acres, or 4047 hectares make 1000 acres, which disagrees with the first result by less than 1 part out of 50,000.

A-REAL, a Latin word, and means the same thing as superficies or quantity of surface, but is applied exclusively to plane figures. Thus we say, the surface of a sphere, the area of a triangle, &c. The surface of a cube is six times the area of one of its faces. The word is also applied to signify any large open space, or the ground upon which a building is erected; whence, in modern built houses, the portion of the site which is not built upon is commonly called the area.

Returning to the geometrical meaning of the term, the measuring unit of every area is the square described upon the measuring unit of length: thus, we talk of the square inches, square feet, square yards, or square miles, which an area contains. And two figures which are similar is called in geometry, that is, which are perfect copies one of the other on different scales, have their areas proportional to the squares of their linear dimensions. That is, suppose a plane figure of an area of 1 unit, the length of 500 feet would be represented in the picture by one of 3 feet. Then the area in the real front is to the area of the front in the picture in the proportion of 500 times 500 to 3 times 3, or of $500^2$ to 9. Similarly, if the real height were 20 as given as the height in the picture, or in the proportion of 20 to 1, the real area would be to that of the picture as 20 times 20 to once one, or as 400 to 1, that is, the first would be 400 times as great as the second.

Any figure which is entirely bounded by straight lines may be divided into triangles, as in the adjoining diagram.

C  D  B

The area of every triangle may be measured separately by either of the following rules; in which the word in italics may mean inches, yards, miles, or any other unit, provided only that it stands for the same throughout. 1. Measure a side, A, B, of the triangle A B C, and the perpendicular C D which is let fall upon it from the opposite vertex, both in 

units. Half the product of A B and C D is the number of square units in the triangle A B C. Thus, if A B be 30 yards, and C D 16 yards, the triangle contains 240 square yards. 2. Measure the sides, A, C, B, in units; take the half sum of the three, from it subtract each of the sides, multiply the four results together, and extract the square
The following rules may be applied in the following cases—for a parallelogram, multiply A B, a side, by C D, its perpendicular distance from the opposite side—for a rectangle, multiply together adjoining sides, P Q and P R—for a four-sided figure, in which R T and S V are parallel, but T V and R S converge; multiply R S, one of the converging sides, by Y Z, its perpendicular distance from the middle point of the other. When R T and S V are perpendicular to R S, then Y Z is half the sum of R T and S V.

To find the area of a circle, multiply the radius O A by itself and the result by 352; then divide by 113. To find the area of the sector O A D B, see Angles. To find the area of the portion A B D, find those of the sector O A D B, and the triangle O A B separately, and subtract the second from the first.

In all these cases, the result is in the square units corresponding to the linear units in which the measurements were made.

The area of a curvilinear figure can only be strictly found by mathematical processes too difficult to be here described, but the following method will give an idea of the principles employed. Let A C D B be a curvilinear figure bounded by the curve C D and the lines C A, A B, B D, of which the first and third are perpendicular to the second. Divide A B into any number of equal parts (eight is here supposed) by the points 1, 2, 3, &c. and construct the accompanying obvious figure by making A p, p q, q r, &c. parallelograms. It is plain that the area A C D B is greater than the sum of the inscribed rectangles, denoted by the letters or numbers at opposite corners.

\[ 1 C, \ 2 p, \ 3 q, \ 4 r, \ 5 s, \ 6 t, \ 7 u, \ B v; \]

and that it is less than the sum of the circumscribing rectangles.

\[ A p, \ 1 q, \ 2 r, \ 3 e, \ 4 f, \ 5 u, \ 6 w, \ 7 D. \]

Therefore the area sought does not differ from either of these sums by so much as they differ from one another; but the sums differ from one another by the sum of the rectangles

\[ C p, \ p q, \ q r, \ n s, \ s t, \ t u, \ u v, \ v D, \]

which, placed under one another, give the rectangle D E, which is less than D 7; consequently neither sum differs from the area sought by so much as D 7. But by carrying the division of A B, with which we have begun, to a sufficient degree, the area of D 7 might have been reduced to any extent which might have been thought necessary; that is, name any fraction of a square inch, however small, and A B can be divided into an equal number of equal parts that D 7 shall be smaller than that fraction of a square inch. Hence the sum of the inscribed or circumscribed parallelograms may, by dividing the line A B sufficiently, be made as nearly equal to the area as any practical purpose can require.

The accuracy of the preceding process will be increased by summing, not the parallelograms, but the figures considering C p, p q, q r, &c. as straight lines. This will be equivalent to adding half the rectangle, D E, to the sum of the rectangles aforesaid. The practical rule is:—Add all the intermediate ordinates, 1 p, 2 q, &c. to the half sum of the extreme ordinates A C and B D; multiply the total by the common value of A 1, or 1 2, &c. This approximation is the first step of the method of Quadratures, which see.

The mathematical process of finding the area carries the preceding approximation one step further, and finds what is the limit to which the sum of the inscribed parallelograms approaches nearer and nearer, as the number of divisions of A B is increased. This limit, it is easy to show, is an exact expression for the area required. If x represent one of the lines A 1, A 2, &c., and y the corresponding line 1 p, 2 q, &c., the area of the curve is found by the process of the integral calculus thus represented

\[ \int y \, dx \]

or, in the language of fluxions,

\[ \text{fluent of } y \, x \]

A process similar to the preceding is employed by surveyors in measuring a field whose boundaries are curvilinear. [See Surveying, Offset.]

The investigation of the area of a curve was formerly called the quadrature of the curve (quadratum, a square), because, before the application of arithmetic to geometry, the most convenient method of representing an area was by giving the square to which it is equal.

For some practical purposes the following experimental method of finding the above area might suffice. Cut out the figure A B C D in pasteboard (heavy wood or metal would be better). Out of the same pasteboard cut a square inch or other unit; and weigh both the pieces thus cut out accurately. Then the weight of the first piece divided by that of the second will give the number of square units in the area required, if the pasteboard, or other material, be of moderately uniform thickness. A method similar to that of Archimedes (see his Life) might easily be devised.

ARECA, a genus of palms containing two species, both remarkable for the purposes to which they are applied. Botanically, area is distinguished by a double membranous sheath in which its bunches of flowers are contained, by its female corollas containing the rudiments of stamens, its calyx being divided into three parts or leaves, and its fruit
being a berry or drupe, with a fibrous rind inclosing one seed only. The leaves of all the species are pinnated, with their stalks rolled up ciliarily at the base. 

Arecæ catechu is described by Dr. Roxburgh as being the most valuable of all the plants of India, with the exception of the coffee-plant. The trunk, often from thirty to forty feet high, and in general about twenty inches in circumference, equably thick in every part, and smooth. The leaflets are from three to three and a half feet long, and widest at the point, which is not so angular as in the A. catechu. The fruit of the French empire in 1810, being afterwards made over to Prussia, was relinquished by that power in favour of the king of Hanover in 1815, when it was erected into a duchy, with a seat in the Upper Chamber of the Hanoverian parliament. The inhabitants are the most cheerless, sterile tract in the whole kingdom; in fact, it is an extensive plain, in which heath alternates with morass; the inhabited parts exhibit the appearance of so many lumps of earth, however, that the Oases in the African desert. The heart of the land, which is denominated the 'Humling,' is an immense moor of sand, above twenty miles in circumference, the whole surface of which presents a wide covert of heath, interspersed with sand-hills, and surrounded at every point by impenetrable morasses. This inhospitable region is traversed by the Emis in the west, and the Hase, which flows into the former, in the south; it is also watered by the north and south Rattle, the first running into the Emis, and the second into the Hase. Its climate is temperate, but moist, gloomy, and variable. The districts where rice and buckwheat are grown do not produce enough by one-half for the wants of the inhabitants; the growth is too small to meet the consumption: but the principal and the richest source of profit is the breeding of horned-cattle, sheep, and bees. Wood or orchard is unknown to them; but they have turf in sufficient quantity both for fuel and as an article of exportation. There is scarcity of bread among them, unless the domestic weaver and knitter desire the name; for their shirts, stockings, and garments are all made at home. In short, Meppen is so poor that the greater part of the men go out to work, to seek for work, in the hope of finding better bread in the summer season, and returning home with the surplus produce of their labour before winter sets in. The present number of its inhabitants, who are wholly Catholics, is about 45,000; and its revenue amounts to between 25,000 and 30,000 florins a year. The chief town, which lies at the confluence of the Hase and Emis, and 10 or 11 miles north of Lingen, in the bailliwick of Osnabrück, bears the same name as the duchy; it has a garrison of 500 men, and 1,000 in the manufacture of iron, and manufactures for the sea, and some external trade. Its population is 2300: 3241 N. lat., 7°17' E. long. Haselwitz, on the Hase, is the seat of the district court of justice, and manufactures agricultural implements; it has a convenant, and about 700 inhabitants.

The earldom of Recklinghausen, which constitutes the remaining portion of the duchy of Aremberg, so far as respects Germany, belongs to the electorate of Cologne under the year 1803, formed part of the grand-duchy of Berg in 1811, and was transferred to the Prussian crown in 1815. It is situated in the circle of Munster, in the Prussian province of Westphalia, and is bounded on the south by the circle of Arnsberg and Dusseldorf, and on the west by Cleves. Its superficial extent is 294 square miles, and the number of its inhabitants at the close of the year 1831 was 50,940. It is a part of the great duchy of Germany, and is by a gentle eminence, the Lippe traverses it, and its western districts are watered by the Emis. The soil is strong and fertile; the people depend chiefly upon agriculture and the breeding of cattle, though they are also employed very generally in making yarn and linen, and in the manufacture of turf, and coal. The inhabitants are all of the Catholic faith, and divided into seventeen parishes. The revenue which the duke of Aremberg derives from it is computed at 175,000 florins a year. The name of the town of Recklinghausen is derived from the name of the lake, the Klingenhei, the lake, or as it is called, the Meppen. The lake was created by a duke of Aremberg, Meppen by George IV. in 1826. His ancestor, Prince Leopold, who died in 1754, was a Field-Marshall in the Austrian service, and took a distinguished part in the Italian and German campaigns, which arose out of the contest for the succession to the empire, in the days of the empress Maria Theresa.

The present extent of this duchy, independently of the Belgian dominions, is 3,680 square miles, with an estimated value of as much as 500,000,000 florins, and an amount of its German population above 85,000; and the yearly income from its possessions both in Germany and Belgium is estimated at nearly 70,000,000. Meppen, which fell to the share of the Arnsberg, becomes the capital of the French empire in 1810, being afterwards made over to Prussia, was relinquished by that power in favour of the king of Hanover in 1815, when it was erected into a duchy, with a seat in the Upper Chamber of the Hanoverian parliament. The inhabitants are the most cheerless, sterile tract in the whole kingdom; in fact, it is an extensive plain, in which heath alternates with morass; the inhabited parts exhibit the appearance of so many lumps of earth, however, that the Oases in the African desert. The heart of the land, which is denominated the 'Humling,' is an immense moor of sand, above twenty miles in circumference, the whole surface of which presents a wide covert of heath, interspersed with sand-hills, and surrounded at every point by impenetrable morasses. This inhospitable region is traversed by the Emis in the west, and the Hase, which flows into the former, in the south; it is also watered by the north and south Rattle, the first running into the Emis, and the second into the Hase. Its climate is temperate, but moist, gloomy, and variable. The districts where rice and buckwheat are grown do not produce enough by one-half for the wants of the inhabitants; the growth is too small to meet the consumption: but the principal and the richest source of profit is the breeding of horned-cattle, sheep, and bees. Wood or orchard is unknown to them; but they have turf in sufficient quantity both for fuel and as an article of exportation. There is scarcity of bread among them, unless the domestic weaver and knitter desire the name; for their shirts, stockings, and garments are all made at home. In short, Meppen is so poor that the greater part of the men go out to work, to seek for work, in the hope of finding better bread in the summer season, and returning home with the surplus produce of their labour before winter sets in. The present number of its inhabitants, who are wholly Catholics, is about 45,000; and its revenue amounts to between 25,000 and 30,000 florins a year. The chief town, which lies at the confluence of the Hase and Emis, and 10 or 11 miles north of Lingen, in the bailliwick of Osnabrück, bears the same name as the duchy; it has a garrison of 500 men, and 1,000 in the manufacture of iron, and manufactures for the sea, and some external trade. Its population is 2300: 3241 N. lat., 7°17' E. long. Haselwitz, on the Hase, is the seat of the district court of justice, and manufactures agricultural implements; it has a convenant, and about 700 inhabitants.

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ARENARIUS, literally, relating to the sands, a work of Archimedes. [See ARCHIMEDES.]

ARES is the botanical name of one of the palms that produce sago, and from which palm-wine is obtained. The only species, Arenga saccharifera, is described as a plant of an ugly appearance, having a trunk twenty or thirty feet high, covered almost entirely with course black fibres, resembling horse-hair. The leaves are from fifteen to twenty-five feet long, and pinnated; their leaflets, which are from three to five feet long, widen gradually to the point, where they are ragged and prickly, in consequence of the projection of their hard veins beyond the margin; above they are of a deep shining green, but on their under surface they are thinly coated with pale-coloured woolly matter. The stalks of these leaves have intermixed with their coarse hair stiff bristles as thick as porcupine’s quills. Each bunch of flowers is from six to ten feet long, and, when covered with fruit, is as much as a man can carry. The berries are of a yellowish-brown colour, about the size of a median, and extremely acid; each contains three seeds.

This palm is found in all the islands of the Indian Archipelago, in moist and shady ravines through which rivulets find a course; it is much used for the sake of its sap, which flows in great abundance from the wounded branches of the inflorescence about the time the fruit is forming. A bamboo bottle is tied to the extremity of an amputated branch, and removed twice a day, morning and evening. A single tree will yield a large quantity of this fluid, which, when first drawn from the tree, is transparent, with the taste and colour of new wine; after a short time it becomes turbid and milky, and acquires a slight degree of acidity. When fit for drinking it is of a yellowish colour, with a powerful odour and a good deal of astrinquence; strangers do not, for some time, become accustomed to it. It is exceedingly intoxicating: but, if drunk in moderation, is said to be stomachic and wholesome.

Besides yielding wine, the coarse fibres of the stem and leaf-stalks are manufactured into powerful cables, and the trunk contains a great quantity of a nutritious meal like sago; Dr. Roxburgh mentions that 150 lbs. of that substance were obtained from one tree felled in the botanic garden at Calcutta. (See Roxburgh’s Flora Indica, vol. iii. p. 627; and Rumphius’ Herbarium Amboinense, vol. i.

The former calls this palm Sargamia Rumphia.)

ARENsburg, the capital of a circle in the large island of Oesel, or, as the natives call it, Kure-Saar or Saare-Ma, at the entrance of the Gulf of Riga, and within the limits of the Russian government c Livonia, is situated in about 51° 24' N. lat., and 20° 1' E. long. It lies on the Peedu, a small river on the S.E. side of the island, and has a harbour, too shallow for loaded vessels of any size, which are therefore compelled to anchor about five miles below the town. Its present site was formerly the abode of a colony of pagans from Esthonia. Valdemar, the Danish sovereign, built a fort of wood on the spot in 1205, but this fort having been destroyed by fire, another was rebuilt in 1221, at the time when Arensburg was erected into the seat of a bishopric; and, in a peculiar and strong manner, it is fortified by a strong circular wall, by the Russians in September, 1710. It is a fine specimen of solid masonry, and constructed in a style of magnificence which reflects credit on the memory of its founder, and the talent of the age in which he lived. The town itself contains a Russian parish church, a school, and hospital, and about 1400 inhabitants, nearly the whole of whom are Germans. They load twenty vessels a year with the produce of their industry and fisheries. Two fairs are annually held in the town.

AREOPAGUS. or more correctly AREIOPAGUS, the Hill of Are, is an eminence at a short distance west of the Athenian Acropolis. It was here that Xerxes posted his troops for the attack of that fortress (Herod. vii. 320). The circumstances which connected the place with the God are variously told. It was the hill of Are, according to some, because the Amazons, who in their invasion of Attica picked their fruits and in it were descended of Are, or rather, according to Aeschylus (Eumen. v. 692, ed. Stan.), because they performed sacrifice to the God in that place; according to others, because Areus himself was there tried for adultery; or lastly, to follow the more popular story (Paus. i. 2, 8), it was on this very hill that Ifigeneia was brought to trial by Poseidon (Neptune) for the murder of her son Haliartouthis. In short, the place was called Areopagus, and, in process of time, these legends were invented or employed to explain the want of further information.

AREOPOGUS, COUNCIL OF, a celebrated council, so called from the hill of that name, on which its sessions were held. It was also called the council above (ἐν ἄνω βάσι), to distinguish it from the council of five hundred, whose place of meeting was in a lower part of the city, known by the name of the Ceramiiums (Paus. i. 3, 4). Its high antiquity may be inferred from the well-known legends respecting the cause brought before it in the mythical age of Greece, among which that of Orestes, who was tried for the murder of his mother, has obtained especial celebrity (Aeschyl. Eumen.; but its authentic history commences with the age of Solon. There is, indeed, as early as the first Messenian war, nothing like a great political council, in the shape of a tradition preserved by Pausanias (iv. 51), that the Messenians were willing to commit the decision of a dispute between them and the Laconians, involving the sacrifice of their king, to the Areopagus. We are told that it was not mentioned by name in the laws of Draco, though its existence in his time, as a court of justice, can be distinctly proved (Plut. Philol. c. 19). It seems that the name of the Areopagitae was lost in that of the Ephete, who were then the appointed judges of all cases of homicide, as well in the court of Areopagus, as in the other criminal courts. (See Müller, History of the Dorians, vol. i. p. 352, English translation.) Solon, however, so completely arranged it, that it received from many, or, as Plutarch says, from most authors, the title of its founder. It is, therefore, of the council of Areopagus, as constituted by Solon, that we shall first speak, and the subject possesses some interest from the light which it throws on the views and character of Solon as a legislator. It was composed of the archons of the year (see Archon), and of those who had borne the office of archon. To this council were subjected, before their admission, they were subjected, at the expiration of their annual magistracy, to a rigid scrutiny (dokimasia) into their conduct in office, and their morals in private life. Proof of crime or sufficient grounds for exclusion were the first instance, and to expel them after admission. Various accounts are given of the number to which the Areopagitae were limited. If there was any fixed number, it is plain that admission to the council was not a necessary consequence of honourable discharge from the
dokimasia. But it is more probable that the accounts which limit the number are applicable only to an earlier period of its existence. (See the anonymous argument to the oration against Aeschines.) It may be proper to observe, that modern histories of this council do not commonly give the actual archons a seat in it. They are, however, placed there by Lysias the orator (De Fac. 15) and the Athenians in the time of the Thirty Tyrants, that in this respect any change had been made in its constitution after the time of Solon. To the council thus constituted Solon entrusted a mixed jurisdiction and author- ity, of great extent, judicial, political, and censorial. As a court of justice, it had direct cognizance of the more serious crimes, such as murder and arson. It exercised a certain control over the ordinary courts, and was the guardian generally of the laws and religion; it was conferred, at least, the immediate administration of the government, and at all times inspected the conduct of the public functionaries. But, in the exercise of its duties as public censor for the preservation of order and decency, it was armed with inquisitorial powers to an almost unlimited extent.

It should be observed, that in the time of Solon, and by his regulations, the archons were chosen from the highest of the citizens, as from the chief men who were engaged in the civil and military service. Of the archons so chosen, the council of Areopagus was formed. Here, then, was a permanent body, which possessed a great and general control over the state, composed necessarily of the highest and most illustrious and considerable proportion of euripatric, or nobles by blood. The strength of the democracy lay in the ecleistia or popular assembly, and in the ordinary courts of justice, of which the didaskoloi, or juries, were taken indiscriminately from the general body of the citizens; and the council of Areopagus exercised authority directly or indirectly over both. The tendency of this institution to be a check on the popular part of that mixed government given by Solon to the Athenians, is noticed by Aristotle (Polit. ii. 9, and v. 3, ed. Schneider). He speaks, indeed, of the council as being one of those institutions which Solon found and suffered to remain; but he can hardly mean to deny what all authority in which existed from the time of the legislator, it was his institution.

The council, from its restoration by Solon to the time of Pericles, seems to have remained untouched by any direct interference with its constitution. But during that interval two important changes were introduced in the general constitution of the state, which must have had some influence on the composition of the council, though we may not be able to trace their effects. The election of the chief magistrates was changed to an annual appointment, and the lot, and the highest offices of state were thrown open to the whole body of the people (see Archon). But about the year B.C. 459, Pericles attacked the council itself, which new project has since been attended upon with success. All ancient authors agree in saying that a man called Ephialtes was his instrument in proposing the law by which his purpose was effected, but unfortunately we have no detailed account of his proceedings. Aristotle and Diodorus state generally that he abridged the authority of the council, and broke its power (Aristot. Polit. ii. 9; Diodor. Sic. xii. 27). Plutarch, who has told us more about others (Vit. Cim. c. 15; Vit. Peric. c. 7), says only that he removed from its cognizance the greater part of those causes which had previously come before it in its judicial character, and that, by transferring the control over the ordinary courts of law immediately to the people, he subjected the state to an unmixed democracy. Little more than this can now be told, save from conjecture, in which modern compilers have rather liberally indulged. Among the causes withdrawn from its cognizance, those of murder (μακεδιας δικαίωμα) were not included; for Demosthenes has assured us (Contra. Aristoc. p. 213-2), that none of the many revolutions which had occurred before his day had ventured to touch this part of its criminal jurisdiction. There is no reason to believe that it ever possessed, in matters of religion, such extensive authority as some modern writers attribute to it, and there is least of all evidence that it lost at this time any portion of that which it had previously exercised. Lysias observes (Areop. p. 110, 46), that it was in his time charged especially with the preservation of order and the oligarchy, and that some forms of this were still kept up, where it was the scourge of impiety. It possessed, also, long after the time of Pericles, in some measure at least, the powers of the censorship. (Athen. 4, 64, ed. Dindorf.)

Pericles was struggling for power by favour of the people, and it was his policy to relieve the democracy from the pressure of an adverse influence. By increasing the business of the popular courts, he at once conciliated his friends, and strengthened their hands. The council possessed original jurisdiction, and the power of disposing of the revenue exclusively to itself, and the administration of it was committed to the popular council, the senate of five hundred. It seems that, at first, the Areopagites were interested in it; for they were obliged, with all other public functionaries, to render an account of their administration to the people (Lib. Contr. Ctes. p. 56, 30). Both these changes may, with some probability, be attributed to Pericles. After all, the council was allowed to retain a large portion of its former dignity and very extensive powers. The change operated by Pericles seems to have consisted principally in this: that, from having exercised independent and paramount authority, it was made subordinate to the executive. The power which it continued to possess was delegated by the people, but it was bestowed in ample measure. Whatever may have been the effect of this change on the fortunes of the state, it was perforce to be expected that a body commonly attached to the agency of Pericles. He seems only to have accelerated what the irresistible course of things must soon have accomplished. It may be true that the unsteady course of the popular assembly required such a check, which the democracy in its unmitigated form could not supply, but the existence of an independent body in the state, such as the council of Areopagus as constituted by Solon, seems hardly to be consistent with the secure enjoyment of popular rights and liberties. The Athenian people, by their naval services in the Persian war, and the consequences of their success, had earned the right to possess, and the power to obtain. It ought not, however, to be conceived that the institution in its present state of things was unafably framed by Solon, or that he surrounded the infancy of a free constitution with more restrictions than were necessary for its security. He may still deserve the reputation which he has gained of having laid the foundation of popular government in Athens.

With respect to the censorship, we can show, by a few instances of the mode in which it acted, that it could have been effectively operative only in a state of society from which Athens was still a long way distant. It was not the business of Pericles. The Areopagites paid domiciliary visits, for the purpose of checking extravagant housekeeping (Ath. 6, 46). They called on any citizen at their discretion to give an account for his expenditure (ibid. ed. v. 23). They summoned before their awful tribunal a little boy for the offence of poking out the eyes of a quail (Quintil. 3, 9, 13). They fixed a mark of disgrace on a man who had dined in a tavern (Ath. 13, 21). Athens, in the prosperity which she enjoyed during the last fifty years before the Peloponnesian war, might have tolerated the existence, but certainly not the general activity, of such an inquisition.

It appears from the language of contemporary writers, that, while there were any remains of public spirit and virtue in Athens, the council was regarded with respect, appealed to with deference, and employed on the most important occasions (Lyra. Contra. Theoum. p. 117, 12; De I'Ecand. p. 176, 17; Andoc. p. 11, 32; Dem. Contra. Aristoc. p. 641-2). In the time of Isocrates, when the dokimasia had ceased, or become a dead letter, and profligacy of life was rife, these men, by a mixture of high administrative and personal influence was still such as to be an effective restraint on the conduct of its own members (Iscor. Areop. p. 147). In the corruption of manners and utter degradation of character which prevailed at Athens, after its subjection to the domination of Macedonia, it began to be more surprised to find that the council partook of the character of the times, and that an Areopagite might be a mark for the finger of scorn (Ath. 4, 64). Under the Romans it retained that form, and obtained a decree of the council, requesting Cratinus, the philosopher, to sojourn at Athens, and instruct the youth (Plut. Vit. Areop. p. 300)
In this article with a few words on the forms observed by the council in its proceedings as a court of justice in criminal cases. The case was held in an uninterrupted space on the Areopagus, and in the open air; which custom, it is said, it had continued with all other courts in cases of murder, if we may trust the oration (De Cæde Herodis, p. 130) attributed to Antiphon. The Areopagites were in later times, according to Vitruvius, accommodated with the shelter of a roof. The prosecutor and defendant stood on an equal level, 1, 1, 1, and, before the pleadings commenced, were required each to take an oath with circumstances of peculiar solemnity; the former, that he charged the accused party justly; the defendant, that he was innocent of the charge. At a certain stage of the proceedings, the latter was allowed to withdraw his plea, with the penalty of banishment from his country (Dem. Contr. Aristocr., p. 642-3). In their speeches both parties shall recite the facts, and dry argument on the merits of the case, to the exclusion of all irrelevant matter, and of those various contrivances known under the general name of parabasis (aparabasis), to affect the passions of the jury, so as to incline them in favor of the other parties (Or. Lycurg., p. 149, 12-25; Lucian. Gymn., c. 19). Of the existence of the rule in question in this court, we have a remarkable proof in an apology of Lysias for an artful violation of it in his Areopagite oration (p. 112, 8). In this speech the apodictic character is preserved, to both parties. Many commentators on the New Testament have placed St. Paul as a defendant at the bar of the Areopagus, on the strength of a passage in the Acts of the Apostles (xvi., 3), where the apostle was taken by the insinuative Athenians to the hill, and there required to expound and defend his new doctrines for the entertainment of his auditors; but, in the narrative of Luke, there is no hint of an arraignment or two separate adjournments. Some of our readers may perhaps be surprised that we have made no mention of a practice so often quoted as peculiar to the Areopagites, that of holding their sessions in the darkness of the night. The truth is, that we are not persuaded of it. It is indeed, noticed more than once by Lucian, and perhaps by some other of the later writers; but it is not supported, we believe, by any sufficient authority, whilst there is strong presumptive evidence against the practice. It should be noted, however, that there was no unusual pastime with the Athenians to attend the trials on the Areopagus as spectators (Lys. Contr. Theomn., p. 117, 10). We suspect that few of this light-hearted people would have remained long on the hill, had they been able to bear such speeches as were there delivered, and see nothing. Perhaps there may be no better foundation for the story, than there is for the notion, till lately so generally entertained, that the same practice was in favour with the celebrated Vehmic tribunal of Westphalia.

AREQUIPA, a department of the republic of Peru, bordering to the north by that of Lima. It is 185 leagues long, and 30 wide; the temperature is mild, and the soil fertile; the aspect of the country is that of a perpetual spring. It is watered by the Lona, the Arequipa, the Tambo, and the Chiles, and has a considerable commerce in wine with the adjacent provinces;ochillean is also produced, and there are considerable gold mines, particularly those of Calama. It has excellent pastures for vast herds of cattle, and produces wheat, maize, and sugar. It is backed by the Andes, offsets from which come down to the sea coast, and form a considerable tributary to the Pacific Ocean.

AREQUIPA, one of the largest and finest cities of Peru, second only to Lima, is situated in the beautiful valley of Quilca, about thirty-five miles from the coast. It was originally a Spaniard Pizarro in 1539, of Callama, on its present site; its inland situation having rendered it from the attacks of pirates who infested the coast, it has continued in a flourishing condition, though repeatedly desolated by earthquakes. The inhabitants have acted altogether on a large scale, and the whole city is built of stone; and the Spaniards, who thus far have obtained a footing in this country, build slightly, that there may be the less danger in the overthrow of their edifices, and less expense in restoring them. On the other hand, the houses of Arequipa are built of stone, very substantial, low, and solid, and valued, with the view of their being able to withstand the storm. The town is populous, being estimated at 40,000; it is a bishop's see, with a cathedral, under the archbishopric of Lima, is divided into three parishes, has two Franciscan convents, one Dominican, and one Augustinian; it has a market of 1,000 head of cattle, which consists of 1,000 head of cattle, and a church of 150 inhabitants. An elegant bronze fountain adorns the Plaza, or great square. The climate is delightful; in winter a slight frost is perceptible, and the summer heats are not excessive. Gold and silver, cloths, woolens, and cottons, are manufactured in the city, and the produce of Arequipa is shipped to Buenos Ayres, exporting brandies, wines, flour, cotton, and sugar; and importing cattle, dried flesh, tallow, cocoa, &c. The great commercial road passes through the city from Lima to the southern provinces. (Ulloa.)

Molendo, the port of Arequipa, consists of about fifty huts built of reed-mats, and covered with flat cane roofs, without windows and chimneys. The whole has the appearance of a well-ordered race. The climate is warm, but, like other ports on the coast, is safe, from the general absence of storms. The site of this village was chosen for the advantage of a sandy beach to land on the balsa. (Hall.)

ARES ('Aρες), the God of War among the Greeks, generally considered as corresponding to the Roman Mars. Homer makes him a native of Thrace, and others consider him the father of several Thracian rivers and races. It is supposed that he was originally a war god worshipped by some northern people, though nearly all other traces of this circumstance have disappeared. The Scythian deity known to Herodotus as the God of War, whom he calls by the Greek term Ares, was in his opinion a god of war, who carried on a great war against the Persians, and who occupied the form of an iron scimitar, to which horses and other quadrupeds were annually offered; and also every hundred man of captives taken in war. In the later genealogy of the gods he is placed at the head of the first Damos, and, as such, took part in the war against the giants, and slew Mimas and Peloros. In the contest with Typhon he fled with the other gods into Egypt, and was changed into a fish. He was not more successful in his engagement with Zeus and Ephialtes, the children of Abas, who had him imprisoned for thirteen months. To a still later period we must refer the murder of Halirrhothius, and his trial before the court of Areopagus, as well as his combat with Heracles, as celebrated.

It is a curious circumstance that the Greeks, though constantly engaged in war, should have paid little attention to the worship of Ares. There were few temples erected to him, as he would seem to have been of little use. He had a temple and grove where a yearly festival was celebrated, to which no female was admitted (Paus. iii. 22): there was another on the road from Amyclae to Therapne in Laconia (iii. 19), and a third at Athens (i. 36). Though, as we have remarked, Ares seems to be a Thracian god, yet the element of the word Ares is an integral part of the Greek language, and the word denoted best and bravest, aristos (αριστος), is the superlative of ares. The Sanscrit arti, nom. arta, signifies an enemy. In early times human sacrifices were offered to him by the Lacedaimonians, dogs by the Carians, and asses by the Scythians (Apolod. Pragm. p. 584, ed. Heyne).

It is difficult to say what the distinctive character artistic artists wished to give to this god, because no Greek state honoured him as their principal deity. We have no distinct account of his statues by Alcamenes and Scopas in the temple at Athens, but there can be no doubt that they have been preserved, and also from heads of the god on gems, that the following is the general character under which he is represented. The expression is stern and thoughtfull; firm nervous muscles, a strong delicately, and short bright hair; the ears are small, the head full and round, the face deep-set. It is only in later times that he appears with a strong beard as the Roman Marspiter. When not naked, his dress is a chlamys (ακλάμα). See a beautiful head on a recent engraving (Pio Ciam. iv. 7), head on the coins of the Mamertini (Magnani, iv. 31, 32); on the Denarii of Fonteius Capito
A R E

(Patin. p. 114). See this subject fully treated by Hirt, Bil-
dende Kunst, 1833; Müller, Archäologie der Kunst, p. 492.
(For the Italian God of War, see Mars.)
ARISTAEUS, surnamed CAPPAadox, or the Cappa-
Dox, was a medical writer of antiquity, is supposed to have lived in the latter part of
the first and the beginning of the second century after Christ.
There are no positive accounts as to the time and circum-
cstances of his birth and death; but the following statements
are founded solely on the fact of the medicinal preparations of Andro-
machus, physician to the Emperor Nero, and the medical
dignity of the Archiatri, being mentioned in his works;
while, on the other hand, this anciently occurs in the
Suppositio of Diocletianus, which appears to have been
written during the reign of Vespasian. Hence it is con-
cluded, that Aristeus wrote shortly after the time of Nero.
He takes notice of the wine of Falernum, and other Italian
wines; particularly Sicilian, with which he remarks that his residence
must have been in Italy. The learned have found some
difficulty in fixing upon the sect, or school of medicine,
to which Aristeus belonged. P. Petit considered him as
a follower of the dogmatic sect, who founded their expla-
inations of life and disease on the four elementary qualities.
But his frequent allusions to the pneuma, or spirit, have
led others to regard him as one of the pneumatic school
founders. Athenaeus, who speaks of him with considerable
praise of the medical men of eminence at the period when
Aristeus is supposed to have lived. It seems to be a pecu-
nlar merit of this physician, however, to have remained free
from the predominant influence of any one of the prevailing
theories, and to have derived his views from a consideration of
dependence in the observation and treatment of diseases.
Aristeus was an original observer; his writings bear no
traces of compilation; and if a part of the information which
he affords belongs to the age in which he lived, there is
another very considerable part for which we seem to be in-
debted to his own personal experience.

Aristeus regarded a knowledge of the structure and function of the various internal
organs as a necessary preliminary to the study of disease; his anatomical remarks,
however, betray sufficiently the imperfect state of this science in his time.
He conformed with the pneumatic physicians and the Stoic philosophers, in believing
the heart to be 'the principle of life and strength,' and the seat of the soul. He gave a full
account of the distribution of the sēna portarum, and re-
garded all veins as having their origin in the liver; he also
was aware of the numerous communications which exist in
various parts of the venous system, which led him to refute
the notion that particular veins in the arm are connected
with particular internal organs, and the consequences which
were drawn from this notion as to bloodletting. Aristeus
looked upon the liver as the seat of the grand nerves of
blood, and the spleen as fitted to purify that fluid. He re-
garded both the stomach and colon as organs of digestion,
and bestowed much attention on the morbid affections of
the latter organ. He knew that the kidneys had a glan-
dular function, and the neglect of the necessary exercises
of sensation and motion. The fact that injuries of the
head are apt to produce paralytic affections on the oppo-
site side did not escape his observation, and, in order to
account for it, he stated that the nervous fibres in the brain
form a decussation in the shape of the Greek letter Λ,
while the nerves arising from the spinal marrow proceed
directly to the organ for which they are designed. Notwith-
standing these curious remarks, Aristeus was distinguished
by his peculiar liveliness, elegance, and conciseness of
diction. He is thought to have excelled all ancient authors, not even
excepting Hippocrates, in the art of describing diseases,
and to have been the model in the style of writing
literature. His account of epilepsy, tetanus, acute and chro-
nic headaches, hemoptysis and catarrh, or burning fever,
are peculiarly happy specimens of his manner of writing.

In the treatment of diseases, Aristeus regarded experi-
cence as the best guide (ὑπόδειγμα ἢ τέκτων ἡμεῖς), and
repeatedly refers to the necessity of following the hints
which nature gives to the physician. His methods of treat-
ment seem to have been energetic where it appeared neces-
sary, but always simple; and he was averse to that flagrancy
of medicaments which was the use of some of his contemporaries
were addicted.

He frequently employed emetics, purgatives, and cathartics;
and he was aware that emetics not only evacuate the con-
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chronic as well as acute diseases, but cautiously with regard

the manner of her change into a fountain, and the pursuit of her by the river-god Alpheus from Elea below the sea to Sicily, see Alpheus, and Ovid, Met. v. 572. Pausanias tells rather a different story; he says that Artemis passed over into Ortygia, and there was changed into a fountain (v. 7). Pausanias says, that the nympha of the fountain of Artemis to gratify Diana, after one of whose names the island was called Ortygia, and to whom it was consecrated. He calls it 'a very large fountain,' and adds, that it abounded in large fish, and covered in, and never caught; and that if any persons were impious enough to eat them (as had been done in time of siege), they incurred the anger of the deity and fell into great misfortunes (v. 3). Cicero speaks of it as a 'fountain of sweet water of immense size,' and also 'a well of honey for those covered by the sea but for a stone bulwark.' Verr. Act. ii. iv. 53.) That beauty and abundance of water which attracted the admiration of the poets, has disappeared. Swinburne speaks of the rock as riven by earthquakes, and of the spring as sometimes failing in the volcanic convulsions which from time to time desolate that region. Wilkins thus describes its appearance at the beginning of this century: 'The fountain now springs from the earth under a natural arch in the rock, within a few paces of the sea, and is only separated from it by the city wall, through an aperture in which it is discharged into the harbour. It is a considerable spring of brackish water, although of little depth; and is remarkable for its celebrated elegance and taste; and after the Sicilian manner of washing, perform the operation standing up to their knees in the stream. Over the arch is a rude image of the Madonna, which the Syracusans pretend to be a statue of the nymph Artemis.' (Magius Gracius.)

It was commonly said that things thrown into the Alpheus would reappear in this fountain. Strabo asserts that a cup of so. Scenex quotes it as an article of popular belief, that when the Olympic festival was celebrated on the banks of the Alpheus, the sweepings of the temple reappeared in the Sicilian fountain. (Nat. Quast. iii. 26.) Moschus intimates a similar belief in his seventh Idyll. In the middle of a few years, works met with a great success of fortune adapted to the change in religion, and the fountain was said to cast up leaves not known to grow except on the river Jordan. (Marfotti, Cron. Antica di Calabria, ap. Wilkins.) A strong spring bubbles up under water near the place where the stream from the fountain runs into the sea; and this has been said to come from the waters of the Alpheus. It is now called L'Oceo della Silicia. The Syracusan poets, Theocritus and Pindar, both mention it in their ode on this favourite stream. There was another Artemis in Samos, and another in Cabouca. (Schol. in Theoc. i. 117.)

ARETINO, PIETRO, an Italian writer of the sixteenth century. He was born at Arezzo in 1492, and was the son of Giovanni Aretino, a Dominican. Pietro left his native place very young, and went to Perugia, where he found employment as a bookbinder. Here he had an opportunity of reading the books which were entrusted to him, and of thus acquiring some information. His regular education had been very limited, and indeed he remained all his life ignorant of Latin and Greek; but he had much quickness of parts, a fervid imagination, and great fluency of expression. After some years he set off from Perugia on foot, and with nothing but the clothes he had on, went to Rome, in quest of better fortune. He first met with a patron in a wealthy merchant, Agostino Chigi, the same for whom Raphael painted the palace called La Farnesina, who lodged him, and for whose health he composed a sonnet on Leo X., and to Cardinal Giulio de Medici, afterwards Clement VII., in whose service it appears that he remained seven years, but in what capacity is not known. A circumstance which strongly shows the profligacy of those times drove him away from Rome about 1524. The celebrated painter, Giulio Romano, sketched a series of most obscene drawings, Marco Antonio Raimondi engraved them, and Aretino illustrated them by sonnets. The court of Rome, being informed of what had passed, sent Giulio Romano escaped to Mantua, Aretino also ran away, but Raimondi was seized, and would have been severely punished, had he not succeeded in escaping from prison. Aretino, taking advantage of the fact, published the famous captain of the Florentine republic, and in Francis I. of France. Giovanni took a particular liking to him, and introduced him to the king, who made him presents in return for the praises which Aretino lavished on him. The death of Giovanni de Medici having deprived Aretino of a generous patron, he went to live at Venice, where he depended on his writings for subsistence. He wrote both prose and verse, obscene dialogues, satirical capitoli in terza rima, and scurrilous odes, and condemned the authority of the letters which he addressed to all the princes and great men and ladies of his time, sometimes flattering them, sometimes praising himself, and generally making money or some other private advantage the object of his whole proceeding. He magnified the greatness of his works; and sometimes threatening them with the lash of his satire if his demands were not complied with. It is a curious fact, that by these means he received considerable sums of money, which enabled him to lead a dissolute life, and leave for posterity an evil and debasing work, written for generosity. His house was open indiscriminately to the destitute poor, the adventurer, and the profligate of either sex. He dressed in costly garments; and spent nearly a thousand scudi, or crowns, a year, a large sum in his time. He was often embarrassed, and ever craving for money, though he received presents from most Italian princes, as well as from Francis I., Charles V., Henry VIII. of England, and even, it is said, from Solyma, Sultan of the Turks.

Owing to the virulence both of his speech and pen, he narrowly escaped from several attempts to assassinate him. 'Twice at Rome, in the time of Leo X., he nearly lost his life, but was saved by a friend. Pietro Strozzi, a Frenchman, was beheaded for the same purpose. Ten Frenchmen in Italy, being incensed at some satire of Aretino, sent him a message, that if he continued to slander him, he would have him killed in bed; the threat so frightened the poet, that he should not have slept in his bed, and would not trust any one within as long as Strozzi remained in the Venetian territory.

Aretino still cast a longing eye towards Rome, in expectation of considerable amount of money. He wrote several compositions on sacred subjects, such as the Lives of Christ, the Virgin Mary, St. Catherine, Thomas Aquinas, A Commentary on the Book of Genesis, and A Paraphrase of the Seven Penitential Psalms. These works, however, were not so popular as his works in the language of Aretino is generally turgid, affected, full of metaphors and hyperbole, resembling that which became prevalent in Italy a century later, and which is known by the name of del setecento. He wrote with great facility, but at the same time with carelessness, and his taste was coarse and trivial. The Duke of Urbino applied to him for ten maternal verses, which Aretino proposed that Aretino should be made a cardinal. Luckily for the credit of the Roman hierarchy, the pope would not listen to such a suggestion; and it was perhaps in resentment of this, that Aretino unmercifully lashed the pope's son. At this Aretino was excommunicated. The day before his death, Julius III., who was a native of Arezzo, was addressed by Aretino in a letter of congratulation, accompanied by a sonnet characterised by the most fulsome praise of the new pontiff. Julius, being at the same time importuned by several persons around him in favour of Aretino, made the poet a present of 1000 scudi, and sent him the bull or diploma of Knight of St. Peter, an inferior order, to which a small income was attached. Aretino still expecting more, went to Rome with the Duke of Urbino in 1553, was kindly received by the pope, but meeting with no further encouragement, he again left that city in disappointment a few months after, and returned to Venice, where he remained until his death.

Aretino's last home was at St. Luke, at Venice, where a monument was raised to him, which Sansovino mentions in his Veneta Illustrata; it was afterwards removed in the revolutions which church underwent. The writings of Aretino have in their different editions been republished many biographers and travellers, and by Misson among the rest, was never placed on his tomb. Pietro Aretino must not be confounded with the historian Leonardo Bruni, also called 'L'Arete', and with Leonardo Areteo, who described 'L'Unico Areteo.' Some travellers, seeing the monument of Leonardo Bruni in the celebrated church of Santa Croce, at Florence, by the side of the tombs of Galileo, Michel Angelo, and Machiavelli, that of the Duke of Urbino, and that of Aretino, have indulged in uncalled-for moral reflections on the subject. Pietro Aretino was never married, but he left several natural daughters. His works, and the most obnoxious of them in
particular, have been re-published separately at different times, notwithstanding the censure of the Inquisition, and have been translated into several languages. But the three are the best specimens of his poetry: they are partly satirical and partly laudatory of several conspicuous characters of his age—Charles V., Catherine of Medici, Pope Julius, and Francis I. He and his contemporaries composed an historical tragedy in blank verse, one of the earliest Italian tragedies. His five comedies in prose—Il Filosofo, La Cortigiana, Il Marscello, L’Iscorpio, and La Talanta—are not without some merit in the minor style. His Città di Casa, the old Italian comedies, they are deficient in dramatic plot, and objectionable in their language. His Letters were published at Venice at different epochs during his lifetime, and form six volumes, octavo, besides two volumes of letters written to Arzetino. His Makedone is a style corresponding with many others in the style of his contemporaries, with a mixture of meaningless or etiological phrases, much of the life and character of Arzetino, as well as of the character of his times, may be gathered from these letters. He was either the flatterer or the enemy of every Italian writer of his age; and it was one that abounded in writers. He bestowed freely the epithet of ‘divine’ on Cardinal Bembo, Fracastoro, Giovio, Alamanini, Tolomeo, Lollo, and even upon Molsa and Dolce, and they in gratitude returned the compliment with interest. Ariosto has not disdain to call himself ‘I divin Pietro Arzetino.’ Berni, on the contrary, was never his friend, and wrote a most bitter invective against him. France, however, hardly,舭al moral as Arzetino himself, banded satire with him. Arzetino directed his enmity chiefly against the pretenses of Rome: Clemens VII., Cardinal Carafa, afterwards Paul IV., and the estimable and learned Cardinal Salodoto, were all the same treated with style of abuse, and they paid little or no attention to it at Rome, that it was considered rather an honour to be satirized by the cynic poet. Arzetino boasted of his impudence, styling himself ‘by divine grace a free man,’ and ‘the scourge of princes.’ He is indeed one of those instances of successful shamelessness which occasionally appear to astonish the world, and make us wonder that such nuisances are so long endured. But the heat of the Juno lies in this literature writing. He was the most offensive writer of a most immoral age, an age abounding in impure works, which might rival in obscenity those of ancient Rome, and are only surpassed in infamy by some of the worst productions of the French erotic press of the eighteenth century. (Count Mazzuchelli’s Vita di Pietro Arzetino.)

ARETTINO (Musician). [See Guido.]

AREZZO, a very antient and still considerable town of Tuscany, lies on the Arno, 13 miles from its mouth, and is 600 feet above the sea level. The citadel of Arezzo is in 43° 27’ 52’’ N. lat. and 1° 52’ 35’’ E. long. Arezzo was one of the wealthiest and most populous among the twelve cities of ancient Etruria, was repeatedly at war with the Romans, after which it was conquered and its citizens sold into slavery. But it was supplied money and arms towards Scipio’s expedition to Africa about the end of the second Punic war. Its government was then partly popular and similar to that of Rome, and its laws were judicious and wise. Arezzo, having joined the Marsi and other Italian nations in the social war against Rome, was devastated by Sylla, its inhabitants were dispersed, and a Roman colony was sent into the country. It is a matter of doubt whether the commerce of Tuscile at old Areteum, as we find in the Roman geographers two colonies mentioned, one about eight miles to the north of it, called Areteum Julium, and another the same distance to the south, which have been translated into several languages, was first distinguished from Arretum Vetus, which last, however, survived them both, having been restored by the care and liberality of Massimo, who was said to be descended from the old kings or princes of that part of Etruria. The potteries of Areteum was in great repute. After the fall of Rome, Areteum, or Areteum, was sometimes called, was ravaged by the Goths under Totila, but was restored under Justinian. It then submitted to the dominion of the Longobards, and afterwards of Charlemagne and his successors. The Bishopric of Arezzo were made feudal counts, and as such governed the town and its county or district, in the name of the Emperor and King of Italy. In the eleventh century, however, Arezzo, in the hands of Henry the Third, became allegiance to the empire, and adopted a republican form of government. It was subsequently distracted by the factions of Guelphs and Guibelines. The Guibelines at last prevailed in the time of Frederic II.; and having at their head the Bishop Guglielmo Ubertini, drove the Guelphs out of the city. They next kept up a war with the popes. His conquest of Florence, and when defeated at the battle of Campaldino, in 1289, when the bishop was killed. In the following century, another bishop, Guido Tariati of Pietramala, also a Guibeline, became Lord of Arezzo. Arezzo, in 1295, placed itself under the protection of the popes. Arezzo was fortified the city, made roads, conquered several neighbouring towns, fought against Florence, and maintained himself in his see although deposed by the pope, from whom he did not submit. In 1354, when the city was taken and plundered by the Florentines, under him Arezzo attained a high degree of power and splendour. He died in 1347, and his monument is in the cathedral of Arezzo. After his death there came fresh dissensions among the partisans of Pisa and Florence, until 1384, when the city was taken and plundered by the Florentines, under Ingelram of Coucy, a famous Condotieri of the times, who sold Arezzo to the Florentines for 40,000 golden florins. After more than a century Arezzo revolted against Florence in 1299, was again taken, and treated with great severity. In 1529 it opened its gates to the army of Charles V., which then besieged Florence. Arezzo was obliged, in 1531, to submit, as well as Florence, to the Medici, and has ever since made part of the duchy of Tuscany. But its inhabitants have always retained something of their former independence and warlike spirit. In 1799, they rose against the French who had occupied Tuscany: the following year, after the battle of Pontecorvo, the city, being nearly divided, they resolutely defended themselves; but the town being stormed on the 19th of October, 1800, a dreadful scene of violence and slaughter ensued.

Arezzo is situated on two hills, and in the middle of a fine plain, between the Arno and the Chiana, and surrounded by an amphitheatre of mountains. The citadel is on the summit of one of the hills. It lies on the high road from Florence to Perugia and Rome, and three miles from the left bank of the Arno. The walls are about three miles in circuit, and have four gates: the streets are tolerably wide and well paved. The only remains of antiquity are the ruins of an amphitheatre. The town is the cathedral of Arezzo, and possesses several other remarkable churches with fine paintings, and various handsome palaces belonging to the nobility. But the handsomest structure in Arezzo is that called Le Logge, by the side of the town-house on the principal square, which has a fine portico nearly 400 feet long. It was a theatre and the custom-house. It was built by Vasari, who was a native of this place. Arezzo has produced many other distinguished men—the monk Guido, the first restorer of modern Tuscan music; Guido d’Arezzo, the celebrated Pietrarch, who was born here, though of Florentine parentage; the historian Leonardi Bruni, Pietro Arzetino, Pope Julius III., the naturalist and physician Cesalpini, the philosopher and learned Ruggieri, its all have contributed to the glory of its city or its comunita, or territory, 17,000 more in 1825, according to Professor Giulii’s Statistica della Val di Chiana. But Arezzo is also the chief town of one of the five compartimenti, or provinces, into which Tuscany is now divided, which includes the large district called Val di Chiana, once a marish, but now drained, and the towns of Cortona, Montepulciano, and others. The territory of Arezzo is fertile in corn, oil, wine, and fruits. The celebrated wine called Alsatico, the finest in Tuscany, is made here. There are also manufactories of woolens and of pins. Arezzo is a bishop’s see, which has an income of 3,000 scudi, or crowns, per annum.

ARGAL or Argali, a species of wild sheep (Ovis ammon) found on the mountains of Siberia and Kamtschatka. [See Sherp.]

ARGAND LAMP, so called from the name of its inventor, who was a Scottish chemist. It is made of various forms, for the different purposes of reading and of diffusing general light. Fig. 1. exhibits the external appearance of the reading-lamp; A is the reservoir of oil, from which it descends gradually to the wick B. This wick is then lighted, and is thrown into a flame of smoke through the hole C to the burner D, containing the wick, placed between two tubes and immersed in oil. The wick rises a little above the upper surface of D, at E; F is the glass-chimney, the lower part of which is enriched with three or four aligences. If the lamp is turned upwards; the chimney rests in the gallery G, and is kept in its place by four wires, two of which are marked H, H. By turning the gallery G, the wick is either raised or low
inverted, the oil is poured into the reservoir at the hole N, by moving the handle L, the short tube O is made to cover this hole and prevent the oil from running out, and the reservoir is then screwed into its place, and the handle depressed so as to uncover the hole and to allow the passage of the oil into the cistern B. Within the perpendicular tube P therein is placed a smaller tube Q, and both are closed at bottom and open at the top; the space between these contains oil and the wick R, stretched over the short tube S, rising a little above the tube at T. The outer surface of the tube Q has a spiral groove formed round it, and a tooth in the ring or gallery G entering this groove, when it is turned round, causes the tube and wick attached to it to ascend or descend, so as to regulate the flame. On account of the nature of the reservoir which contains the oil, a constant supply will be kept up at the level marked by the dotted line U, both in the cistern B and in the wick-tubes P and Q.

It has been mentioned that various forms are given to the Argand lamps. In those employed for the purpose of giving a general and diffused light, the reservoir of oil is circular, and surrounds the cistern and wick, and is nearly on a level with the latter; a ground-glass shade, which in the smaller lamps is frequently globular, and in larger ones rather flat, rests upon a groove.

The chemical Argand lamp is a very useful instrument, and is represented by fig. 3: a is the reservoir of oil; b the opening at which the oil is poured into it; c is a short copper chimney; d is a pinion by which motion is given to the rack e, so as to raise or depress the wick; the apertures at f supply air; and the dish g, in which the lamp stands, serves to retain any oil which drops from the reservoir.

ARGEII, a name sometimes applied by Homer to the whole body of Greeks assembled at Troy; it is derived, probably, from the inhabitants of Argos, who had even in those early times raised their city to considerable celebrity. Homer, indeed, employs the word Argos not only to designate the name of a town, but also the whole Pelo-

The reservoir A terminates in a neck, which screws into the upper part of the oil cistern B; when it is unscrewed and

Pelasgii (Strabo, viii. 371; Eurip. Orest., 931; Aeschyl. vol. ii—2 R}

The capital of Agamemnon’s kingdom of Argos, which certainly did not comprise all the Peloponnesus, was Mycenae. Homer often qualifies it with some epithet, as Achaicium (Iliad. ix. 141), when Argos of the Peloponnesus is meant, and Pelasgicum when the Thessalian city or district of that name is intended. Strabo (vii. 372) tells us that in later times the word Argos in the Thessalian and Macedonian dialects signified a plain or field, and we may therefore perhaps consider it as having the same root with ager in the Latin language. What connexion has this with the several cities named Argos, the geographer does not think proper to inform us, though we may perhaps intend us to infer that they were so called from being situated in a plain. Pausanias (vi. 7) mentions a plain (called the xalov apoix) close to the mountain Artemisium, but we doubt if this has any reference to the use of the word Argos, of which we are here speaking. The early inhabitants of the Peloponnesian Argos and of the district around it were, we have good reason to believe, Pelasgii. (Strabo, viii. 371; Eurip. Orest., 931; Aeschyl. vol. ii—2 R)
The arrival of Danais from Egypt, according to tradition, caused their name to be changed to Danai, a term that occurs in the Iliad, but the mass of the population no doubt still remained the same. Eighty years after the Trojan war, or a.c. 1104, the invasion of the Peloponnesian league was defeated by them, and the other cities of southern Greece, was obliged to submit to the Dorians. Still this was only a change of dynasty, and all the older Achaean inhabitants were not compelled to leave their country. From this time began the extensive signification, but the city of Argos itself continued an important place under this new race. [See ARGOS, AGGOS, and ACHAI.] ARGEMONE, the name of a small genus of the poppy tribe, of which three species are frequent in some of the cultivated ornamental plants. They are all natives of Mexico, and are characterised by having six petals and three sepals, a very unusual number of parts in the natural order to which this genus belongs. Their leaves are prickly, and generally marked with whitish or pale bluish-green veins; the flowers are white or yellow. The commonest species is A. mexicana, from the seeds of which the Mexicans obtain an oil very useful to painters; the handkerchief of A. grandiflora, the flower of which is shown, is as much as three inches in diameter. They are all hardy, and will thrive in almost any soil or situation. Their seeds should be sown in a hot-bed, and the young plants treated as half-hardy annuals.

In 1861, Lieutenant D'URIS de Toulongeon, a writer of the last century, more remarkable than illustrious for his opinions, adventures, and literary reputation, was born at Aix in Provence, on the 24th June 1772. He was destined for the bar from his birth, because his father, who was a Procurator-General of the parliament at Aix, had resolved if possible to keep that office in his family. But the ardour of youth, and a restless disposition, led the marquis to frustrate the prudent designs of his parent, and to choose a profession which he thought more conducive to a life of pleasure. He therefore, by force of importunity, obtained his father's consent, and was placed in the army. Pleasure became his principal occupation, and the cupidity of a courtier his great portion of his time for several years. At last, interest was made to get him into the suite of Monsieur Andresel, in an embassy to Constantinople, which gave him an opportunity of visiting Algiers, Tunis, Tripoli, and some other places, and also of making a short tour in the Black Sea. In these voyages he had some curious adventures in the pursuit of his favourite pleasures, and was more than once in the danger of losing his life. The men of the crew, and the manners and customs of the people he conversed with, and his sketches of the characters and qualifications of those who were employed in the embassy, evince considerable abilities.

Upon his return to France he took seriously to the study of the law; and so far qualified himself as to be able to plead two remarkable causes, both of which he gained. Flattered by this success, and confirmed in the progress he had made and the fair prospect of future eminence thus opened to him, he began to think better of the bar. But, unfortunately relapsing into his former habits, his disgust for all professional studies returned. He intruded becoming a painter, and stayed for a time so much as to leave him, he lost his way to Paris, where accidentally gaining a sum of money in his first and only adventure at a public gaming-table, he had the good sense to keep it and return to Rouen, to study music, for which he had great taste, and to perfect himself in the art of painting, in which he became very skilful. The same propensities that drove him from home compelled him to return, by exhausting his funds, and subjecting himself to the ridicule of his return to Aix, where he was received with more kindness than he had a right to expect, he again applied to the law, but only for the purpose of employing himself till he could find some other occupation more suitable to his inclinations. An event soon occurred that hinged him to turn to his original purpose. This was the famous trial of the Jesuit Girard before the Parliament of Aix, for seducing Mademoiselle La Cadère, his penitent. The decision of this case was unsatisfactory to the people of Aix and its neighbourhood; a riot ensued, and the military were called in to protect the magistrates. The marquis made this a pretext for again quitting the legal profession, his dislike for which seems to have been confirmed by a consideration of its being so often involved in disorder. Being thus at leisure, he offered himself to the army without having distinguished himself as a military man. In the meantime he had been guilty of his usual imprudences, and his father, thinking him incorrigible, disheartened him, and reduced his pecuniary allowance to half its old amount. Being thus placed in a new and trying circumstances, he went to Holland, where he lived under an assumed name, and endeavoured to obtain a livelihood by his pen, which he could there use with more freedom than in his native country.

His Lettres Juives attracted the attention of Frederic the Great, then Prince Royal of Prussia, who commenced a correspondence with him, offered him his friendship, and invited him to Berlin, 'to live in philosophy with him.' The marquis declined this invitation, for good reasons: the king, Frederic William, was not partial to literary men; he had interfered with Frederic's studies, and had hanged one of his best friends before his face. When his invitation was renewed, and accepted, the marquis was soon appointed one of his chamberlains, with a pension of 6000 francs; made a member of the Royal Academy of Belles Lettres, and was raised to the rank of chevalier, with an annuity of 600 francs, and other marks of royal favour. He had apartments in the palace, and the king built and furnished a country retreat for him. D'Argens was so interested in the design of this palace that he refused an addition to his emoluments, telling the king that he had many officers who had served him faithfully in his wars, who stood in greater need of his bounty.

There is evidence that his good sense influenced the king's conduct on some important occasions, which show the way he employed his energy. The most impressive of this kind was the amours end married in a marriage with Mademoiselle Cochois, a dancer. When it took place is not known. His biographers choose to call it a missancienne adventure, but it is certain that this day accompanied him to France in 1747. In the latter part of the marquis's life, his health and spirits appear to have failed altogether; he became unwilling to exert himself, and was too often absent from the royal supper parties under pretence of illness. He felt it was time to retire, and had reasons for wishing to be among his own relations. His brother, who had become president of the parliament of Aix, had honourably given him up a family estate, and built a house upon it for his reception.

Andresel, in an embassy to Constantinople, which gave him an opportunity of visiting Algiers, Tunis, Tripoli, and some other places, and also of making a short tour in the Black Sea. In these voyages he had some curious adventures in the pursuit of his favourite pleasures, and was more than once in the danger of losing his life. The men of the crew, and the manners and customs of the people he conversed with, and his sketches of the characters and qualifications of those who were employed in the embassy, evince considerable abilities. Upon his return he took seriously to the study of the law; and so far qualified himself as to be able to plead two remarkable causes, both of which he gained. Flattered by this success, and confirmed in the progress he had made and the fair prospect of future eminence thus opened to him, he began to think better of the bar. But, unfortunately relapsing into his former habits, his disgust for all professional studies returned. He intruded becoming a painter, and stayed for a time so much as to leave him, he lost his way to Paris, where accidentally gaining a sum of money in his first and only adventure at a public gaming-table, he had the good sense to keep it and retire to Rouen, to study music, for which he had great taste, and to perfect himself in the art of painting, in which he became very skilful. The same propensities that drove him from home compelled him to return, by exhausting his funds, and subjecting himself to the ridicule of his return to Aix, where he was received with more kindness than he had a right to expect, he again applied to the law, but only for the purpose of employing himself till he could find some other occupation more suitable to his inclinations. An event soon occurred that hinged him to turn to his original purpose. This was the famous trial of the Jesuit Girard before the Parliament of Aix, for seducing Mademoiselle La Cadère, his penitent. The decision of this case was unsatisfactory to the people of Aix and its neighbourhood; a riot ensued, and the military were called in to protect the magistrates. The marquis made this a pretext for again quitting the legal profession, his dislike for which seems to have been confirmed by a consideration of its being so often involved in disorder. Being thus at leisure, he offered himself to the army without having distinguished himself as a military man. In the meantime he had been guilty of his usual imprudences, and his father, thinking him incorrigible, disheartened him, and reduced his pecuniary allowance to half its old amount. Being thus placed in a new and trying circumstances, he went to Holland, where he lived under an assumed name, and endeavoured to obtain a livelihood by his pen, which he could there use with more freedom than in his native country.

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1. Mémoires de Monsieur le Marquis d'Argens, avec quelques Lettres sur divers sujets (quatrenot not in the collections of his works); Londres, 1736, 12mo.

2. Mémoires du Marquis de Miremon, ou Le Phisophe Solitaire; 1736, 12mo. An interesting work.

3. Mentor Cavalier; 1736, 12mo.

4. Recueils et Fragments, published by Jean d'Ubenneval, published sous le nom de Mirone (perhaps the name he took in Holland); 1737, 4 vols. 12mo. The Mémoires de Bonneval is an inferior work by another writer.

5. Lettres de M. de Comte de Varèse, ou Le Faux Rabbi; 1737, 12mo.

6. La Philosophie du Bon Sens; 1737, 12mo.—1756, with Nos. 8, 15, and 16; called his works in 24 vols. 12mo.

7. Notre Dame de la Vierge, by the Veret, in the Aventures de la Comtesse de Bressol; 1741, 3 vols. 12mo.

8. Lettres Juives; 1745, 6 vols. 8vo.—1745, 6 vols. 12mo.

9. Lettres Philosophiques et Critiques, par M. Cochois; avec les Réponses de M. d'Argens; 1744, 12mo.

10. Mémoires Secrets de la République des Lettres; 1744, 7 vols. 12mo. These Mémoires contain notices of the lives, acts, and peculiarities of numerous writers that can only be found elsewhere by consulting a great variety of authors. The Lettres Juives and Chinois contain similar notices.

11. Mémoires du Chevalier de * * *; 1745, 2 vols. 8vo.

12. Songs Philosophiques; 1746, 12mo.


14. Réflexions Critiques sur les différentes Écoles de Peinture; 1750, 12mo. Much has been written upon this subject with great pretensions; but nobody has said so much as the marquis, so well, and in so few words, without anything more to the purpose. See also Letters in No. 1.

15. Lettres Cabalistiques; 1754, 7 vols. 12mo.—1769, 7 vols. 12mo.

16. Lettres Chinoisse; 1755, 6 vols. 12mo.

17. Oeuvres Lucanes, Gr. et Fr.; 1758, 8vo.

18. Théâtre de Lucres, Gr. et Fr.; 1763, 8vo.

19. Défense du Paganisme, par l'Empereur Julien, Gr. et Fr.; 1764, 8vo.—1768, with des Notes of M. de Voltaire. Ces trois traductions ont des Discours et des Notes sur les principales Questions de la Métaphysique, de la Physique, et de la Morale, qui peuvent servir de suite à la Philosophie du Bon Sens. These translations are very good.

20. Certain pieces in the Mémoires de l'Étup de l'Écure qui bear his name; he had no part in the rest.

21. Letters printed in the Works of Frederic the Great. The editor of his Mémoires (Paris, 1807) has collected what was necessary to complete his life, and has reviewed several other works that are of some value, and not without censure where it is due. But where he accuses the marquis of making insidious attacks on religion through his priests, he expressly alludes to the religion of the church of Rome, and it is easy to see in which light these writers, writers of other sects, and their errors, are also remarked upon with great levity by the marquis; but many ecclesiastics have attacked each other with infinitely more virulence, and without a due regard to the decency which their order should never lose sight of.

The marquis's name was again brought forward when, we are told, it was nearly forgotten in France, by the well meant zeal of certain declaimers against the licentious opinions of the times; and when the revolution in the reign of Louis XVI. As all ranks and establishments were then thrown into confusion, so all names were confounded in searching for the authors of those calamities, and the Marquis d'Argens was associated with 'atheists and desertors of religion, morals, and government.' These words have been repeated by some who must be supposed to feel the very existence of the desolation they describe in the destruction of the French government. More impartial writers have traced the cause of the Popes and the accumulated grievances of many ages, and shown that it was not caused, though it may have been quickened, by the writers alluded to; if so, they may be classed together as a species of 'atheists and desertors of religion,' as they are entitled to their just distinctions in biography. 'The marquis was not an atheist,' he says; 'he always thought it would be opposing his clearest notions not to believe in the existence of God;' he neverjured religion. After his return to France, 'he manifested sentiments and exhibited acts of devotion that were not expected from him, considering his life and writings. This only proves that those who did not ever attach much importance to his habits—perhaps not with his writings, for he frequently asks, whether certain opinions and practices are consistent with true religion? his objection to them being that they think they are not. The last of the sweeping theses against the rest, was the Marquis d'Argens, a person who first brought it forward, and of those who have copied it, whose thorough detestation of the Philosophy of Common Sense seems to have induced them to abandon the systematic and a priori portion of it, which may have naturally fallen to their share. From their own biographical works it can be quoted that 'Frederic the Great was the best legislator of his day in Europe; that his people were the best governed, and that the Marquis d'Argens, a land of government, according to their ideas, was his confidential friend and adviser during the whole term of his literary life, lived under his special protection, died most sincerely regretted by him, and was, by his command, characterized on his monument as a lover of truth and an enemy of error.'

ARGENVIEL, BARTOLOME LEOARDO DE, was a native of Barbastro in Aragon, and descended from a noble family, originally from Ravenna in Italy. He was born in 1566, and became the usher at the University of Salamanca, and entered the ecclesiastical profession. Through the influence of his brother he was made a chaplain to the princess Maria of Austria, and rector of Villahermosa. He followed his brother to Spain, and remained there until his death in 1618. After his death, in 1616, having first assisted the principal cities in Italy, he returned to Spain, and was made a canon of Zaragoza, in which town he died, according to some authorities in 1632, and according to others in 1631.

Argensola left behind him a continuation of the Annals of Aragon by Zurita, a History of the Conquest of the Molucca Islands, some letters, satires, and other poetical effusions. The continuation of the history of Zurita, in point of style, exceeds the original, and the events are related with no less accuracy than freedom. The history of the Molucca islands, though it was written in his youth, is not inferior either in judgment or elegance to his later performances. As poets, both the brothers are, if not in point of originality, at least for their correctness and purity, among the first that Spain has produced. Their poetry is vigorous, abounds in wit and classic dignity of style, and above all, is marked by singular correctness of taste, on which account they have been styled the Horaces of Spain.

ARGENVIEL, LUPERCIO LEONARDO DE, brother of Bartolomé, was born in 1565, and began his studies at the university of Huesca. He afterwards went to Zaragoza, where he was in great repute, and received the degree of Doctor of Laws. In 1589, he had attained his twenty-fifth year. Here, where his patrons, the princess Maria of Austria, had fixed his residence, and made him her secretary. The archdeacon Albert of Austria made him his chamberlain, and the archbishop Philip III, honored him by making him one of his secretaries of state, and the first to Spain in the service of the Orta. The number of Lemus, having been appointed vicerey of Naples, took Argensola with him and made him his secretary of state, and also secretary for war. In 1613, he died at Naples. He left behind him a few letters, some poems, and other works which are still unpublished.

(See Nicolao Antonio, Bibliotheca Nova; Fernandes, Rimas de Lupercio y Bartolome de Aragonesa; Bouwerke, History of Spain.)

ARGENTAN, a town in France, in the department of Oise, 115 miles W. of Paris, twenty-five V. of ALENCHON, and thirty-four S. by E. of Caen: 45° 44' 44" N. lat., 5° 1' 1" E. long.

It is on the river Orne (which falls into the sea near Caen), and on an eminence in a very fertile plain. It is tolerably well built, with good broad streets, and its fortifications have been converted into a pleasant promenade. Near it are the ruins of a strong castle. The trade of Argentan is as follows: a town—dresses; and of the manufacture of linen; and weaving, the texture is made here; and also the weather, the waters of the Orne being considered excellent for tanning. The cottons manufactured in the town and in its vicinity are carried to Caen and sold, but the quantity is of such a small size that a considerable quantity of pottery is reared about the town; and there is an iron mine at no great distance. The village of Rye, in the neighbourhood, was the birth-place of the horticulturist Messager. The population of Argentan is about 8000.
Before the revolution, Argentan possessed a priory and three other convents.

It is the capital of an arrondissement, or sub-prefecture, containing 248 communes and above 115,000 inhabitants.

The form of this word and of the next (Argenteuil) may be derived from the Celtic name which occurs in the map of Gallia: Argentomagus (Argenton), between Poitiers and Bruges, Argentoratum (Strasbourg), etc.

ARGENTEUIL, a town in France, in the department of Seine-et-Oise, on the right bank of the Seine below Paris, just where the river serves as boundary between the department above-mentioned and that of Seine: 48° 56' N. lat., 2° 14' E. long.

It stands in the middle of a district abounding in vineyards and gardens, the produce of which forms the chief trade of the town. There are also in the neighbourhood quarries of gypsum, which furnish an abundant supply. Some ruins still indicate the site of a monastery, founded in the seventh century, which has acquired celebrity as the retreat of Heloise. [See ABBEY.]

The lordship of the town was in the prior of the Benedictine monks, who appear to have occupied the monastery which once sheltered Heloise. Two other religious houses existed before the revolution. Population 4700. (Reichard's Guide des Voyageurs.)

ARGENTEA RODICE, or Silver Book, the name given to a very curious manuscript, or rather fragment of a manuscript, containing the greater part of the four Gospels in the Messen-Gothic language, preserved in the library at Upsala, in Sweden. It is believed to be a relic of the Gothic Bible, all or the greater part of which was translated by Ulphilus, bishop of those Goths who were settled in Mos sia and Thuringia, and who lived under the emperor Valens about A.D. 360. This curious fragment was discovered in the library of the abbey of Werden in Westphalia. The leaves are of vellum, some purple, but the greater part of a violet colour; all the letters being of silver, except the initials, which are of gold. These letters, which are all capitals, appear not to have been written with the pen, but stamped or imprinted on the vellum with hot metal types, in the same manner as book-binders at present letter the backs of books. This copy is judged to be of a much later time than the Ulphilus, or at least not later than a century or two after.

Michaelis and one or two other learned men have opposed the current opinion, that the Silver Book contains part of Ulphilus's Gothic version, and have offered arguments to prove, that it is rather a venerable fragment of some very ancient Francic Bible: but they have been confuted by Knitell and others. The letters used in the Gothic Gospels, being twenty-five in number, are formed, with slight variations, from the capitals of the Greek and Latin alphabets, and are believed to have been really the invention or application of Ulphilus. See the notes to Bishop Percy's Translation of Mellet's Northern Antiquities, vol. i. p. 366.

The Saxon runes were first printed in the library of the abbey of Werden in Westphalia, in types approaching to a fac-simile, by Junius, in 1665; again in common type at Stockholm, in 1671; by Mr. Lye at Oxford, in 1750, with a Gothic Grammar prefixed; and lastly, by Wessendorf, in 1769.

Palimpsest fragments of this Gothic version of the Scriptures, though not in the silver character, have been since found in other places. Knitell printed a fragment, containing part of the Epistle to the Romans, which was discovered in the library at Wolbenbuttel: it was reprinted in 1763, by Professor Ith; and again in the Appendix to Lye's Saxon Dictionary. In 1819, some further fragments were published by Dr. Angell and Dr. Cat. Otten, in 4to., at Milan, containing small portions of Ezechias and Nehemiah, parts of the 25th, 26th, and 27th chapters of St. Matthew, of St. Paul's Epistles to the Philippians, Titus, and Philemon, and of a homily and calendar; these were discovered in separate leaves in the Ambrosian library at Milan in 1795.

A Dissertation on the Argenteus Codex, by Erichus Sotheery, printed at Stockholm, in 1752, contains two of its pages in fac-simile. Knitell and Mai have also engraved some of the palimpsest fragments which they respectively published.

ARGENTIERA, an island of the Grecian Archipelago, so called from its having been supposed to contain a vein of silver. It lies to the N.E. of Melos or Milos, from which it is separated by a strait not more than a mile in breadth, which, though not free from dangers, may be passed through by ships of large size, the connecting ridge of the two islands having five fathoms water over it. The extreme length of the island is five miles, and breadth three miles and a half; it has no port, and but one small village, standing on an eminence at the S.E. side of the island, in 35° 48' N. lat., and 24° 35' E. long. It consists of only a few miserable huts; the whole population of the island does not exceed 400 souls. There are some hot springs in this island, like those in Milo, and the soil is also of the same volcanic nature, dry and barren, but producing in the valleys, with much care, a little cotton, corn, and fruit (chiefly figs and grapes). The only trade is the supply of a few baskets full of wine; for other articles the inhabitants visit Milo. The island generally is high; the hills rise to an elevation of 800 to 1000 feet. The ancient name was Kimobas, which is still always used by its present Greek inhabitants.

This island was noted in antient times for an earth used in dyeing and bleaching cloths. (See Strabo, p. 484, and Plin. XXXV, 17, on the Cretta Cinolia.)

ARGENTIERE, L', the capital of an arrondissement, in the department of Ardèche, in France. It is in the south of the department, in a deep valley, on the banks of the little river Ligne, one of the streams which run into the Ardèche: 45° 38' N. lat., 4° 17' E. long.

L'Argentière derives its name from the mines of argentiferous lead (i.e. lead combined with silver), which were formerly worked in its neighbourhood, but are now exhausted or neglected, as being of little value. Its chief trade is in silk, of which there are several manufactories. The population is nearly 3000.

The air of the town is pure, though it is situated in so deep a hollow that its eastern part does not enjoy the sun's rays till the afternoon. The western part, being more elevated, fares better in this respect. A public library of 4000 volumes was established in the town as far back as 1784.

The arrondissement of L'Argentière contains 104 communes and 85,000 inhabitants. (Dictionnaire Géograph. de la France: Malte Brun, Géographie de la France.)

ARGENTINE REPUBLIC. [See LA PLATA.]

ARGENTON SUR CREUSE, a small town in the department of Indre, in France. [See INDE.]
acid of this substance dissolves the oxide of tin. The mordant thus produced is therefore a tartrate of tin. These few explanations will perhaps suffice to indicate the purposes to which this substance is applied in the important art of dyeing. The chemical properties and further uses of argol will be described under the head of Tartar.

About 300,000 cases (nearly 1,000 tons) of argol are annually imported into this kingdom. It comes to us from almost all wine-producing countries. It is admitted at the trifling duty of two shillings per hundred weight from foreign ports and half that rate from colonial sessions. The best, after that from Germany, comes from Bologna and the Cape of Good Hope; that shipped from Florence and Leghorn ranks next. Its present price varies, according to quality, from 42s to 58s per hundred weight, including the duty.

A’ARGOLIS, one of the ancient divisions in the northeastern part of the Peloponnesus: it is of a peninsula shape, being bounded on the south and north-east respectively by the Argolic and Sarionic gulfs. On the west, it was separated from Arcadia by a range of mountains, which, shooting off from Cyllene, now Zyria, the highest mountain of the peninsula, not far from the frontiers of Achaea, run southwards, and were known by the appellations of Artemision and Parthenium. Pausanias (viii. 6) mentions several passes, from the plain of Argolis into Arcadia, two of which were especially over the ranges of Parthenium and Artemision. The political division of the Argolid is complex. The ancient region of Corinthium included Argolis. Argolis lies between 37° 12′ and 37° 46′ N. lat., and extended from 22° 32′ to 23° 23′ E. long. Its greatest length, measured in a straight line along its western frontier from Laconia to Corinthia, was nearly thirty-eight miles, and the peninsula part of it varied in width from forty-five to one hundred feet. The ancient city of Corinth is very large and full of ruins. Mr. Clinton calculates (Fusi Hell. i. 385) its area in English square miles at 1059.

Argolis is traversed by a ridge of mountains which run nearly in a north-south line through the peninsula, from Cyllene on its western frontier eastward to Cape Scyllium, now Skyllo; these mountains are intersected by deep valleys, through which flow rivulets, generally dry during summer. Argumentaeos is the ancient name for this range, which was crossed on the road from Argos to Epidaurus. The valleys are most numerous and of greatest breadth on the southern side of the ridge, but none of them are of any great length. That in which Argos and Mycenae were situated is the largest; and through it flowed the ancient Inachus, now Bêntias. The coast is of an irregular shape, with numerous indentations, and it is generally low. The only good harbour is Nauplia, now Nápóli di Romagna, at the head of a bay; Nápóli; which, however, is exposed to a southerly wind.

Argos, with a territory around it of about 524 English square miles, was situated in the south-west part of the province near the Ionian, or Aetolian, coast. On the west were three independent republics, Epidaurus, now Pidháwtro; Trozen, now Damala, and Hermione. In the mountains to the west was situated Pheius. The only other city of any importance in Argolis was Tyrins, the mythological birth-place of Hercules, and known for its Cyclopean walls. [See Tyrins.] The district of Cynuria, which was long a subject of contention between Argos and Sparta, lay on the west side of the Argos gulf, on the borders. [Thucyd. ii. 36. iv. 56, &c.] It was finally adjudged to the Argives by the Romans. [See Argiell and Argos: and Gell’s Argol.]

ARGONAUTA. [See NAUTIUS.]

ARGONAUTS, a term signifying the crew of the Argo, or men belonging to the Argonaut expedition. This is one of the most remarkable of those mythological tales in which, as in the legends of the Trojan war, and the war of the Seven against Thebes, there is reason to believe that a substratum of truth exists, though overlaid by a mass of fiction. Anterior to these events (it is placed by Newton s. c. 937, by Blair s. c. 1263), the Argonautic expedition has a larger share of what is purely fabulous; the license of the poets being not so much expended in the miracle of the Argo which he related came nearer to his own times. No story has been more frequently treated by Grecian writers, we shall give a brief outline, and then offer a few remarks upon it.

Jason, the son of Géan, king of Iolcos in Thessaly, having been deposed by his father’s kingdom by his father’s brother Peilaos, in hope of recovering his paternal inheritance, went to bring from Colchis the golden fleece of the ram
which carried Phrixus thither. Argus, the son of Phrixus, by the help of Atene (Minerva), built the ship Argo, of fifty oars, at Pegasos, and it was manned by the most celebrated heroes of Greece, in number fifty. The lists differ, for every state in later times vied to include its own national hero among them: but by general consent the most distinguished warriors, as Heracles (Herakles), the Aeschein, the Dioscuri, Orpheus, Theseus, Ares, were on board the vessel, which was called by the Naiads, or sea goddesses, the Eryane (Erythraeis) (or, some say, Aphete, departure), they steered first to Lemnos; thence to Mysea, where Heracles remained behind, seeing his favourite Hylas, who had been carried off by the Naiades, and the river of the same name (or, according to the Heracleis, the river of the same name, which they touched, and to Brivacia, where Aneas, king of the country, was slain by Polydeuces (Pollux). In boxing with the ceustes, or water-god, it floated on. (Theoc. Idyl. 22.) Apollonius next conducts them to the country of the Elaphritis under the guidance of Orpheus, and the king of Boreas, delivered the sea Phoebus from certain winged monsters called Harpies, and in return he gave the Argonauts instructions for the conduct of their voyage. (Apoll. Rhod. ii. 178-241.) The entrance to the Euxine sea was not easily closed up by certain rocks, called Symplegades, dashers, or Planktis (Od. xii. 61), or Cyanean, which floated on the water, and when any attempt was made to pass through, came together with such velocity that none of the oars could advise them to let fly a pigeon, and to venture the passage if the bird got through safe. It passed, with only the loss of its tail; and the Argo,favoured by Juno, and impelled by the utmost efforts of its heroic crew, had no difficulty in passing with some branches of rocks carried away part of her stern-works. Thenceforward they remained fixed. The expedition reached the river Phasis without any more adventures worthy of notice. Aetes, king of Colchis, hearing from the strangers the cause of their arrival, promised to give Jason the golden fleece, which was suspended on a tree in the sacred grove of Ares, on condition of his yoking two bulls with brazen feet, which breathed flames, ploughing a piece of land with them, and sowing part of it with golden grain; and at last, seen a man by Cladius, which had the peculiar property of producing a crop of armed men. These difficult tasks he performed by the help of the celebrated sorceress Medea, daughter of Aetes, who fell in love with him, placed the fleece which Aetes ultimately refused to surrender, in his possession, and became his partner in flight.

How the Argo got back to Greece, it is not easy to say; but somehow or other she found her way from Colchis, at the eastern end of the Euxine, to the western extremity of the Mediterranean. Here the Argonauts touched at Aeae, the island of Circe (see Od. xii. 69), which by Homer is placed in the westernmost part of the Mediterranean, and by Theocritus in the farthest part of Africa, viz. in the Circuit, on the Latian coast. Hence they passed all the wonders of the western world described by Homer: the Sirens; Scylla and Charybdis; Thrinakia (Sicily), the Isle of the Dead; the Straits of Messina (a strait of sea), and their dockyard Papasana, and who are conjectured to have been an ancient and commercial race. (Müller's Orchochomenos; and Buttmann's Mythologus, ap. Keightley.) Mr. Keightley further suggests, that the voyage may in fact have been to the west, for the wool and gold of Spain, and that this explains the universal agreement of all writers in bringing the Argonauts home by the Mediterranean; while at the same time the commodities for which the voyage was undertaken might really be mythologized into the legend of the golden fleece. We prefer, however, the simpler belief of Milford and others, that the expedition was of a piratical nature, on a large scale; in which, according to the notions of honour of the age, a number of young men endeavoured to make hay while the sun shone, and so settle differences of the highest consequence in the plains of the sea. And this is what must have been the case, so as to be a glorified leader. The notion of the expedition being a western one seems to be untenable, the bold attempt of exploring the Black Sea, with the mingled objects of plunder, curiosity, and fame, the great inflow of wine, and the escape of prisoners from the voyage, and the notion of the voyage being made to the west, and not the east, is strengthened by the fact, that the Argonauts were under the guidance of Orpheus, who lived in the same part of the world as the Black Sea, and not in that of the Euxine, or Caspian Sea. (pp. 213.) As to the Argonauts being found in the western part of the Mediterranean on their return, this notion arose, as we have already intimated, from the ignorance of the later Greeks as to the true course and character of the great streams which enter the Euxine or Black Sea on the north. When the geographers of Strabo's time (Strabo, Casaub. p. 121.) could believe, in opposition to the earlier statements of Pindar and other poets, that the Caspian Sea was an arm or bay of the ocean running southward into the land, we may easily conceive how the ignorance of a previous age connected the Euxine with the waters of the ocean. When the Euxine was explored, so as to leave no doubt of its true character, ignorance and credulity merely transferred the same hypothesis to the Caspian. The wanderings of Io, as given in the Prometheus of Aeschylus, are a good sample of poetical geography, which may be compared with that of the Argonauts. (pp. 164-165.)
favourite theory are so strong, that his arguments require to be examined with more than usual care.

ARGONNE, a woody district in France, on the frontier of the ancient provinces of Lorraine and Champagne, and extending to the coast of the English Channel. It is densely wooded in the departments of Meuse, Meurthe, and Ardennes. It is about sixty miles in length, with a very unequal breadth. It may be described as a vast forest, in the intervals and void spaces of which, towns and villages have been built. The inhabitants of these cultivate the lands in their neighbourhood; but the badness of the soil, and the quantity of deer, and animals of that kind (bêtes fauves), render it an unremunerative pursuit, and lead the inhabitants to attend rather to rearing stock. The cattle and the wood, which is so abundant, furnish the chief articles of trade. St. Meenhoubl was the capital of this country, and among the other towns which are situated in it, are Clermont, Varennes, Beaumont, and Grandpré. Some of these take from the district a distinctive addition to their name, as Clermont-en-Argonne, Beaumont-en-Argonne, &c.; just as in England we have Henley-in-Arden, &c. [See Aragon.]

Argonne was the great scene of the battles in the Duke of Buckingham's invasion in 1792, when the enthusiasm of republican France enabled her new levies to triumph over the disciplined forces of Prussia and Austria, and expel them from her territory. [D'Argenson. Méthod. Dictionnaire de la France.]

ARGOS, called also Argi by Latin writers, the most ancient city of the Peloponnesus, the chief city of Argolis, is commonly said to have been founded by colonists from Larissa, on which was its chief and a temple of Jupiter, and on the banks of the rivulet Inachus, now Banitsa. We admit the fact of its high antiquity, but we do not venture to decide whether the colonisation took place n.c. 1857 (see Thucy.), and Eusebius affirms, or n.c. 1856, which is the opinion of Larcher. Its earliest known inhabitants were Pelasgi. In the remains of the Acropolis on the hill Larissa, we see traces of walls adjoining to the massive Tryphonian style (see Tylor), and others of the later polygonal kind, which is characterized by the absence of regular horizontal courses, and by the accurate fitting together of the stones. In the mythic age it was the capital by kings of Inachus. Inachus was the first; or, according to other accounts, he was the river-god, and his son Phoronesus was the first king. (Paus. ii. 16.)

Danaus, from Egypt, afterwards founded a new dynasty by wresting the sovereign power from Gelonon, a descendant of Phoronesus. Herodotus, in his story of Io, whom he calls the daughter of Inachus (El. 1.), a story in itself of no historical value, states the general belief as to the importance of Argos at this remote period, and indicates that it was known to the enterprising merchants of Phoenicia. According to Homer, the city Argos belonged to the kingdom of Diomedes, and not to that of Agamemnon, who however seems to have enjoyed a kind of sovereign power over the whole peninsula.

[Silves Cola of Argos. Brit. Mus.]

Under Phoenic, in the 8th Olympiad, the power of Argos appears, for a time at least, to have acquired a considerable extent.

In the more certain historical age, Argos appears under a republican form of government, and becomes first known to us when engaged in war with the Spartans respecting the territory of Thryses. This war was contemporaneous with the capture of Sardis by Cyrus. (Herod. i. 82.) Before this epoch, the possessions of Argos had extended to Cape Malea, and included Cithara and other islands. At a later period, n.c. 493, there was another contest between Argos and Sparta, in which Argos was unsuccessful, and so many of the citizens fell in battle, that the slaves, or more probably the Perioci, found no difficulty in seizing the government, and were said to have retained it until the masters had grown up, when they were again expelled from the city. (Herodot. vi. 83.) It was probably on this account that the Argives took no part in the Persian war n.c. 486, though many much less creditable reasons for their conduct were afores in Greece at the time. It was, in fact, believed that they had been bribed by Xerxes; but Herodotus is evidently unwilling to credit the story. (vii. 146—152.) A few years afterwards, n.c. 485, we find them at war with the inhabitants of Cythera, who, it is said, had refused to acknowledge the supremacy of Argos, and 1500 of their lives were proferred for many years in their independence by the Spartans, Mycene fell, and it never again rose from its ruins. (Diod. Sic. xi. 63.) [See Mycenae.]

Though Argos remained neutral during the earlier part of the Peloponnesian war, her feelings were at all times opposed to the Spartans, and she at last took an active part with the Athenians. The defeat, however, of the Argives at Matiniae, n.c. 418, dissolved the confederacy, of which she was the head, and Argos was compelled to accept an aristocratic constitution. (Thucy. v. 63—81.) She subsequently shook off the yoke, and we find her assisting the Thebans at the battle of Matiniae, n.c. 362; but her history becomes gradually less important; nor is there any fact worthy of being noticed, till the unsuccessful attempt made by Pyrrhus, n.c. 272, to take the city. It joined the Achaean league, and continued to form a part of the confederacy until its final dissolution by the Romans. (Strabo, viii. 377.) The great deity of Argos was Hera (June), and it seems probable that a great catalogue of the priestsesses had been preserved, which has been preserved the temple was dedicated to her by the war sacs of Herakleiaus on the succession of the priestesses. (See Herod. i. 31. Thucy. ii. 3.)

Argos is still known by its ancient name, and at the beginning of the present century contained 1200 families. Part of the plain around is cultivated, and where the moisture is sufficient, cotton and vines are grown: in the marshy parts towards the sea, some rice. The plain of Argos does not abound in wine, but the country abounds in beekeepers. The scenery is pleasant, and the town of Nafplion is the port of the Peloponnesian Argos, after his return from the war of Troy. (Thucy. ii. 68.)

ARGOSIL, a ship of great burthen, whether for merchandise or war. Shakspeare, in his Merchant of Venice (Act i. Scene 1) says—

"Your mind is lost on the ocean, There where your argosy with softly sail, Like sigsors and rich barbarous on the road, Over the pagaments of the deep, Do over-sail the petty traffickers."

It is mentioned in the same sense by Chapman, Drayton, Beaumont and Fletcher, and other writers. In Rosay's Martine of Thryses, chap. xii. 3. The Argosy was a large ship, with carracks called Argosies, which are so famed for the vastness of their burthen and bulk, were so curiously denominated from Rigoises, i.e. ships of Ragusa, a city on the coast of the Gulf of Venice, then tributary to the Porta. We have no proof, however, that the Ragusan vessels were particularly large; and it seems more likely that the Argosy derived its name from the classical ship Argos. Indeed Shakspeare has the word beinted in the play just quoted, when he makes Gratiano, in allusion to Antonio's argosy, say (Act iii. Scene 2)—

"We are the Jonata; we have won the Scoro."

Sandy, in his Travels, p. 3, applies the term argosy to a ship of force. Describing the boldness of pirates in the Adriatic, he observes, that from the timorousness of others they ' gather such courage that a little frigate will often not return to venture against an argosy.'

ARGOSTOLI. [See Cephalonia.]

ARGUIN, or ARGUOM, one of a cluster of small islands in a bay of the same name, about fifty miles to the S.E. of Cape Blanco, on the western coast of Africa. It is only about two miles in length, and would be a most convenient station for it not for the variety of masters to whom it has been subject, and the loss of life incurred there. It was discovered in 1444, by Nunes Tristã, and in 1441 a fort was erected for
Loche Riden and Straven also run N. by W., or N.; and the Firth of Clyde, with its terminating lochs, Long and Gyle, completes the circuit of the Argyllshire coast, the extent of which is estimated at more than 600 miles.

Authorities differ considerably as to the dimensions of Argyllshire. We give the following from measurement on the Map of Scotland published by the Society for diffusing Useful Knowledge.

Length from the northern extremity of the county in the territory of Lochalsh to the Mull of Cantyre, 115 miles.

Length from the point of Airdarnamurchan to the Mull of Cantyre, 101 miles.

[Statement in Dr. Smith's Survey of the Agriculture, &c., of the County (1758), 115 miles.]

[Breadth from the point of Airdarnamurchan to the border of Perthsire, near the source of the river Urchay, 66 miles.]

There is equal diversity of statement as to the superficial contents; Dr. Smith's calculation is as follows: --

| Mainland, exclusive of Cantyre | 2475 sq. miles. |
| barrels. | 594,560 |
| Peninsula of Cantyre | 260 |
| Islands | 729 |
| Land on the mainland | 2200 |
| Lakes | 60 |
| Islands | 929 |
| Total | 2,002,560 |

But the Doctor gives this statement as conjectural, in consequence of the absence of a good authority. He appears to have over-estimated the length and breadth of the county, it seems better to take the statement in the Gen. Report of Scotland, drawn up under the direction of Sir John Sinclair, Appendix, vol. i. pp. 49, 58 (1814). --

The breadth is given by Dr. Smith at 68 miles.

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cit's Map, are given from Langlands and Son's Map of
Ayrshire: (1839)
Mull: greatest length, 29 miles, from Duart Castle, N.E.,
to the point opposite to Holmin Island, S.W.; greatest
breadth, 29 miles; proportion of land cultivated, 8 parts
in 100. The following islands are dependencies of Mull:
Cleburn, E. W.; greatest length, 7 miles; greatest
breadth, 8 mile. Ulva: greatest length, 5 miles, E. to W.;
greatest breadth, 5 mile. Staffa: dimensions under a mile.
I-cornkill, or Iona, antiquatively called Sodor: greatest
length, 25 miles, N. to S.W.; greatest breadth, 1 mile; all arable
or good pasturage; and several smaller islands. Population
of Mull and its dependencies 10,538.
Lismore: greatest length, 104 miles, N.E. to S.W.;
greatest breadth, 18 mile; one-half cultivated, very fertile;
population, 1790.
The Islands of Lorn: 35 parts in 100 cultivated; the
population cannot be given, as it is included in that of the
parishes on the main land to which they belong.
Kerrera, or Kerrera: greatest length, 44 miles, N. by E.
to S. by W.; greatest breadth, 2 miles.
Seil: greatest length, 4 miles, N. by E. to S. by W.;
greatest breadth, 2 miles.
Easdale, or Easdale: dimensions under a mile: famous
for its slate quarries.
Luing: greatest length, 7 miles, N. to S.; greatest breadth,
8 mile.
Colonsay: greatest length, 54 miles, N. to S.; greatest
breadth, 1 mile.
Lunna: dimensions about or under a mile.
Scharba: greatest length, 3 miles, N.E. to S.W.; greatest
breadth, 2 miles.
Jura: greatest length, 25 miles, N.N.E. to S.S.W.;
greatest breadth, 8 miles; proportion of land cultivated,
7 parts in 100; population, 1312.
Colonsay and Oronsara: greatest length, 10 miles, N.N.E.
to S.S.W.; greatest breadth, 3 miles; proportion of land
cultivated, two-half; population, 893.
These are counted as one island, and their united dimen-
sions given, as the channel between them is dry at low
water.
Isla or Ilay: greatest length, 26 miles, N. by E. to S. by
W.; greatest breadth, 21 miles; one-fourth cultivated or
in woods or pastures; population, 14,992.
Gigha: greatest length, 5 miles, N.E. to S.W.; greatest
breadth, 2 miles; proportion of land in cultivation, 30 parts
in 100; population, 534.
Sanda (a small island near the southern point, or Mull
of Cantire): greatest length, nearly 2 miles N.E. to S.W.;
greatest breadth, about a mile.
Several of these islands deserve further notice for their
magnitude, productions, or other circumstances. [See Iona,
Ilay, Jura, Mull, and Staffa.]
*These islands, as given above, amount to 33,065: that of the whole shire, at the same time,
amounted to 101,400, leaving 66,335 for the main land.
Argyle is mountainous; and presents an appearance more
pleasing to the eye of N.E. picturesque than to the
agriculturist. The barrenness of the soil and the want of
cultivation are shown by the scanty population, which
amounts only to about 32 for every square mile of land in
the shire, or 1 for every 24 acres under cultivation.
The northern and eastern parts, where it borders on the
Grampians, are the most rugged: along the coast the
ground is in general lower and more level, yet particular
mountains near the sea rise to a great height, and are
included in the southernmost in the shire. We subjoin a table
of the principal:

<table>
<thead>
<tr>
<th>Name</th>
<th>Length</th>
<th>Breadth</th>
<th>Cultivated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben a' Tam, S. of Loch Sunart</td>
<td>2300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slia Gosal, between Loch Killip and Loch Fyne (S)</td>
<td>2036</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crock, Mow, in Cantire</td>
<td>1351</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orewal, in the Isle of Rum</td>
<td>1515</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ben Turck, in Cantire</td>
<td>1500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ben Varn, in Isla</td>
<td>1500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ben Konstall, in Isla</td>
<td>1500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isle of Canna</td>
<td>810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ben Tarveit, in Isla</td>
<td>753</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| These hills are no distinctive mark; are from the Map
of Scotland published by the Society for diffusing
Useful Knowledge: those marked (S) are from the Appendix
to the General Report of Scotland, drawn up under the
direction of Sir John Sinclair (1814); and those marked (L)
from a table of heights given with Langlands' Map of Ar-
gyleshire (1801).

The chief rivers in the county are, the Urechay, which rises
in the Grampians and flows into Loch Awe, an inland lake
lying in a direction nearly parallel to Loch Fyne; and the
Awe, which serves to connect Loch Awe with Loch Etive,
and through it with the sea. The basin of these streams is
estimated at 250 square miles. Streams of smaller import-
ance are numerous, and the nature of the country would lead
us to expect. There are no large inland lakes except Loch
Awe just mentioned, which is about 24 miles long from
N.E. to S.W., and from half a mile to two miles and a half
wide. At its head it is filled with small green islands,
surrounded with picturesque scenery of woods and mountains.
Argyleshire is divided into six districts: 1. Mull, including
the island of that name, and its dependent isles, with Canna,
Rum, Muck, Coll, Tiree, and Ardenamurchan, Sunart, Ard-
gower and More. 2. Lorn, E. to S.W. of the Linnie Loch, which
separates these divisions from the rest of Argyleshire: 3.
Lorn, a large division, comprehending the subordinated
districts of Appin, Benerbalach, and Muchairn; with Glen Urechay or
auchencrioch, the Sound of Mull, and Glen Tem, and
those and those groupings, as the islands of Lorn: 3. Argyre
proper, or Inverary; separated from Lorn by Loch Melfort,
Loch Arich (which is united by a channel with Loch Awe),
and Loch Awe, and by a line drawn S.E. from the last
mentioned lake to the eastern frontier of the county: 4.
Cowal, including the district S.E. of Loch Fyne: 5. Cantire or
Kintyre (including Killilsate), a long peninsula, formed
between the Sound of Islay, the North Channel of the
ocean, the Sound of Arran, and the island of Kintyre,
and Loch Fyne; the Island of Gigha is joined to and
forms part of Cantire: 6. Isla or Ilay, including the islands
of Isla, Jura, Colonsay, Oronsara, Coll, Tiree, and the south part of Mull. It constitutes the mass
of the Grampians (which form the E. border of the county) and
of the mountains of Cantire. Fleetz trap prevails in
Canna, Rum, and the north side of Mull; in some districts
there is no great variety, along the coast of Morvern and
Morven; and in the neighbourhood of Campbeltown in
Cantire. A small extent in the last mentioned
neighborhood is occupied by the coal formation and the rocks
connected with it, being perhaps part of the great coal-deeps
of Scotland, and serving as a link between that and the coal
formation of the North of Ireland. The columnar basalt
will be noticed under the head of Staffa.

The minerals of the county are turned to commercial
purposes are numerous. There are lead-mines in several places, as
at Stourmont near the extremity of Loch Sunart; at
Tyndrum on the border of Argyile and Perth shires; and in
the islands Isla and Coll. Copper is found from a
mine in Kilmartin in the district of Argyile, but the
mine is no longer worked. A vein is, however, worked in
the island of Isla. Coal is obtained in the neighbourhood of
Campbeltown. There are seams of coal also in Mull,

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but not sufficient to destroy the expense of working them—

but at the coast, and at gentlemen’s houses on the coast. The

the quarries of Easdale island have been among the most

considerable in Britain and there are quarries at

Balaclashil or Balahulish in Appin in Lorn. In the Ap-

pearance of 1871, the Society of Antiquaries records the pro-

duction of the quarries in Easdale and the other islands of

Argyllshire is stated at 8,000,000 slates; and the produce of

those at Balaclashil and other parts of the mainland of the

same county is estimated at 3,000,000. Marble is procured in several

places, of various quality and colour: among the most bea-

tiful specimens is that of the island of Tiree, which is very

hard, and takes a good polish. Limestone is abundant in

many parts of the county. A deposit of the mineral, as a

very takes as a face, polish as marble; and the lapillus orbis

(a kind of micaaceous slate), with which the Duke of Argyle’s castles

at that place is built, is one of the handsomest of the build-

ing-stones found within the borders. The earth strata

takes its name from the place so called near Loch Sunart,

where it was found and first analysed. In Glenorchy

in Lorn, specimens of cobalt are found; and the coasts of

Cantyre towards the south end, and of the Isle of Colonsay,

abound with coral.

Argyllshire has a very variable and moist climate, but

from its situation on the coast, and from the numerous

inlets of the sea by which it is so deeply indented, the tempera-

ture is mild. Frost seldom continues long on the sea-coast, and

northern parts of the county, and at least as far inland as

Mildray, bight, and hoar-frost seldom do much injury to the

husbandman. The north-eastern parts, bordering on the

Garrapans, have a colder climate; though even though the

valleys and clearings are warmer and in winter, they are

neither so cold nor so uncomfortable as might be expected.

The farmers of this county direct their attention chiefly

to the breeding of stock and the feeding of sheep, for which

the rough and mountainous character of the surface is

better adapted than for tillage. There is, indeed, a con-

siderable quantity of arable and improvable ground in the

valleys interspersed among the mountains, and along the

margin of the streams which wind through them, but the

changeable character of the soil varies materially; by the

shape and size of their farms, the

short terms of their leases, and their want of capital, are in a
dependent and even depressed state. They excel in rearing

live stock, and in the knowledge of the diseases of their

cattle; but are regarded as deficient in general industry

and skill, wedded to old customs, and unwilling and unable

to promote improvements. The principal kinds of grain

raised are oats, and bear, or big, a species of barley much

used in distilling. Wheat and rye are cultivated in Cantyre,

though in small quantities. Peas and beans are grown, but

not to a large amount; and flax is raised for family use.

Potatoes are cultivated extensively, and serve as a staple

article of food for a considerable part of the population.

Turnips, cabbages, kale, and the artificial grasses, are little

attended to, except in Cantyre, and there not to any consid-

erable extent. As late as the commencement of the pre-

sent century a country custom of ploughing (with four horses abreast,

the driver riding between the rear, and the ploughman on the

backwards, was kept up in many parts; but as it was then yielding to

improved methods, it is probably now nearly or quite done

away. The rotation of crops is not well understood, grain

crops and grass are in the proportion of 50:50:50. The

season of the summer crops is about one month later than

in July. The bear harvest begins in general in the middle of

September, and is followed by the harvest of oats (middle

of September), beans, peas, and potatoes, in succession.

The inhabitants, even and poorest, have usually gardens

attached to their houses, but they are neither well cultivated,

nor is their produce much varied. The general food of the

people is oatmeal and potatoes. Of oatmeal a considerable

quantity is imported. The extent of good land in Argyllshire has been very

differently estimated. Dr. Smith (General View of the

Agriculture of Argyle) gives 30,000 acres for the natural

woods: and the plantations of the Duke of Argyll and

other gentlemen amount to about 4000 acres; which 2000

acres may be added for the wood of the islands. The

scarcity of wood is severely felt in many places. In former

ages a great part of the country was covered with it.

The cattle of the island are of a moderate size. The chief

articles of export are: they are of the west Highland breed, and are

reared for the southern market, where they are preferred to

almost any others. Being of small size, and of hardy con-

stitution, they can bear to be driven to distant markets,

which is an important consideration. Their milk is rich,

but small in quantity. In Cantyre, the dairy is the chief

object of attention; and both butter and cheese are made

beyond the wants of the district. The sheep occupy, in

many places, the high grounds, where they have been

substituted with great advantage for black cattle. They

are chiefly of the Linton or black-faced kind, having in

a great measure driven out the small white-faced breed,

which is supposed to have come from the Lowlands. These sheep may have thought capable of being so far improved as to become a very suitable stock. The horses are of various, but on the whole of inferior breeds. Since the introduction of sheep, less attention has been paid to rearing them; they are therefore small and underbred, the Highlanders having a prejudice against them; but they are

increasing. Goats are few; poultry and pigeons not numerous. In the islands, black cattle are reared more than sheep. From Inveraray and Campbeltown, 500

Wild animals are numerous in the rugged districts to the

N.E. Roes and red deer are abundant in several parts;

also grouse, partridges, and black cocks. The eagle

occupies the bare rugged summit of the rocks. Rabbits

are numerous, and a few of hares occur. The

The manufactures of this county are unimportant. The

woollen manufacture was established at Inverary, and

carried on for many years under the patronage of the

Duke of Argyle, but it does not seem to have flourished, and

has been given up for some time. The cotton manufacture has

gained but little ground; whatever is carried on is about

Campbeltown. A more important branch of industry is the

herring, cod, and ling fishery, though not yet as yet com-

pletely worked. In the years 1829–30, at the two stations, Inverary and Campbeltown, 265 vessels and

798 men were engaged in this branch of industry, be-

sides various workmen as cutters, cooperers, labourers, &c.,

who made their homes on the coast. The fishery is of great

importance to the inhabitants, the fish being abundant on

the coast and around the islands is very great, and the

herring of Loch Fyne are well known. The salmon of

Loch Awe are remarkably good, and the trout perhaps

unrivalled, being of all sizes, up to 20 lbs. weight. The

quantity of kelp made on the coast and on the islands was

considerable; but the reduction of the duties on foreign

barilla has much diminished the demand for it.

Large sums of public money have been applied to making

roads in this county, together with other sums raised by

county assessments. The main road from the Lowlands

enters the county by Glencro and Cairndhu, at the head of

Loch Fyne; that from Perthshire, by Dalmaul, near the

N.E. end of Loch Awe; and that from the north Crosses

Loch Leven at Balaclashil, or Balahulish ferry, and

Loch Eil at Carron ferry. Two canals, the Caledonian

Canal (running through the great valley of Scotland from

Murray’s Point to Linlithgow) and the Argyle and Bute Canal (from Loch Crinan to Loch Fyne), belong to Argyllshire; the

former partially and in a small degree, the latter en-

tirely; but the traffic on these canals, though much increased by the introduction of steam-navigation, is not common, and the water is liable to be stagnant, which

has greater impulsion to agriculture and industry in Argyllshire

than the extension of steam-navigation of late years. By

means of it, the most distant parts of the county are brought

into communication with each other, and with Glasgow,

to which they can now send their stock and produce, with

the certainty of finding a good market.
Argyleshire contains few towns. Inverary, on Loch Fyne, in Argyle proper (population in 1821, 1177), is the county town, and a royal burgh; Campbelltown, in Centre (population in 1821, 1,044), is a market burgh of the county town. Inverary is the eastern county town of Argyllshire, and Oban, perhaps the next place in importance, is on the coast of Lorn, nearly opposite the island of Kerrera. There are no weekly markets in the shire; but eight weekly markets for beasts of all kinds, cows, coarse cloths, yarn, &c. are held during the year. (Smith's Survey. &c.) The population of the whole county was, in 1821, 101,400, as already stated. It has increased in the last twenty years, notwithstanding the partial depopulation from the consolidation of smaller holdings into large sheep farms. The county returns one member to the House of Commons; and the burghs of Inverary, Oban, and Campbelltown unite with Ayr and Irvine (Ayrshire) to return another.

The chief landlord proprietor is the Duke of Argyile, whose domains and influence were formerly such that he could bring 3,000 to 4,000 men into the field; and the name of Campbell, that of the ducal family, is by far the most prevalent. The marquises of Tweeddale and Bresdalebane have also property in the county. The latter is a branch of the Campbell family.

The six counties in Argyleshire in 1831 contain the names of fifty parishes in the mainland and isles, but we have no information of the number of the benefices. The great extent of some of the parishes has led to the erection of new churches and chapels by the commissioners for building churches in the Highlands of Scotland. Many of these churches have been built, all except one, with a manse, and three manse erected where churches were previously in existence, or have been built by private individuals. Of these eleven churches, six are in the islands of Mull, Iona, Ulva, and Iona. Argyile gives name to a synod, which has jurisdiction over all the parishes of the county, except one, and over the shire of Bute. In the territory thus subject to the synod there were, in 1811, five presbyteries, and thirty-nine ecclesiastical parishes, with forty-one clergymen: but the number of the latter is now of course much increased.

There are some cathedrals in the islands.

Argyleshire contains many antiquities. The ecclesiastical ruins in Iona will be mentioned in our notice of that island. There are in Oronsay the remains of a Cistercian priory, one of the finest religious antiquities of the Hebrides, after those of Iona. Of ancient castles, may be mentioned Dunstaffnage, at the entrance of Loch Eil, a square building in a ruinous state, with round towers at three of the corners, having an old chapel of elegant workmanship near it; Ardfernna or Ardornnah, on the sound of Mull; Skipinish in the Kilmaluag; and others. In Inverary castle will be mentioned in the article INVERARY. There are in different places of the coast old Duns' or Danish forts. Druidical circles, more or less complete, and carins, are to be seen in different parts. Of natural curiosities, besides the marble columns and cave [see Staffa], may be noticed some singular caverns in the parishes of Loch-Gyle-head and Strachur, both in Cowal.

After undergoing a variety of political changes, we find, in the middle ages, the territory of Argyile subject to tenants, powerful and in fact independent. The lordship of Argyile, with Mull and the islands north of it, was subject to the M'Dougals of Lorn; Iona, Cantier, and the southern islands, to the Macleans of the Isles, or Earls of Ross. The nominal allegiance of these last to the kings of Scotland was unsteady; but their power was broken in the reign of James III., towards the latter part of the fifteenth century. The acquisition of Lorn by the Stuart family, by marriage, and the erection of the earldom of Argyile in favour of the Campbells of Loch Awe, weakened their sway still further, and produced the diminution and, in many instances, the extinction of the Macleans. In 1661 the M'Dougals rose in insurrection to oppose the designs of the Earl of Cantier to the Earl of Argyile and his relations, but the power of the Campbells prevailed. In 1748 all heritable jurisdictions were abolished by act of parliament, and civilization has since been very general.

The Gaelic language still predominates in Argyile; but in Inverary, though in the Highlands, English is as much spoken as Gaelic. (Smith's General View of the Agriculture of Argyile, 1798; General Report of Scotland, drawn up under the direction of Sir John Sinclair, 1814; Parliamentary Papers; Pennant's Tour in Scotland, 1774; and Voyage to the Hebrides.)

Argyle, DUKES and MARQUIS OF. [See Campbell.]

ARGYRO or ARGHIRO CASTRO, an important town in the inland part of Albania, in Epirus, in Greece. It is in the fertile valley or district of Deropul, a name which appears to be sometimes applied to the town itself, and to the river which waters the valley. Argyro Castro is built upon the declivity of the mountains which enclose the valley on the south-west side, and is not far from the river already mentioned, to which it gives name, and which is a branch of the Vouissi, or Bojissia. [See ALBANIA.] Several deep ravines approach each other at this point, and the houses crown the terrains of the steep and narrow ridges which separate them. Upon three of these ridges the greatest part of the town is placed. The central ridge is surmounted by the castle built by Ali Pasha, which is of great extent and height, and, with reference to Turkish warfare, strong. The included area of the castle, owing to the form of the ridge on which it stands, is very long and narrow, and the walls, though thick, were built in great haste and were not surrounded with deep moat or steep, but appears to be commanded by some of the neighbouring heights on which parts of the town are situated. Ali erected a seraglio, or palace, within this castle, and there was also a mosque, barracks for 5000 troops, and other military and administrative buildings. Water is brought to the town generally, and also to the castle, a distance of six miles, by an aqueduct.

The situation of the town renders it well adapted for a strong position, and it is probable that horsemen must inordinate to proceed with safety, but it gives an air of magnificence to the place, which is increased by the size of some of the Turkish houses. The sides of the chasms, or ravines, are lined with large houses interspersed with trees, and the valley is watered by the mountain torrents, which, after the melting of the snows, sweep through these ravines, sometimes occasion fearful devastation.

The houses were estimated, when Dr. Holland visited the town in 1813, at 4000, and the inhabitants at 26,500; which agrees with the estimate of Sir John Hobbhouse, who travelled in the country, though he did not visit the town itself, about three years and a half before. Mr. Hughes, who visited Argyro Castro about the same time as Dr. Holland, says, the inhabitants were computed at about 15,000. The trade of the town, which, before its reduction by Ali Pasha, was that of an important entrepôt for the internal commerce of the district, appears to have been considerable. M. Ballot states the population very vaguely at 4000 to 9000.

The distance of this town from Joannina is computed at fifty miles by Dr. Holland, and by Mr. Hughes at twenty-four hours' journey by land. The same writers state, that it is not on the site of the ancient town, which had successively the names of Phanote, Hadraniopolis, * or Justinianopolis.

Previous to the winter of 1811-1812, Argyro Castro appears to have enjoyed a considerable degree of independence. The chief power had been divided, as in many towns in Albania, among the principal families. Ali Pasha attacked it in vain, till the time above mentioned. About that period, he contrived to inveigle away the banof, or governor, and most of the merchants who were scattered about the country. The chiefs of this and some neighboring parts assembled their forces to oppose him, but were defeated near Delvino, another Albanian town some miles to the south. Argyro Castro soon afterwards surrendered, and Ali built the fortress noticed above.

When he was attacked by the forces of the Grand Seignior, this strong hold was given up to the Turks by his son in his absence. The Turks.

Most of the people of Argyro Castro are Turks or Albanians, who profess the Mohammedan religion. The number of Greek families is very small: they have a bishop, and are remarkable for their courtesy and agreeable manner to strangers. (See Dr. Holland's, and Hughes's Travels; Leake's Researches in Greece.)

A'RIA, the name of a province of the antient Persian empire. It formed part of the country of Arians, or Iran.  
* From this name Deropul seems to be a derivation. See Leake's Researches, 252
and bordered in the north upon the Tapuri, Murgiana, and Bactrina, in the east on Drangiana, Karmania, and Parthia. Its situation corresponds to that of the modern Sejestan and the southern part of Khorasan. Strabo (xi. c. 10) calls Aria and Murgiana the best provinces of this part of the earth. They are described as countries of rivers and mountains. Margos. The former of these, called also Aries, Areos, or Arrianos, is described by Arrian (v. c. 6) as a river not less than the Peneus of Thessalia, yet losing itself in the ground. Drusus, who first saw it, says he used to use only the

The remark of Strabo, that Aria is 5000 stadia in length and 360 in breadth, can be understood only as applying to the principal part of the province. It seems to have been separated from river Aries, which seems to have been early celebrated for its fertility.

Heredotus does not mention the country of Aria, but he enumerates the Ares (Aries) as constituting, together with the Parthi, the Chorasmians, and the Scyths, the sixteenth of the twenty satrapies into which Darius divided the Persian empire. (Hered. iii. c. 93.) The antient name of the Medes was Aria (Aries). (Hered. vii. 62.) Lassen (Indische Bibliothek, vol. ii. p. 27) supposes the name of the Ares to be etymologically identical with the word Arja, by which the followers of the Brahmanic religion are designated in Sanscrit.

The importance of Aria, and the advantages which its situation confers upon it, are so great that it is attended with a higher authority than that of Alexander the Great, who here founded a town, named Alexander Aria (Alexandria of the Ares). The situation of this town it is difficult to determine, as we have no information concerning it in antient authors. Polyeuctus (Geogr. vi. 17) places Alexandria near the lake Ariaus, and conformably to this information D'Anville fixed its position at a point now named Corea, on the western shore of the lake Zaraus. Herodotus (v. 94) speaks of the Alexandria of the Ares Aria, which was washed by the river Ares; and if we take this Ares to be the present Heri-Rud, the position of Alexandria will answer that of the present Heral. Besides the popular belief now prevalent in the east, which is in favour of this opinion, it is also supported by Eratosthenes' statement of the distance of Alexandria Aria from Baktra = 3820 stadia, and from the Caspian Pyle = 6400 stadia (Strabo, xi. c. 8), which it would be impossible to reconcile with the assumption that Alexandria was near the lake Zaraus. (See St. Croix, Examen Critiques des Historiens d'Alexandre, p. 82, &c.) Mannert, who takes the river Ariaus to be the present Fergh-Rud, supports our present village of Poh, at the south-eastern corner of the river Hirmand, to answer the situation of Alexandria.

The capital of the Ares, at the time of the Macedonian conquest, was Aretoo: thus the name is written in the handwriting of Arras. Arras, Arteson, Argard, Artao, and Aretus, which is written by Artao, by Arras, and by Arteson, are the names of the Ares Aria. Mannert prefers Artaeus, or Artaecanae, from Pliny and Isidor. It must have been situated considerably to the north, as Alexander was able to reach it within two days from his march against Baktra (Arian, iii. 23). Mannert places it at no great distance from Alexandria; and Mannert, assuming the southern position of the latter town, seems inclined to think that the extensive ruins of an ancient town, discovered by Christy, at Dishah, near the river Hirmand, are those of Aretoe. [See ARIAN.] 

A'RIA, in music (Ital. air). [See ATR.]

A'RIAN is the general appellation given by antient authors, subsequent to the age of Alexander the Great, to those Antineans, who are said to have composed music (t. c. p. 304, 305) compared to that of a parallellogram, the dimensions of which, reckoned from the mouths of the Indus to the Paropamisus, he estimates at 12,000 or 13,000 stadia; and estimates the length between the upper Pyle, on the authority of Eratosthenes, at 14,000 stadia (Strabo, i. c. 4, tom. i. p. 101, edit. Tauchn.) the length of the southern sea-coast from the mouths of the Indus to the entrance of the Persian Gulf is stated at 12,500 stadia (Strabo, vi. c. 9, tom. iii. p. 305). The total of the distances on a road from the Caspian Sea by way of Huzatana, Alexandria in Aria, Prophthaissa, Arachoti (the town), and Ortespana, to the confines of India, is in one passage of Strabo (xi. c. 8, tom. ii. p. 434, 435) reported, on the authority of Eratosthenes, as 15,000 stadia; but in another (Strabo, vi. c. 2, tom. iii. p. 310), on the same authority, only 15,300; the latter appears more correct, as it approaches nearer to the sum of the single distances enumerated which amounts to no more than 15,210 stadia.

Strabo of Athens (Geogr. ii. ii. iii. p. 311), that the name Aria is sometimes used so as to extend beyond the limits assigned to it, and to comprehend part of the Persia and Mede, and, towards the north, part of the Bactri and Arachotis, and towards the west and north-west, to very nearly the same language (as spoken in Aria.)

The countries properly belonging to Aria are, according to Strabo, in the east, the Paropamisea, the Arachoti, and Gedrosiani along the Indus, proceeding from north to south; the Drangae towards the N. W. of Arachoti and Gedroseni; the Aria towards the west of the Paropamisea, but extending considerably to the west and south, so as nearly to encompass the Drangae; the Parthian west of the Aria, towards the Caspian Pyle; and Karmania to the south of the Parthi. It is observed by Mannert, Geographie der Griechen und Romer, vol. v. part ii. p. 3, 4, that antient authors sometimes confound Aria with Arachotis, a name that can only be understood as applying to the entire country.

The original form of the name Aria in the Zend or antient Persian language is Airyyna. From this seems to be derived the name Aria, and the name given by the writers designate the country between the Tigris, the Persian Gulf, the Oxus or Gihon, and the Indus. M. Eugène Burnouf (Commentaire sur le Vapana, vol. i. notes, p. 62) thinks that, in some passages of the Zend-Avesta, the word Aria is to be understood as Airyyna, which was taken as synonymous with Airyyna or Aria. He observes that the countries not belonging to Airyyna are, in the Zend-Avesta, called Anastyro Ddnabat (pronounce Dangristic and Dian). This word is derived from Airya by means of the prefixed negative a (an), which is also used in Greek and Sanscrit. An expression of analogous form and import had long since been read by de Sacy (Mémoires sur diverses antiquités de la Persie, p. 54, &c.) in one of the Greek inscriptions of Naxphi Rostam copied by Niebuhr, where the Sasanide king, Sapor, son of Ardashir, is called the king of the Arians and Non-Arians (APIANGAI

ARIANO, now in the province of Principato Ultra in the kingdom of Naples, and a bishop's see. It is situated on a very steep hill on the main road from Naples to Puglia, and in the highest point of the pass leading over the Apennines to the valley of Benevento. The road from Arian to the road descending rapidly, following the course of the Cervaro, here a mountain stream, which flows eastwards, and enters the flats of Puglia a little beyond Ponte di Giovinazzo, Arian is forty-four miles E.N.W. of Naples, thirty-two miles S.W. of the town of Foggia, in 41° 8' N. lat. and 15° 1' E. long. The road distance from Naples to Foggia, through Arian, is about ninety English miles. It was built by the Greek governors of Apulia under the lower empire, as well as the neighbouring town of Tropea, and was reckoned important during the subsequent vicissitudes of the country on account of its situation, which enabled it to communicate the pass from the eastern into the western provinces. It was named by the Norman, Ruggiero I., king of Sicily and Duke of Apulia, held at Arian a parliament of the barons of the kingdom in 1140, in which he fixed the new coin of the realm. Arian had a castle, which was considered strong in those times, and was repeatedly taken and retaken during the wars of the Norman, Subian, Angiven, and Aragonese dynasties. In the reign of Joanna II. the famous Sforza Attendolo bore arms at Arian. The church of St. Mary, dedicated to the crown, and Arian became a royal town. It has long since declined from its former importance. It has suffered greatly from earthquakes, especially from that of 1732. The population of Arian in 1806 was 2,000, but is now under 1,000. A recent visitor informs us that the population now can hardly exceed 700.

Close to Arian, and between that town and the head of the valley of Bovin, there is a village occupied by an-
banian colony, a remarkably handsome race. They retain the use of their own language among themselves, but they can also speak that of the country. (Vitale, Storia della Chiesa di Stato.)

ARIANS, a name applied in common to all who entertain opinions concerning the relation between Jesus Christ and the Father similar to those entertained by Arius, although they may differ from his or Christ's that of the different parties, according to the second council of Ancyra against the Arians (§ 24). Eusebius of Nicomedia, Asterius, and Arius, agreed in the following opinion: God being willing to create the universe, and seeing that it could not be subject to the world, he connected with it the whole universe, whom he called Son, or Logos, to be a link between God and the world, by whom the whole universe was created. (Compare Athanas. c. Arian. i. § 5.) The Arians formed a kind of Christian sect, both in Asia Minor and in modern Neologians, or Rationalists, in Germany. According to the Rationalists, Jesus was a sort of Socrates among the Jews, and Socrates was a Grecian Jesus. But the Arians did not deny that Christ, in the New Testament, was called God, and they ascribed to him a sort of divine dignity; but asserted that he had this dignity, not by his own essence, but merely by the grace of God the Father. (Athanas. Oec. c. Arians. ii. § 1.) The Father only admitted all the acts as God, and the Church of God, to pay divine worship to Jesus Christ. This they proved from Christ's saying. 'That all men should honour the Son, even as they honour the Father.' He that honoureth not the Son, honoureth not the Father who sent him. (John xiv. 23.) Hence the Arians were accused by Athanasius of idolatry, because, according to their own notions, they offered to a creature that tribute which belonged to the Creator alone. The Arians distinguished the Logos in God from the Logos improperly so called.

These were the characteristic doctrines of the strict Arians. But in the western part of the Roman empire, all adversaries of the doctrine of Arianism, that the Son was homousios or of the same nature as the Father, were called Arians; although some of these opponents taught a doctrine which had already been propagated in the school of Origen, namely, that the Son was homooios, or of the same essence, from the first, these afterwards called semi-Arians, were first compelled, by the opposition of the Homoeans, to join the Arians, but, owing to the persecutions which they suffered from the strict Arians (who asserted the Son to be φωσμον σου 'eis thesattarion, διαστατωμεν in essence), they were driven back into the orthodox church. The party of Arius, and of his pupil, Eunomius, went a step farther than Arius, by asserting the comprehensibility of the essence, and by considering the greater dangerous for the Church, by the doctrine of the chief importance in Christianity. The Antiochene church, under the Arian bishop Eudoxius, afforded an asylum to the ultra-Arians followers of Eunomius. The difference between Arianeans and semi-Arians became more evident when the Council of Epnardus had met, and the gradual assimilation of the latter to the orthodox church. This assimilation was easily effected, because the semi-Arians had constantly used an orthodox phraseology, which was taken by the people in an orthodox sense. According to Hilarius Pictaviensis contra Aurentium (§ 6), the ears of the people were holier than the hearts of their priests. At Constantiople, however, a dogmatizing spirit pervaded all ranks of society. Of this we have a graphic description in the Oratio de Deitate Polis et Spiritus Sancti, by Gregorius of Nyssa (Opp. t. iii. p. 466). 'The town is full of those who dogmatize concerning incomprehensible matters—they are in the streets and markets, among the tailors, money-changers, and metalworkers. If you ask any one how much you have to pay, they dogmatize about being begotten and not being begotten. If you ask the price of bread, the reply is, 'The Father is greater than the Son, and the Son is subordinate to the Father.' If you ask, 'Is the bath ready?' the answer is, 'The Son is created from nothing.' (Compare Neander's Kirchengeschichte, b. ii. pp. 767-904.)

[See ARIUS, ATHANASIUS, EUONOMIUS, ORIGENIUS OF NAZARETH, BAPTISM, ARIANISM, ARIATHEISTS. (See CAPPADOCIA.)

ARIAS, BENEDETUS (BENEDICTUS), in Spanish BENEITO ARIAS MONTOA, who was celebrated in the Medical and oriental, who possessed vast erudition in Jewish astrology, and was a celebrated physician and interpreter of the sacred Scriptures. He was born, in 1527, of noble, but poor parents, in a village called Frexenal de la Sierra, which is situated in the province of Estremadura, near the Andalusian border, in a mountainous district; and hence his native province and town. He attended the University of Salamanca, where he obtained the degree of Doctor of Divinity. He especially devoted himself to the study of Scripture in the original languages, and in general to that circle of philosophy which is called Neoplatonism. He acquired a knowledge of the Arabic, the Syriac, and the Chaldaic, which, for that age, was truly surprising; at a later period, while journeying through France, England, Italy, Germany, and the Netherlands, he acquired an acquaintance with the languages and the literature of these countries. He himself, as well as several of his contemporaries, seems to have considered it a wonderful accomplishment, as no doubt it was in that age, to know ten languages. On account of his great scholarship, the bishop of Segovia, Martin Perez Ayala, took him for his companion to the Council of Trent, where he had his share in some of the most important transactions. After his return to his own country he determined to live in seclusion and devote his time to literature, and to search in the original languages for a correct text of the New Testament. In 1552 he visited his native province, Andalusia, near Arcosana, as his residence. But he made no long stay in this retreat, being invited by Philip II. to superintend the splendid and expensive edition of the Polyglott Biblias, which, in 1565, was published at Antwerp. The lightened printer, Christopher Plantin, was to be executed at Antwerp. Arias accordingly set out for Antwerp, in 1568, provided with the most honourable recommendations to the governor of the Netherlands, the Duke of Alba, so disadvantageously known for his cruelty and tyrannical administration. Arias devoted four years to this undertaking, and had the pleasure of presenting the finished work to Pope Gregory XIII. in 1572. During his sojourn in the Netherlands he was engaged in literary work, which, by the Duke of Alba's order, prepared the Index Expurgatorius. The edition of the Polyglott Bible which Arias gave to the world, in every respect justified the high expectation which had been formed of it; but in an unfortunate voyage from the Netherlands to Spain nearly all the copies were lost. The king, however, remunerated Arias's labours very splendidly, giving him a yearly pension of two thousand ducats, besides other honourable rewards and offices. Arias was an upright, sincerely orthodox catholic, but he was a declared enemy of the Jews; and that ambivalent order omitted no opportunity to take revenge on so powerful a man. He was not hurt by this, for his mind had never been questioned, and was supported by uncommon erudition. His Anticrep Polyglott had received the approbation and praise of the pope, and even that of the most eminent catholic universities; yet because he had not become a Jesuit, and had expressed certain opinions in his commentaries, he was accused of a leaning towards Judaism, and, in fact, of heresy in general. He was even in danger of falling into the hands of the Inquisition, and was obliged several times to go to Rome in order to defend himself. Having cleared himself of these accusations, he devoted the remaining years of his life to literature, sometimes residing at Seville, sometimes at Arcosana; he died at Seville, in the year 1596, as prior of the convent of St. Isag, being then seventy-one years of age. His library, which was extensive, was incorporated in that of the Escorial, where, Schröck, says, some of his MSS. are still to be found. In respect to moral character, he enjoyed a high reputation for candour and blamelessness. Among Arias's numerous and extensive literary works, which chiefly belong to theological, but partly also to classical literature, his Polyglott certainly holds the principal place: it is generally called the Anticrep Polyglott, or, from the patronage bestowed on it by Philip II., Bibbia Regia (the Royal Bible), and sometimes also after the printer, Bibbia Plantiniana appears. A single number of the Polyglott work, in eight folio volumes, will be found in the articles BIBLE and POLYGLOTTS.

Of Arias's other works the following are the most remarkable:

2. Liber Generationis et Regenerationis Adam, s. de Hier-
ARIES, in ancient military science, is the Latin name for the **BATTLESHIP RAM**.

ARILLUS, in botany, is a flasky expansion either of the umbilical cord by which seeds are attached to the placenta, or of the placenta itself. It is never formed till after the fertilization of the seed, and is only met with in a few plants; its use is entirely unknown. The most remarkable instance of the arillus among species of common occurrence is in the spine-tail, *Euryale Euryale*, in which it is the flasky red covering of the seed that renders the plant so ornamental in the autumn and beginning of winter.

Another familiar case is the *mace* of the nutmeg; this substance is, when fresh, a crimson lacereated covering of the nut, which when dried, as its pale brown colour in consequence of the preparation it undergoes in cucumbers in the market.

Before the term was thus accurately defined, it was applied to a variety of parts of exceedingly different natures.

ARIMANES and ARKIMANIES are Greek corrupt-

Near the small bay of Chacota, south of Arica, a number of sepulchres of the ancient Peruvian inhabitants have been discovered, whereas the bodies have been dug in a very perfect state, but almost reduced to skeletons, covered with a tough, dark brown skin, and contextual to the town 18° 54' S. longitude 70° 13' W. Distant 185 leagues S.E. of Lima. (Basil Hall; *Orig. MS. of Captain Bussa, Spanish navy.*)
tions of the Persian name Ahriman or Ahirman, which, according to the ancient doctrine of Zoroaster, is the appellation of the author of evil, and the opponent of Ormuzd, who is the author of good. The genuine form of the word, as it occurs in the Zend-Avesta, is Ahirmanous (pronounce Angro-Mainyus), a compound term, the meaning of which might be expressed by perhaps an etymological equivalent in the Greek ἐγκαρμον, 'hostile, of the same nature as another,' derived from the Zend Aryanic Ahriman. From this form, according to the Persian, is Ahuro Mazda, coming near the forms Oromazde and Ormazd, under which names he occurs in Greek authors (e.g., Plutarch, de Iside et Osir. p. 660. ed. Steph.). In the Sarvest orphan paraphrase, a portion of the Zend-Avesta by Naqsh-e Sarvest, under the name Ahur-Mazda, he was called the 'king of great wisdom.' This interpretation is adopted by M. Eugène Burnouf, Commentaire sur le Yagya, vol. i. p. 73, &c.

Two individual beings ormuzd and Ahiram were, according to the Zend-Avesta, the offspring of Zerumane-Akerene, the indefinite and impersonal divine substance and cause of all existence. Both were primarily equal in intellect and power; but Ormuzd was, from the beginning, pure, good, and luminous; while Ahiram was dark and wicked, and bent on destruction and mischief. Ormuzd is represented as the creator of the world: Ahiram constantly counteracts the designs of his goodness. Ormuzd created the man and the beasts, and gave them reason; Ahiram, in opposition, created the six Daruvi to be subservient to his evil purposes. 'I produced,' says Ormuzd, 'a place of delight, Atryâne-vaeg, far better than the entire existing world. I set all the evil one acted, whose soul is not mortal. The first place similar to paradise which I made, I who am Ormuzd, was Atryâne-vaeg, created pure. Then this Paityâre-Ahrman, full of death, produced in the river (which watered that country) the great snake of winter Pâvez. &c. (Anquetil du Perron's Zend-Avesta, vol. part 2, page 263, &c.) Thus Ormuzd is always taking the lead by pure and good productions, and Ahriman follows, sowing the seeds of natural and moral evil in the new creations. The struggle of the two deities will, according to the doctrine of Zoroaster, continue during 12,000 years, after the lapse of which Ormuzd will defeat his opponent. Ahriman himself will then become a convert to truth and goodness, and a new world, happier and better than the present, will be created.

We abstain from entering into further detail concerning the dogma of the contest between Ormuzd and Ahriman, as the original documents in the Zend language, from which this information is derived, have been lost, and our knowledge of the doctrine is comparatively little. We have, however, derived, and much is still wanted to a full understanding of them. This translation by Anquetil du Perron, though of invaluable service to those who wish to follow up the inquiry, has been found too loose, and his teacher has attempted to allow his understandings on many subtle points of the antient Persian faith to be drawn from it.

The Persian doctrine of the two opposite principles was known to Aristotle, who, according to Diogenes Laertius (De Vit. Philos. Proem. 2), distinguished them as αὐτός καὶ φαίνεται and σαυτός καὶ εἶναι. The most ancient foreign authors that have given some interesting details regarding the doctrine of Zoroaster are the Armenian chroniclers of the fifth century, especially Elyasus and Eznac. See Elyasus's History of Vartan, &c., translated by C. F. Neumann, London, 1830, 4to, and an extract from the Chronicles of Eznac, in the appendix to P. Anquetil du Perron's Zend-Avesta, in the Armenian and English, Venice, 1819, 8vo. p. 198, &c.

ARINS (or ARINNES), are the remains of a Siberian people who inhabit the banks of the Yenisei. They have been reduced to their present limited numbers by the successive cruelties of the Tartars, by conquest, and by the inroads to the regions inhabited by the Kirgises, and by intermarriage with the Cachtin-Tartars and Oitaks. They reside in an inana or single district, under the superintendence of a chief, or elder, by whom the tribute, fixed by the Russian government in 1733, is regularly paid. When Müller, the traveller, visited the spot, he found but one single individual amongst them who was capable of speaking the native dialect, which has a close affinity to the Oitak; the rest of his brethren had adopted the Cachtin-Tartar language.

ARIOBARZANES. [See Cappadocia.]

ARISON, a native of Lesbos, the inventor of the dithyrambus, and a great musician, was contemporary with Periander of Corinth, and with Alyattes, king of Lydia (Hec. 628—571). He travelled as far as Tara (Taranto) in Southern Italy, and acquired considerable wealth by his professional skill. (See his history, Herod. i. 22; and also Milan. Hist. Anim. xii. 45.)

ARIO'SO, in music (an Italian adjective, airy), used adversely—in the manner of an air, as contradistinguished from a recitative. In the harpsichord, music, it denotes a sustained, a vocal style. It is sometimes most improperly used substantively, and may be mentioned among the numerous instances of the misapplication of Italian words by English and German musicians.

ARISTO. LODOVICO, was born at Reggio, near Modena, September 8, 1474. He was the son of Nicolò Aristo di Ferrara, a military officer in the service of Duke Hercules I. d'Este, and governor of the citadel of Reggio; his mother, Daria Malaguzzi, was daughter to the Duke of Reggio. Lodovico was the eldest born of a family of five brothers and five sisters. He early showed a disposition for poetry, and wrote in his boyhood a drama on the subject of Pyramus and Thisbe, which he and his brothers rehearsed before their parents. Lodovico, being designed for the profession of the law, was sent to Padua, where he spent five years, much against his will, in the study of that science; and his father, at last convinced of his distaste for this pursuit, recalled him home and allowed him to follow his own inclination. Lodovico was then past twenty, and being yet little acquainted with the antient writers, he put himself under the tuition of Gregorio da Spoleto, a learned scholar of the time, by whose assistance he made great progress in his studies.

Aristo was subsequently called to Florence, where his teacher was called away to Milan to be preceptor to the young Duke Sforza. Aristo, however, studied Greek later in life. On the death of his father, about the year 1500, he found himself charged with the guardianship of his younger brothers and sisters, and the management of a very moderate patrimony—a task which he entered on with brotherly affection, and which he fulfilled with integrity. In the midst of these cares he found time to write several works, one of which, a history of the longevity in Latin, by which he attracted the notice of Cardinal Ippolito d'Este, younger son of Hercules I. and brother to Alfonso, the heir to the ducal crown. The cardinal, in 1503, appointed Aristo one of the gentlemen of his household, and soon discovering that his abilities were not confined to poetry, he employed him in important affairs and missions both for himself and for his brother Alfonso, after the latter became Duke of Ferrara, by the death of his father in 1505. Alfonso having joined, in 1509, the famous league of Cambray against the Venetian republic, Cardinal Ippolito took the command of his brother's troops, and Aristo was present at the campaign of that year on the banks of the lower Po, the stouche of which, perpetuated chiefly by the Slavonian mercenaries in the service of Venice, he feelingly describes at the beginning of the thirty-sixth canto of his great poem. In December of the same year, he was sent by the duke on a mission to Rome to request the assistance of Julius II. against the Venetians, but the pope, who had been the first mover in the league, had already changed his mind and become jealous of his French and German allies. Cardinal Ippolito, however, in the meantime defeated the Venetians and destroyed their pontificia on the Po, and the object of Aristo's mission of course ceased.

The following year, 1510, Pope Julius, having openly
joined the Venetians against his former allies, excommuni-
cated the Duke of Ferrara for refusing to follow his exam-
ples, and assembled an army in the Romagna to attack Alfonso’s territories. Ariosto was now sent again to depre-
cate the wrath of the pontiff; but not succeeding, he was
obliged to make a hasty escape from Rome, as the pope
had threatened to have him thrown into the Tiber, a
threat which he was not unlikely to have carried into ef-
fect. The war continued, between the Duke of Fer-
arra and the French on one side, and the Venetians, the
pope, and the forces of the Romagna on the other. The
battle of Jutland, in the beginning of 1513, delivered Alfonso from his bit-
ter interest. Cardinal Giovanni de’ Medici being raised
to the pontifical throne, by the name of Leo X., Ariosto
went to Rome, to congratulate the new pope, whom he
had formerly offended, and to await, at the imperial
court, the event of the war. Leo received him most graciously.

He stopped from his pontifical chair,
took him by the hand, and saluted him on both
cheeks (Ariosto, Satria iv). Ariosto thought his fortune
made; but he was not enough of courtly patience and
perseverance. He soon grew tired of waiting for more
substantial demonstrations of favour, left Rome in disgust,
and returned to Ferrara to resume his studies. He had
long before this begun a poem, in octaves, on the fab-
ulous adventures of the knights and paladins, Moors and
Christians, of Charlemagne’s age, an inexhaustible theme,
which had occupied the pens of many Spanish, French, and
Italian poets and writers.

In Italy, Pulci, Bojardo, and Bello had each written a
poem on the wars between Charlemagne and the Saracens,
which tradition had confounded with the previous
wars of Charles Martel and Pepin, and on which
Orlando, or Orlando furioso, as it is sometimes called,
was a prominent character, and the champion of the
Christians. Bojardo took Orlando for the hero of his
poem, and made him fall in love with Angelica, an
infidel princess, of exquisite beauty and of consummate
courage. In the first book Bojardo introduces the
battle of Poitiers, which Orlandor had never heard of or
seen, although he had carried his poem to the sixty-ninth
canto at the time of his death. Ariosto took up the thread
of Angelica’s story where Bojardo had left it, and making
the heroine fall in love herself with Medoro, an obscure-you-
ful squire, he represents Orlando as driven mad by jealousy
and indignation: he continues in this state during
the greater part of the poem, committing a thousand absurd-
ities, until he is restored to reason by Astolfo, who brings
him back to the poem from his imaginative wanderings.
His poem, however, is rather terrific and lamentable than ludi-
cious; for the poet, often jovial and humorous in his epi-
sodes, never loses sight of the dignity of his narrative, nor
does he stoop to a servile imitation of the French. The
expulsion of the Moors from France, and the subsequent
death of their king Agramante and their other
chiefs. The poet has interwoven with these a third
subject, which some critics, who are determined to find
a unity of action in a poem which is not an epic, have,
assumed to be the principal one, namely, the loves of Rug-
giero, a young Saracen knight born of Christian parents,
and Isabella, a Christian maiden. These two characters
had been already introduced by Bojardo in his Infarnarato,
and Ariosto followed up the story of their mutual
attachment; after numerous adventures, crosses, and
narrow escapes, he makes them marry in the last or forty-
sixth canto of the poem, and from their union he derives
the genealogy of the house of Este.

Intermixed with these three subjects or tales are nu-
enrous and some long episodes of knights and damascos,
of their battles, of their silent love, of their
ventures, of their adventures, their heroic, some ludicrous, and others pathetic; there are magi-
cians and giants, enchanted palaces and gardens, flying
horses and harpies, and other monsters; and the reader finds
himself so entirely attracted by the new story that it is like being
wandering of an enchanter. The poet has the art of sketching
and particularizing every creature of his fancy with features
and attributes to apparently appropriate and consistent
with their supposed nature as to remove the feeling of
their improbability. He appears himself deeply interested
in his favorite passion, and at times in the vườn of his
own labyrinth, that he loses himself, as he ingenuously
confesses, and is obliged to break off in the midst of a most
interesting story, to run after some other personages, whom
he left in a desert island, or on the summit of a mountain, and
bring them to anew to the view of his readers. Yet he contrives
to wind off all his threads at last with admirable skill. It is not always
an easy thing to follow such a guide; but we wander along
from incident to incident, from scene to scene, in spite of all
his caprices and inconsistencies. He is in sympathy with the present,
and unconscious of the ultimate object of our
journey. Such is the Orlando Furioso (as far as an idea
of it can be given in a few words), the first of all the poems
of the school of the chivalrous chivalry. The story of 
Infarnarato is, however, required for the proper understanding of the
Furioso. In both poems there are licentious passages,
which render them unfit for the perusal of youth.

Ariosto, after spending ten years in writing his poem,
published it in one volume quarto, at Ferrara, in April, 1516,
in forty cantos, which he afterwards increased to forty-six.
He sold 100 copies of it to the bookseller Giglio of Ferrara, for 28
scudi; about 16 pence per copy. He dedicated it to Cardinal
Ippolito, who, after perusing it, is said to have asked ‘where
he had picked up so many absurdities?’ Whether this be
ture or not, it is certain that Ariosto gained no favour with
his patron by his work, in which he had introduced his
friend, Prospero Alberoni, as the hero of the poem. The
Cardinal had no taste for poetry; he was a busy man
of the world, and he told Ariosto that he would have felt
better satisfied if, instead of praising him in idle verse, he
had been to present him with a fair revenue, which
Alberoni had asked for.

In 1517, the Cardinal, being about to set off for
Grain in Hungary, of which he was archbishop, asked Ariosto
to follow him there, but the poet excused himself on the
 plea of his health, which was very declining, and his
brother, the Cardinal. The consequence of Ariosto’s refusal was,
that his patron was offended, and some time after his departure
a small pension which he had allowed him was stopped.
After the Cardinal’s death, in 1522, but before the notice
of his death had reached Ferrara, Ariosto was in his
own service, in which he always experienced the
kindest treatment. It ought to be observed, in justice to Cardinal
d’Este, that, although he showed no sympathy for the poetical
merits of Ariosto, it was he, nevertheless, who first patronised
and brought him into notice, and introduced him to his
brother, to the Medici, and other great men of his time; and
that, had it not been for Cardinal Ippolito, Ariosto probably
would not have had the leisure, the opportunity, or the
means of dedicating his poems to the genius of a
patronage which, though not like a mortal competitor
had only to think of the minor orders which are not attended by binding
vows, and wore the clerical dress. (Ariosto, Satria ii., and iii., and
also Mazzucchelli, Scrittori d’Italia, Biography of Ariosto.)

Ariosto had also the reversion of the rectorship of Sant’
Agata, in Romagna, the incumbent, an old maternal rela-
tive, having made it over to him. We ought not to judge
of Ariosto’s permanent feelings towards his patrons from
the fits of poetical querulousness which he occasionally
indulged in his letters, for in the very midst of those
we perceive much grateful regard and affection for both
the Cardinal and the Duke. The Duke indeed, by
Ariosto’s own acknowledgment, behaved liberally to him. Through
his munificence the poet was enabled to build himself
a house surrounded by a pleasant garden, opposite the church
of S. Benedetto, at Ferrara. In February, 1521, Ariosto
published a second edition of his poem with many corre-
cctions, but the edition of 1516 had no longer in circulation
in Italy, for the investment of the possessions of the
Dukes of Ferrara, in the Romagna, in the hands of the
Emperor, and the war between them and the Papacy,
which had commenced in 1521, brought a great change in the
affairs of Italy. The Emperor had taken up the
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were restless and quarrelsome, and the mountains were in-
fested with outlaws. Ariosto humorously describes the
troubles that a local nobleman, Ippolito, faced in remov-
early three years at Castelnuevo, the chief town of the
district, during which he seems to have conciliated the
minds of that rude population, and to have restored order
among them; otherwise the mountains would have been a
nest of robbers, his name and reputation proved his pro-
tection; the outlaws, on learning who he was, showed him
much respect, and offered to escort him wherever he chose.
In 1523 the Duke proposed to send him as ambassador to
Clement VII, who had been elected pope; but Ariosto
declined the mission, having been disappointed with Rome
and the Medici once before (Satira vii). In 1524, he
returned from his government to Ferrara, where it appears
he was in various occupations, but chiefly in writing,
but enjoying leave for his studies. He now wrote his
comedies, which were performed with great splendour be-
core the court, in a theatre which the Duke built for the
purpose. In 1525, Ariosto, after correcting and revising
his poem for sixteen years, published the third edition in forty-
six cantos, which, in spite of some misprints of which Ariosto
bitterly complains, remains the legitimate text of the Orlando
Furioso. The six entire cantos which he added, are the 33rd,
37th, 38th, 40th, 41st, and 42nd, and are intercalated before
and there added to the other cantos. Some stanzas he wrote
in twenty different ways before he fixed upon the present
text. The apparent ease of Ariosto's verse is the result of much
labour and research; some of the poems are revised editions
when he found himself grievously ill with a painful internal
complaint, which brought on a decline, and at last, death.
It was remarked, that on the night preceding the last day
of the year, on which his illness first assumed a serious
character, a fire broke out in a wing of the ducal palace, and
burnt the great hall and the theatre which had been con-
structed for the performance of his plays. After lingering
several months, Ariosto died on the 6th of June, 1533, in his
59th year. He was buried in the church of San Benedetto, attended by the monks, who
volunteered to do honour to his remains. Forty years after,
when the church had been rebuilt, Agostino Mosti, of Fer-
rara, who had studied in his youth under Ariosto, raised
a handsome monument to him in the other chapel to the left of the right great altar, to which spot the poet's bones
were transferred with great solemnity. In 1612, Lodovico
Ariosto, grand nephew of the poet, raised another monu-
ment to his memory more magnificent than the first, in the
other chapel to the left of the great altar, to which place
Ariosto's remains were finally removed.

Besides the three Ferrara editions above-mentioned, printed under his supervision, a fourth edition of his poems were
published in various parts of Italy in his lifetime. Nu-
merous editions followed after his death; all, however, more
or less incorrect, and some of them purposely altered and
enriched. The Aldine edition, of 1545, is one of the best of
that age; it is composed of thirty-three cantos, which are the
beginning of a new poem, and were left in MSS. by the author, and delivered by his son Vir-
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Ariosto is considered one of the best Italian satirists.
The tone of his satires resembles that of Horace rather than
that of Juvenal. In these he exhibits several of the principal
occurrences of his life, and exhibits, with astonishing ac-
curacy, the manners and customs of his time and country. He speaks of popes, princes, and
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of which are all that exist), and The Spanish Galle-
ts. Cardinal Bibiena, Ariosto, and Machiaveli, all three
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Terence more or less, but the latter two turn chiefly upon the intrigues and stratagems practised by
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domestics, to deceive an old miser, a jealous husband or
tather, or a watchful guardian of some good-natured
beauty. In the language is often great indecency, and yet the
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times. There are some other minor works of Ariosto, con-
sisting of canzoni, capoliti in terza rima, sonnets, and a
few other songs, which are composed in 1506, on the occasion of a conspiracy being
discovered against the life of Duke Alfonso by his two
brothers Ferrante and Giulio. There are also some short
later poems on various subjects, and these are all
found in the Venice editions of Ariosto's works of 1741 and 1766, edited by Barotti.

Ariosto left two natural sons, Virginio, whom he had
baptised with the name of Basso, and whom transferring
came a canon of the cathedral of Ferrara; and Giovanbattista,
who was made a captain in the Duke's service. The number
of commentators, critics, and biographers of Ariosto, is very
large, and accounts have been written in the course of this article. Baruffaldi junior has also written a life
of Ariosto; Ferrara, 1807.

ARISH, or EL ARISH, a small town on a slight emi-

tence about half a mile from the shore of the Mediter-

raneean, and on the coast of Aethiopia, is the site of the 31st
N. lat.; 33° 48' E. long. There are some wells near it,
and some clumps of palm-trees between the town and the sea.
Thuyenot (Voyage de Levant, p. 360) describes the castle,
in his time, as being well built, and near the coast at the
right of the great altar, to which spot the poet's bones
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ARISH, or EL ARISH, a small town on a slight emi-

tence about half a mile from the shore of the Mediter-

genes Laertius. Whether the charge was ironical or not (Montucla conjectures the former), it serves to corroborate the preceding date, since Cleanthus succeeded Zeno about b.c. 264. We know nothing further of the life or death of Aristarchus.

Aristarchus (in the Areopagi) attributes to Aristarchus the opinion that the earth moves round the sun, which is supposed to have been previously held by Pythagoras and Philolaus. His words are, 'He (Aristarchus) says, that the fixed stars and the remainder of the heavenly bodies, by the motion of the earth carried round the sun, as the circumference of a circle, the sun being in the centre: and that the sphere of the fixed stars, which has the same centre as the sun, is so great that the circle described by the earth bears no more proportion to the sphere of the fixed stars than the surface of a sphere does to its surface.' Archimedes then proceeds to combat the singular notion contained in the last words. The passage from Plutarch's treatise on the moon, above referred to, states that Aristarchus supposed the heavens to be fixed, and that the earth moved in an oblique circle (λαβδος κυκλος), at the same time revolving round her own axis. We learn also from Archimedes, that Aristarchus supposed the apparent diameter of the sun to be the 720th part of the earth, that is, half a degree. This is about 2° too little.

One small work of Aristarchus has come down to us, 'On the Magnitudes and Distances of the Sun and Moon, which makes use of the principles of Eudoxus with respect to the earth's motion. The scope of it will be shown in the following translation of the introduction (from Wallis's edition). The brackets contain remarks, mostly from Delambre.

1. The moon receives light from the sun. [This was asserted before Aristarchus.]

2. The earth is a mere point or centre when compared with the sphere of the moon. [This is wrong, since the moon would then appear at the same point of the heavens from different parts of the earth, which is not the case.]

3. When the moon appears halved, the great circle separating the light and dark part of the moon passes through the sun. [This is wrong; but a great step in astronomy, as giving rise to the first determination of the relative distances of the sun and moon, the principle of which was correct.]

4. In the preceding case, the angle between the sun and moon is less than a quadrant by its thirtieth part. [That is, the angle is 8°77; whereas 89° 50' is nearer the truth.]

5. The apparent diameter of the earth's shadow (that is, the section through which the moon passes in an eclipse) is twice that of the moon. [This would give it 64; it is nearer to 82.]

6. The moon subdues the fifteenth part of a sign. [This would make the apparent diameter 2°, which is four times too great.]

Having determined the distance of the sun from the earth in 18 times the distance of the moon, and less than 20 times; that is, when the moon appears halved. And the [real] diameter of the sun bears the same proportion to the [real] diameter of the moon. The diameter of the sun bears to that of the moon a greater proportion than 19 to 3, but a less proportion than 43 to 6, as appears from what has been found of the ratio of the distances, the shadow of the earth, and the moon's subtending the 15th part of a sign.

The preceding deductions follow correctly from the principles laid down, and of course partake of their numerical inaccuracy. The manner in which they are proved shows that the Greeks of this period had no trigonometry whatever (§ 3), in the report of Archimedes is corroborated. Delambre infers that Aristarchus attributed day and night to the rotation of the earth. It is hard to see how he could do otherwise, if he supposed the sun fixed.

This is another work attributed to Aristarchus, published by Roberval at Paris, in 1545, on the System of the World. But this appears to have been probably one of the restora-
tions of which we have spoken in Apollonius, as De

cartes and several others affirm that it was written by
Roberval himself, and Wallis asserts that this fact was
perfectly well understood by the French, both at the time
of publication and in his time.

Vitrivius [the name, is] at a loss to say who composed the

Aristarchus, as the inventor of many useful machines, and, in particular, of a dial which he terms scaphe. This dial is described by Martianus Capella (cited by Weidler), from which, and partly from Plutarch, we derive the name, and partly from Ptolemy, who conceives the sphere of heaven, with a style ending in the centre, so that by drawing the equator, &c. inside the hemisphere, the sun's position might be found by marking the extremity of the shadow. Montucla describes one, dug out at Tusculum in 1714, which is said to be the result of the researches of Aristotle and is conjectured to have belonged to him. (Mont. Hist. Math. i. 721; a drawing is given.)

The principal editions of Aristarchus are the Latin translation of Valla, Venice, 1498, containing the commentary of Pappus; and of Commandine, Pesaro, 1572; the Greek text of Wallis, Oxford, 1688, with a commentary and Commandine's version, which edition also was reprinted in the second volume of Wallis's works, Oxford, 1695. A new edition of the Greek text, with a Latin translation, appeared at Paris in 1810, 8vo. There is also a French translation M. de Fortia D'Urban; Paris, Didot, 1823.

ARISTARCHUS, the critic, the son of Aristarchus, was born near Assos, and probably studied with Simplicius. He is restricted to the narrow limits of his own country, in order to settle in the wealthy and populous city of Alexandria. The time of his birth is not exactly known; but he is stated to have flourished about b.c. 158. Polenmy Philometor, king of Egypt, received him into his service about b.c. 181 to 145, and Aristarchus was the preceptor of his son, who was killed by his uncle Pula-

emery Euergetes II. at the accession of the latter in 145 n.c. (Justin, xxxviii. 8.) Aristarchus was the disciple of Aris-

tophanes of Byzantium, the celebrated grammarian of that country, who flourished about 200 n.c., and was the first Greek who laid the principles of philological criticism upon a sound and accurate basis; thus he was the first to inquire with precision into the origin of the Greek language, and into the grammatical analogy of the Greek language: he likewise introduced the use of the Greek accents, as they may now be seen in manuscripts and printed books (Wolf, Proleg. ad Homer. s. 44). Aristarchus succeeded his master Aristophanes (for whose opinions he is stated to have entertained great respect), as head of the grammatical and critical school of Alexandria; and obtained in that capacity, by his eminence as a teacher and by his various writings, a greater power and greater riches than the rest of the age.

Forty grammarians are stated to have preceded from his school (Suidas in 'Apsuypocex'), who doubtless contributed to spread his fame over Greece and the neighbouring countries. His name was highly celebrated among his contemporaries; the Ptolemaic astronomer Ptolemy calls him a diviner, from his facility in conjecturing the meaning of poets ('pyrov terrifying, Athenaes xiv. p. 634 C.) ; and after his death, his authority was so much esteemed, that Horace and Cicero used Aristarchus as a general name for a great critic (De Arte Poet. 450. Epist. ad Att. l. 14), and Sextus Empiricus mentions him with Plato and other such eminent names (Adv. Mathem. x. s. 110); one of the scholastics to Homer likewise expressed opinion (which a modern critic has applied to other persons), that it is better to err with Aristarchus than to be right with Hermapias, a grammarian of little note (ad II. 233).

The critical works of Aristarchus appear to have been very voluminous, and the greater number are known from extracts and citations preserved in other writers. His chief work was his edition of the Iliad and Odyssey; in which, 1. he revised the text, partly by means of the comparison of MSS., and partly by his own conjectures; 2. he divided the two poems into twenty-four parts or books, each distinguished by a letter of the Greek alphabet, which in the Alexandrine age contained twenty-four letters (Inerrata de Hom. Poesi, in Erasmus's Homer, vol. v. p. 193); and 3. he placed certain critical marks before certain lines, some denoting that the verses so marked contained something worthy of notice, and others that they were spurious; the last were merely straight lines thus _ _, in the form of a spit or αποθε; therefore 480_ _ _ _ _ _ , Greek and obsolete, with an obelus,' meant to mark as spurious. The reasons for the changes which he made in the text, and for the marks...
which he prefixed to the verses, and his explanations of doubtful passages, he appears to have given separately in some of his letters; and of which he has stated that he has written more than 800 books. (Suidas in v.)

Probably these books were not longer than such divisions as we should now call chapters; these commentaries, however, included not only his labours on Homer, but also illustrations of Herodotus, Aeschylus, Sophocles, Pindar, Aristophanes, Aratus, and other poets. Of these latter productions of Aristarchus few remnants have been preserved; of his Homeric criticisms, however, a large portion is still extant in the writings of Porphyrjus and Symmecus, which manifest interpolations of a later age. Various opinions have been formed on these judgments of Aristarchus; some moderns having thought that his method was in the highest degree arbitrary and uncritical, while others have thought that he exercised a sound and modest discretion. There can be no doubt that Aristarchus in rejecting verses of Homer for the most part did not rely on the faith of ancient copies, but trusted merely to his own sagacity in discovering the true text. (Suidas in v. Ciceron, in his correspondent) denies that Homer wrote the verses of which he does not approve, so do you suppose that whatever part of my letters may be wanting in clearness is not written by me? (Suidas in v. Fast. Helen. part iii. pp. 492-5) Whatever theory may be adopted with regard to the composition of the Homeric poems, whether we suppose that the Iliad and Odyssey were both entirely written by one poet, or that each was the work of a separate poet; or that they were a reduced series of rhapsodies composed by a number of early bards, whose scattered songs, being originally like the old Spanish and Scotch ballads, were afterwards collected and joined together; it is equally certain that not very many have received their proper form from its original author; and that verses and passages might have been improperly introduced at a later date by the reciters of these poems. Now these interpolations, if any such existed, were doubtless made before the age when the Iliad and Odyssey were first reduced to writing; and therefore they could not be detected by the mere comparison of manuscripts. Consequently, Aristarchus ought not to be taxed with rashness for condemning verses of Homer which might be found in all the MSS., nor should it be said with Ciceron that he rejected those verses of which he did not approve, simply because he did not approve of them; he rejected them because he thought they were not in accord with the general character of his poetry and language. If the existence of any additions to the Homeric poems, of considerably later date than the body of the poem (as the last book of the Odyssey), is ever susceptible of proof, it can only be established by the exertion of the utmost pains and ingenuity of those employed by Aristarchus in justification of his obel. The division of Homer into books was doubtless made by Aristarchus for the purposes of reference, which were important to critics such as himself; and it has been retained on that account ever since his time. The earlier Greek writers, as Herodotus, Plato, Aristotle, &c., in citing Homer, refer by description to the part of the poem which they mean, as the exploits of Diomedes, the descent into hell, the battle of the gods, &c.

Aristarchus did not confine his criticism to grammatical and metrical questions, but he also gave historical and geographical illustrations of the author's text. Thus we are told that he considered Homer to have been a native of Athens, and placed him at the time of the Ionian migration, sixty years after the return of the Heracleids, or one hundred and forty years after the fall of Troy. (Incertus ad Hom. Posid. in Eusthemiis Homer., vol. v. p. 151, comp. Wolf, Prof. Hom., p. 17.) His notes on the mythology and geography of Homer, preserved in the scholia, are very numerous. (See Liber. de Aristarchi Studiis Homerici, Phil.)

Aristarchus published two editions of his recension of Homer, as appears from numerous passages in the scholia to Homer, where the differences between the readings of the first and second editions are noticed. (Lehr. 10. p. 27.) His recension made a marked change in the Iliad and Odyssey, not only among the grammarians of Alexandria, and their disciples; but among the copyists from whose transcripts the modern versions of Homer have been derived. (Suidas in v.; cf. Wolf, Prof. Hom. a. 47.)

Besides his edition of Homer and his Commentaries, he wrote some short works addressed to individuals, as to Philostratus and to Comanus, the chief cup-bearer of the king of Persia. (Proc. ad Hist. in Eudox. Zeno, Mor. 11. 21.) In his life appears to have retired from Alexandria to Cyprus, where, being afflicted with a dropsey, he died of voluntary starvation at the age of 72; leaving as his successor in the chair of Aristarchus, his pupil and friend Symmecus. (Suidas in v. &c.) He had two sons, named Aristarchus and Aristagoras, who were both idlers; the former was sold as a slave (probably because he was a burden to his family), but having been brought by his master to Athens, he was freed by the Athenians in return for his services. (Wolf, p. 109.) He was also in the service of the Athenian fleet as a ship's boy, according to the arrangement of his life, ought to have occurred before the Persian war; but the date of their occurrence is not fixed, and they contain no distinct mention of his ship. (Wolf, p. 109.) He was also the chosen treasurer of the public revenue of Athens. Plutarch further states, that Themistocles and others, whose malpractices he had exposed, had influence enough to procure his condemnation on a charge of malversation; but that, by the intercession of Ariadne, his daughter, whom he had remitted, and was again elected to the office of chief treasurer. It appears that he was early opposed in politics to Themistocles, whose ambitious and unscrupulous temper led him to promote both his own and his country's benefit by measures quite at variance with the integrity and straightforward temper of Aristides. But the first distinct notice which we possess of his public life is, that he was one of the ten commanders who directed the Athenian army, B.C. 496, upon the occasion of the Persian invasion under Datis and Artaphernes. This rest on the authority of Plutarch, who ascribes to Aristides the honour of having first yielded his turn of command to Miltiades, and by his example and authority having carried the dissentients with him. (For a fuller account of these circumstances, and the battle of Marathon, see Miltiades, and Historical Parallels, v. 1. p. 267.) Plutarch adds, that when the Athenians marched back to their capital in haste, to prevent the flying Persians from making any attempt on it by sea, Aristides was left with the men of his own tribe to guard the valuable spoil of the Persian camp; being selected for that duty out of respect for the greatness of his party. But Herodotus, in his account of the battle (vi. 109), never even mentions Aristides's name. This proceeded from no unfriendly feeling; for the historian (viii. 79) bears testimony to him as the justest and best man in Athens. This was the estimate which his contemporaries set by the text of his history. All the circumstances that occurred act so important a part in the action as his biographer would
have us believe. That he did distinguish himself is, however, rendered probable by his having been elected archon epomenos in the following year. (Plut. Arist. c. 5.)

Of the transactions of his magistracy we have no account. In the third year after the battle of the Lacedaemonians he was again elected archon by the process called ostracism. A person less ominous to the spirit of jealousy which dictated that singular expedient, whether of jealousy or precaution, could hardly have been found; but the practices of Themistocles prevailed with the suspicious temper of the Persian invasion under Xerxes took place. At the battle of Artemisium, Aristides was still in exile; but before the battle of Salamis he was recalled, with other exiles. In the night preceding that memorable battle, he assembled from the island of Eginis through the Persian fleet, bearing intelligence to his countrymen that they were surrounded, and that flight, which they were then meditating, was no longer possible. (Herod. viii. 79.) The details of the action do not belong to this place. (See Historical Parallels, p. 360, and Salamis.)

We have only to state that Aristides, at the head of a body of Athenians, landed on the small island of Psyttaleia, near Salamis, and put to the sword the Persian troops stationed on that island. (Herod. viii. 80.) For this service of the course of the war, he combated Themistocles' advice to sail for the Hellespont, and destroy the bridge built by Xerxes; and recommended, on the contrary, that every facility for evacuating Greece should be given to the Persians before the battle of Platea, fought in September, n.c. 479, he was reinstated in all and more than his former favour with his countrymen. The answer returned to Mardonius' offer of peace and alliance with the Athenians is said by Plutarch to have been dictated by him: 'Tell Mardonius that the Athenians say, while the sun goes in the same course as he is now going, we will never make peace with Xerxes; but we will fight him, trusting in the gods, who fight with us, and that we are maintaining nothing more of our country; but you have no part in the chance of your country, has burnt.' (Herod. viii. 143.) Aristides was one of the ambassadors sent to demonstrate with the Spartans for their tardiness in sending succours to resist the threatened invasion of Attica by Mardonius; and at the battle of Plataea, contrary to the general usage, he was appointed sole general (στρατηγός ἀπωνόμος) of the Athenian troops, and signalized his moderation in a dispute with the Tegeans concerning the right of occupying the left wing of the allied army, the second post in point of honour, of the right wing being always held by the Lacedaemonians. 'We came here,' he said, 'not to talk, but to fight. Since, however, the Tegeans have advanced their claims to renown, both in olden time and that mentioned now, let it be shown to you plain to our claims to priority over the Arcadians.' Then, after enumerating the warlike glories of his countrymen, he added, 'But this is no time to wrangle about privileges, or to be obnoxious to you, who, ever, and against whomsoever, you choose to station us; and wherever we are, we will do our best. Command us, therefore, as men who will obey.' The Lacedaemonians answered by acclamation, that the Athenians were more worthy than the Tegeans to lead the left wing. (Herod. ix. 27.) It is also observed here (as of the answer returned to Mardonius), that what Plutarch says of Aristides, Herodotus says of the Athenians generally. It may be presumed, however, that on this occasion the single name of Aristides is mentioned by the Tegeans as a leader; and that the words so full of wisdom, spirit, and moderation, agreeing so well with the character of Aristides, were really prompted or delivered by him.

Not long after the restoration of Athens, which had been declared by the Spartans (11th year after the battle of the Plateans, i.e. 475 B.C.), the Lacedaemonians took place in the constitution: though opposed to the principles of those with whom Aristides generally acted, it was supported at least, if not brought forward by him. By Socraes it is said to have been effected by the consent of all, and that a hackneyed advice of that which the more numerous class who were excluded by law from the administration, having arms in their hands, and proud of their recent exertions and success, would scarcely be brought to acquiesce in their former political inferiority. Aristides, therefore, proposed an alteration in the law, by which all were rendered eligible to the archonship, without regard either to their wealth or to the amount of property. Aristides was the colleague of Thucydides in an embassy to Sparta, when the Spartan government interfered to prevent the rebuilding of the walls of Athens, destroyed by the Persians. (Thucyd. i. 91.) Cicerro relates a story (Off. ii. 27) (in which he has been accused of a great deal of license), that Themistocles, after the end of the war, announced to the assembly of the people, that he had a scheme to propose greatly advantageous to the state, but of such a nature that it could not be communicated to the whole people. Upon this he desired to communicate it to Aristides, who reported that nothing could be more advantageous, or less honourable; and the proposal was dropped without further inquiry. The measure proposed, according to Cicero and Valerius Maximus (vi.), was to burn the Lacedaemonian fleet at Gythium; according to Plutarch, to burn the dock-yard of the Grecians (συναρτημα τοῦ Ἐλπίσων), by which we suppose the confederate-fleet was meant. It is difficult to conceive how either measure could be received with any more than with justice. Diodorus (xi. 42) has a different version still of the same story, agreeing in the one point of the proposal of Themistocles being referred to Aristides. (Xen. Alex. iii. 4, vi. 5, ii., Tact. B.C. 477, Diod. xii. 66, Strabo xvi. 683, Herod. viii. 143.) Early in the summer of 657, the commander-in-chief of the Pausanias, induced the Ionian Greeks to decline serving under them. They offered the command of the confederacy to Athens, whose ships at that time were under the command of Aristides; and with this he so strongly pressed the Ionians, that they were entertained with the Athenian character, mainly through his virtues, that his transfer of the command is chiefly to be ascribed, and the consequent establishment of what is called by historians the Athenian character in Greece, which was overthrown seventy-two years afterwards, at the end of the Peloponnesian war. Under this new arrangement the Greeks of the west coast of Asia Minor, the islands, and Thace, in conjunction with the Athenians, engaged their ships of war against Persia. Each state was assessed to furnish a certain sum of money, amounting in the aggregate to 460 talents; and the difficult task of making the assessment was executed by Aristides with such fairness, that, according to Diodorus (xi. 47), he obtained the highest praise for justice. Deputies from the states met in the sacred island of Delos, where the temple of Apollo was appointed for the common treasury, and officers called Hellenotamyes, 'treasurers of the Grecians,' of whom the chief was Aristides, were appointed to regulate the distribution of the common fund. This is the last public office in which we know Aristides to have been engaged. The precise time of his death is not known; but he is said to have been poisoned by his nephew, Lysimachus, who is one of the speakers in Plato's Dialogue of Laches, and two daughters (Plut. 27); all of whom were provided for by the state. Lysimachus had a pension and a grant of lands at Euboea (Plut. Eph. 324). Aristides died and lived in poverty, after having borne the highest offices of Athens, and possessed the most tempting opportunities for peculation of any man in Greece; a voluntary poverty, for he is said to have been most liberal in his benefactions, saying that he could better boast of his poverty than others of their riches, which many did use ill, and few well; and that it was a hard thing to find one man of a noble mind to live in poverty, and another as he did, being only ashamed of poverty as we are poor against their wills. (North's Plutarch.)

The character of Aristides (so far as we can trust our
It was the practice of Aristides and other rhetoricians of his age, often to choose their topics from the republican times in anxiety. To him, because of the rarest of all praises, that of observing justice, not only between man and man, but between nation and nation. He was truly a patriot, for he preferred the good of his country to the gratification of his own ambition. A candid enemy, an impartial critic, his researches were never undertaken without an observer of national faith, it seems hardly worth while to add to this catalogue of virtues the more common merit of being a brave and successful general, except that this latter quality completed his character, and fitted him to the stormy times in which he lived, giving to it a lustre and importance in the eyes of the many, which his peaceful virtues unassisted might have failed to command.

Of the British Museum, there is a sepulchral stele, which bears the name of Aristides, the son of Lysimachus, of Eetias. It is conjectured that this Aristides was the grandson of Aristides the Just. (See Elgin Marbles, vol. ii., 149; Herod. Plutarch, Cornelius Nepos, Lives of Aristides; Mitford, &c.)

ARIStIDES, a native of Thebes, and one of the great Greek painters, is said by Pliny (xxxv. 10) to have been the contemporary of Apelles. His excellence consisted in giving character and expression to his figures, and in the strong delineation of the passions: his colouring was hard. One of his great pictures represented the capture of a city. Among the most striking figures was that of a mother just expiring from a wound; her infant still clings to her breast, and the dying mother seems only anxious that her child should not suck the blood that is streaming from her body. Alexander the Great had this picture removed to Pella in Macedonia. He also painted an engagement with the Persians: this picture contained one hundred figures, and was liberally paid for by Mnason, tyrant of Eetes. The works of Aristides were numerous, and many of them were transferred to Rome with the rest of the plunder of Greece. At the capture of Corinth by L. Munius, Polibius, the Greek historian, who was present on the occasion, saw with indignation the barbarians of Italy playing at games of chance on the most costly pictures which they had spread on the ground. (Strabo, p. 281.) A Dionysus (Bacchus) by Aristides, and a Hercules struggling with the poisoned shirt of Deianira, by the same artist, were treated in this shameless way. Strabo himself saw the Bacchus, which, by chance, had been safely transferred to Rome, in the temple of Ceres, and he pronounces it a most beautiful work of art. Unfortunately the picture was shortly after destroyed, when the temple of Ceres was accidentally burnt; Pliny also mentions this picture. Another fine painting of Aristides in the temple of Apollo at Rome was painted by a Roman artist, M. Junius the Priest had commissioned to clean it preparatory to its exhibition at the Ludi Apollinares. See a passage in Athenaeus (xiii. 567) on other subjects painted by Aristides.

ARIStIDES, ALiUS, a distinguished rhetorical of the second century, was born at Hadriani in Bithynia, probably about a.d. 117; but, according to other opinions, a.d. 159. He studied at Smyrna under Polemo, and at Athens under Herodes Atticus, after which he travelled extensively in Asia and in Egypt; finally, he settled at Smyrna, where he obtained the priesthood of Mecarius. He also opened a lecture-room and gained such reputation by his rhetorical prelections, that by his contemporaries he was placed on a level with Demosthenes, the great Athenian orator. In a.d. 175, Smyrna was destroyed by an earthquake, and Aristides, by addressing a letter on the subject, which is still extant, to M. Aurelius, he excused the emperor to restore the city. Owing to his services on this occasion, and the high reputation which he enjoyed as a rhetorician, statues were erected to his honour; one, now in Rome, is mentioned by Pliny (Nat. Hist. xvi. 175, edit. Reisch.), bears his name, and it is by no means improbable that the statue supposed by some to represent Aristides of Athens, really belongs to this Aristides, who affected to rival Isocrates and Demosthenes.

Similarly, Plutarch, being of the same generation, one entitled Against Lep- tines, is an imitation of the great oration of Demosthenes, which bears the same name; and another, the Panathaen- naikos, was intended to show that he could write in the style of the older orators, and of the most famous and controversial orators, that master. Aristides wrote also epigrams on many distinguished cities, such as Smyrna, Rome, &c.

The statue which we have here assigned to Allius Aris- tides was found in the ruins of Hecaleumae, and is now in the Museo Borbonico at Naples. It is about 4 feet. It is called the statue of Aristides the Just by G. Fi- nati, in the work entitled Museo Borbonico; but from comparing the head with that of Allius Aristides in the Vatican, and from the somewhat affected attitude, and the general character of the figure, we are convinced it is not the old Aristides. It may be objected by some that this statue is superior, as a work of art, to the age to which we have assigned it. The objection may be a good one; and the only conclusion then must be, that we do not know whom it was intended to represent. A cast of this figure may be seen at Sant II. Dean Street, London.

ARIStIDES QUINTILLIANUS, a Greek writer on music, whose age is uncertain, as he is not mentioned by any other antient author. Some critics are of opinion that he was contemporary with Plutarch. His work on Music (Ποιημα και μουσική, in three books), is printed in the Collection of Mebonius, and is considered one of the most valuable musical works of antiquity. For further remarks, see GREEK MUSICAL WRITERS.

ARIStIPPUS, the son of Aristides, was born at Cyrene, a Greek colony on the north coast of Africa, and came to Athens when a young man in order to profit by the lessons of Socrates; his curiosity to hear this philosopher having been excited by some accounts of his doctrines which he had received from Ithocmachus of Athens, whom he met at Olympia, during the celebration of the Olympic games. (Plutarch, de curiosit. c. 2; Ithocmachus, see Xenophon's Economic.) Aristippus was a hearer of Socrates for some time; and as he could not have been very young when he went to Athens, he must have been educated at a very early age, and was attracted from thence to Athens by a philosopher's fame, we may suppose that he was at least twenty-five years old at the death of Socrates, n.c. 399; which would make his birth as early as n.c. 424 or 425. Laus, the courtier, with whom he was in habits of intimacy, was born n.c. 421. (Clinton, Fast. Hell., part ii. introd. p. lv.); which agrees
with this determination. We know further, from explicit testimony, that he was celebrated in b.c. 566 (Olymp. clii. 3; Diodorus, xiv. 76); so that if he lived to the natural age of man, he must have been about 330. And though Aristippus was a disciple of Socrates, his mode of life and his opinions were very different from those of his master. Instead of imitating the chaste, frugal, and temperate habits which distinguished Socrates, he was a lover of luxury, and, as a young man, indulged in a conversation between Aristippus and his master, reported in Xenophon's Memorabilia, that the former deliberately maintained in argument the superiority of his own habits of life and of his profession, but was convinced, by the arguments of his master, that his object is to be neither a governor nor a slave, but a private citizen; and that he lived out of his own poverty, in order to escape from all political duties. (Xen. Mem. ii. 1. 1-18.)

He appears to have prided himself on his knowledge of the world, on the popularity and versatility of his manners, and the ease with which he could adapt himself to the company of all persons, and to all varieties of fortune; hence Plato is reported to have said of him, that he was the only man who could wear with equal grace both fine clothes and rags. He recommended to others, as he practised himself, the pursuit of pleasure, and the enjoyment of the moment. (Diog. Laert. ii. 61.) He seems to have profited by circumstances in order to adapt them to his own wants, and to be the arbiter rather than the slave of fortune; whence Horace says—

*Nunc in Aristeiæ furtim præutura redebo, Et mihi rerum, non me rerum, subjungere corròs.*

His principles and conduct made him obnoxious to Xenophon, with whom he is stated to have been on bad terms, and to Antisthenes, the head of the Cynic school, whose system is reported to have constantly ridiculed for the austerity of his manners. (Diog. Laert. ii. 65; Suidas in Ἀριστίππος.) Plato likewise aims a blow at him in the Phaedo, for passing his time in luxurious enjoyment at Athens, when his master Socrates was under sentence of death at Athens, at a distance of a few hours' sail. (Plato, Phaedon, p. 59, ed. Steph.; Demetrius Phalerus de Elocut. § 288, ed. Schneider; see also Aristot. Rhet. ii. 29, for a saying of Aristippus against Plato.) But Aristippus, although on bad terms with Xenophon, Antisthenes, and Plato, entertained friendly relations with Aeschines, another disciple of Socrates, and recommended him as a teacher of philosophy to Dionysius, the tyrant of Syracuse. (Diog. Laert. ii. 60, 82; Plutarch De cohibenda Ira, p. 462.) He seems to have remained true to the principle expressed by him in his conversation with Socrates, of avoiding his native country, and to have travelled to various Greek states; thus he lived within the territory of Syracuse, and he is stated to have been taken prisoner by a satrap of the Persian king in Asia Minor. (Diog. Laert. ii. 79.) He probably retired late in life to Cyrene, where we find his son Antisthenes after his death. (Diog. Laert. ii. 86.)

Aristippus differed from Socrates and the genuine Socratic philosophers, not only in his mode of life, but also in taking money for his instructions (Diog. Laert. ii. 63. comp. Xen. Mem. i. 2. 60); hence he is called by Aristotle a sophist (Metaph. ii. 2. a); a name which Aristotle seems to have given to any person whom he considered a genuine philosopher. Aristippus, when blamed for teaching for money, defended himself (and it must be confessed with some reason) to the effect that Socrates was the richest and greatest of the Athenians, whereas he had to provide for himself. (Diog. Laert. ii. 74.) Aristippus is reported once to have sent five minae to Socrates, who refused them, saying that his genius did not permit him to receive such a gift. (Diog. Laert. ii. 65.)

There can be no doubt that Aristippus was the founder of a philosophical school; but it is doubtful whether he inculcated his opinions in writing, or whether, like Socrates, he only taught by word of mouth. Chiefly dialogues, is given by Diogenes Laërtius (ii. 85), on the authority of Panuistis and Sotion; the latter of whom lived in b.c. 265, and wrote on the history and lives of the Cynics. (Clinton, Hist. i. 526.)

Sociatres of Rhodes, however, who lived somewhat later, and wrote on the same subject, stated that Aristippus left nothing in writing. (Diog. Laert. ii. 84; Clinton, Hist. i. 565.) However this may be, it is certain that his doctrines were perpetuated after his death by his daughter Arete, and by another disciple named Antipater of Cynere. Arete was the teacher of her son Aristippus, who, to distinguish him from his father, is called Arete (taught by his mother); and Theodorus, the atheistic, a philosopher of some note, is stated to have been a disciple of this Aristippus. Antipater, the other immediate successor of the elder Aristippus, is stated to have left his opinions to Hecagoras and Anticleria, who were about contemporary with Theodorus, are the only philosophers in his branch of the Cynic school of whose opinions anything is known.

As no precise or detailed account of the doctrines of Aristippus has been preserved, it is difficult to avoid conforming his opinions with those of his successors in the Cynic school. The later Cynics appear to have approached nearly to the doctrines of Epicurus: Aristippus, however, though agreeing in substance with the latter, would have been more concerned about the happiness of mankind. (Aristot. Metaph. ii. 2; Diog. Laert. ii. 92.) The antient Cynics, however, though they confined themselves to ethical philosophy, yet adhered to it only in name; for they divided their subjects into moral and physical, the latter to be pursued or avoided: 2. on the affections of the mind: 3. on moral actions: 4. on causes: and 5. on proofs of which heads the first three alone belong to moral philosophy, while the latter are the same as physical, by which he is not understood in the general sense of questions. Aristippus held that the happiness of man consists in pleasure, and his misery in pain; happiness being merely an aggregate of pleasures, and misery an aggregate of pains. That pleasure is the greatest good, he conceived to be proved by the fact, that the youngest children, and even brute animals, seek it, and avoid its contrary, pain. He did not, like Epicurus, consider the absence of pain to be pleasure, or the absence of pleasure to be pain: for he thought that pleasure and pain are accompanied with motion, whereas the absence of pain and pleasure is not accompanied with motion; the former of these two states being like sleep. He compared the three states of which the mind is susceptible, viz., pain, pleasure, or the absence of both, to the sea during a storm, during a gentle breeze, and during a perfect calm; but this analogy is not quite perfect, for the sea agitated by a gentle breeze is in a middle state between the storm and the calm; whereas the absence both of pleasure and pain, which is the middle state of the mind, is made to correspond to the calm, which is not the middle state of the sea. He further held, that all pleasures, whether sensual or intellectual, are equally good; one account even states that he considered the pleasures of the body as superior. He held, that even an everlasting immortality an action might be, still the pleasure which it causes is a good, and desirable for its own sake. He did not, however, recommend an unrestrained pursuit of pleasure. To the wisdom and prudence of man he attributed the greatest part of pleasure, but in seeking it without being carried away by the love of it. Thus when reproached with his visits to Lais, he replied that there was nothing disgraceful in going to her: this disgust consisted in not being wise and prudent. He condemned all care for the past or the future, all regret and all forethought, as equally useless; and said that a person ought to think only of the passing day, and, if possible, only of the passing minute. He recommended calmness of mind; first of all, to the great kindness he had cautioned his daughter Arete against covetousness and love of money. He also thought that the wise man should be free from the passions of envy and love, from superstition, and from the fear of death. Some principal moral doctrines of Aristippus which have been recorded by antient writers; in which there is less acuteness than is usually perceptible even in the most mistaken systems of the Greek philosophers. They do not indeed appear to have affected by the man of little or no personal worth, in his Nicomachean Ethics, when examining the different opinions of philosophers on the subject of pleasure, takes no notice of Aristippus. (See the Life of Aristippus by Diogenes Laërtius; and Ritter's Geschichte der Philosophie, vol. ii. pp. 87-103.)

ARISTOBULUS accompanied Alexander the Great in his campaigns, of which he wrote an account after the
king's death. This work, now lost, is one of the chief authorities for Arrian's history of Alexander. (See Arrian's Preface to his Anabasis.)

ARISTOBULUS: several of this name belonged to the Athenian government.

ARISTOCRACY, according to its etymology, means a government of the best or most excellent (dperous). This name, which, like optimates in Latin, was applied to the educated and wealthy class in the state, soon lost its moral and obtained a purely political signification, so that aristocracy came to mean merely a government of a few, the rich being always the minority of a nation. When the sovereign power does not belong to one person, it is shared by a number of persons either individually or collectively, and it is an error if it is defined as a form of government in which the number is less than half the population, the government is called an aristocracy, if it is greater than half, the government is called a democracy. Since, however, women and children have in all ages and countries (except in cases of hereditary succession) been excluded from the exercise of the sovereign power, the number of persons enumerated in estimating the form of the government is confined to the adult males, and does not comprehend every individual of the society, like a census of population. Thus, if a nation contains 2,000,000 souls, of which 500,000 are adult males, if the sovereign power is lodged in a body consisting of 500 or 600 persons, the government is an aristocracy; if it is lodged in a body consisting of more than 600 persons, the government is a democracy, though this number is considerably less than half the entire population. It is also to be remarked, that where there is a class of subjects or slaves who are excluded from all political rights and all share in the sovereignty, the numbers of the rest of the community, and not of the whole, should be taken into determining the name we are to give to the form of government. Thus, Athens at the time of the Peloponnesian war had conquered a number of independent communities in the islands of the Aegean Sea and on the coasts of Asia Minor and Thrace, which were reduced to different degrees of subjection, but were all substantially dependent on the Athenians. Nevertheless, as every adult male Athenian citizen had a share in the sovereign power, the government of Athens was considered and called a democracy.

Again, the Athenians had a class of slaves, four or five times more numerous than the whole body of citizens of all ages and sexes: yet as a majority of the citizens possessed the sovereign power, the government was called a democracy. In like manner, the government of South Carolina in the United States of America is called a democracy, because every adult free man, who is a native or has obtained the rights of citizenship by residence, has a vote in the election of members of the legislative assembly, although the number of the slaves in that state exceeds that of the free population.

An aristocracy, therefore, may be defined to be a form of government in which the sovereign power is divided among a number of persons less than half the adult males of the entire community where there is not a class of subjects or slaves, or the dominant community where there is a class of subjects or slaves.

Sometimes the word aristocracy is used to signify, not a form of government, but a class of persons in a state. In this sense it is applied not merely to the persons composing the sovereign body in a state of which the government is aristocratic, but to a class of citizens in any state, whatever be the form of its government. When there is a privileged order of persons in a community having a title or civil dignity, and when no person, not belonging to this body, is admitted to its privileges, this body is called the aristocracy, and the aristocratic party or class; and all persons not belonging to it are called the popular party, or, for shortness, the people. Under these circumstances many rich persons would not belong to the aristocratic class; but if a change takes place in the constitution of the state, by which the disabilities of the popular order are removed, and the rich obtain a large share of the sovereign power, then the rich become the aristocratic class, as opposed to the middle and popular classes. The same change takes place in the history of Florence, in which state the nobili popolani, or popular nobles (as they were called), at one time were opposed to the aristocratic party, but by a change in the constitution became enriched in the enjoyment of the freer part of the state and became the enemies of the popular party. In England, at the present time, aristocracy, as the name of a class, is generally applied to the rich, as opposed to the rest of the community: some-times, however, it is used in a narrower sense, and is restricted to the nobility, or members of the peerage.

The word aristocracy, when used in this last sense, may be applied to an order of persons in states of any form of government, since the privileges of the nobility were the consequence of the reign of Louis XIV. to the revolution of 1789, have been called the aristocracy, although the government was during that time purely monarchical; so a class of persons has by many historians been termed the aristocracy in aristocratical republics, as Venice, and Rome before the admission of the plebeians to equal political rights; and in democratic republics, as Athens, Rome in later times, and France during a part of her revolution. It would therefore seem to have been used as a sort of synecdoche for the character of an aristocracy (that is, an aristocratical class) in a state, that the form of government is therefore aristocratical, though in fact that might happen to be the case.

The use of the word aristocracy to signify a class of persons never occurs in the Greek writers, with whom it originated, nor (as far as we are aware) is it ever employed by Machiaveli and the rovers of political science since the middle ages: among modern writers of all parts of Europe this acceptance has, however, now become frequent.

The word oligarchy is likewise of Greek origin, and it means, according to its etymology, a government of a few. By the Greek historians it is used as synonymous with aristocracy, nor does it differ in meaning; among modern nations, however, it generally has an opprobrious force, and when used, it commonly implies that the writer or speaker disapproves of the government or dislikes the class of persons to which he applies that name.

A theoretical term, however, has a more vague and fluctuating sense than aristocracy; and the historical or political student should be careful to watch with attention the variations in its meaning: observing, first, whether it means a form of government or a class of persons: if it means a form of government, whether the whole community is included, or whether there is also a class of subjects or slaves; if it means a class of persons, what is the principle which makes them a political party, or on what ground they want to exclude the others from the state. If attention is not paid to these points, there is great danger, in political or historical discussions, of confounding things essentially different, and of drawing parallelisms between governments, parties, and states of society, which resemble each other only in being called by the same name.

It has been lately proposed by Mr. Austin, in his work on The Provinces of Jurisprudence, to use the term aristocracy as a general name for governments in which the sovereignty belongs to several persons, that is, to all governments which are not monarchies. There would, however, be much inconvenience in deviating so widely from the established usage of words, as to make democracy a kind of aristocracy; and it appears that every republic requires a name which is not required, being a general term including both aristocracy and democracy, and signifying all governments which are not monarchies or despots. (See Journal of Education, Part viii. p. 292, and the words REPUBLIC and DEMOCRACY.)

ARISTOGITON, an Athenian closely connected with an important event in Athenian history, which will be more particularly treated under the head of Hippias. We shall only state here, that having conceived a mortal hatred against Hipparchus, son of Pisastratus and brother of Hippias, who held the tyranny of Athens (Thucyd. i. 20), he was plotted, in conjunction with another Athenian named Har- todocles, the death of which was contrived to coincide with the murder of Hipparchus at the Panathenaeic festival, a.c. 514. Harmodius was slain on the spot; Aristogiton fled, but was subsequently taken and put to death by Hippias. After the expulsion of Hippias, when the constitution of Athens was brought nearer to a democracy, the memory of Harmodius and Aristogiton was honoured as that of martyrs in the cause of liberty. Bronze statues were erected to them in different parts of that city, and among others, by the celebrated Praxiteles. (Plin. xxxiv. 8.) Xenophon tells us that a festival in honor of the liberation of Athens, a.c. 480, carried off the statues of Harmodius and Aristogiton, which lie sent to Susa. They were afterwards restored to the Athenians, when Susa fell into the hands of Artaxerxes. Alexander, and carried back to Athens and deposited at the oracle of Delphi. (Arrian. iii. 16.) Various privileges and immunities were conferred on their descendants; and their exploit was regularly celebrated in song at the Panathenaeic
number of the parts of their flowers, their structure is otherwise truly dicotydonous. The arrangement of the woody matter of which their stem is composed is in longitudinal plates, superficially imitating the venal pith. But what is very curious, these plates are not placed in concentric circles like most other exogenous plants, but continue to increase uniformly and uninterrupted as long as the plant lives. (See Lindley’s ‘Fruits,’ p. 65.) The leaves are veined like those of dicotydonous plants, and the embroy of the seed has two lobes.

The most common plants of this singular order are the different species of cerato, or, as the gardeners call them, arabis; little stamens plants with dingy-brown flowers hidden among the leaves. This colour, which is far common in plants, appears characteristic of the whole order, for even in those species which have yellow flowers, a brown stain seems to mix with the colour so as to change the yellow to brown or brown spots are scattered over the surface. The most remarkable species of the genus Aristolochi is those which, in many of the tropical parts of America, excite the wonder of travellers by the gigantic size or grotesque, appearance of the flowers, such as A. cymbfera, the border of whose calyx resembles one of the lappets of a Norman woman’s cap, and measures seven or eight inches in length (see Botanical Register, vol. xviii. t. 1543), and A. co-dendron and A. fimbriata, which have a calyx differing from the rest of the flower by its entire length of sixteen inches across, and are large enough to form bonnets for Indian children.

ARISTOLOCHIA. MEDICAL USES OF. The most valuable of this species is the A. Serpentina, which grows in North America, chiefly in Virginia, and hence is called Virginia snake-root. Though the whole root is used, the rootlets are more powerful than the solid root. These consist of a large portion of woody fibre and gummy matter, which have no virtues, along with some resin, bitter, extractive, and a little essential or volatile oil, on which principles its virtues depend. It communicates its properties to water and to alcohol, which are employed as the means of extracting them, by forming an infusion or a tincture. Decoction should never be employed, as the heat drives off the volatile oil.

Its colour and taste resemble valerian, angelica, and camphor. In its action on the human system it most nearly approaches to camphor, but its effects are more permanent. It chiefly influences the nervous system, and seems to act most beneficially in those cases where the capillaries, either from not receiving an adequate supply of blood, or of nervous energy, are incapable of producing upon the blood those changes, which form secretions in the glands, the skin, and other secreting surfaces, or which are essential for the maintenance of a sufficient degree of vital action in every part of the body. The diseases or disordered states of the system in which it may be advantageously employed can, therefore, be easily inferred.

In protracted fevers, whether of a continued or intermittent kind, it is often eminently serviceable. In those cases of eczema, fever, which do not possess the character, but run on to a lengthened period, commonly called low nervous fever, it is preferable to every other agent, and may either be used alone, or in conjunction with cinchon or bark, or some of the preparations of the title of Huxham’s tincture of bark, it is very much used: but a safer mode of administration is that of an infusion of the serpentina, to which sulphate of quinine, and orange-peel, or other aromatic, may be added, as recommended under Acur (Vol. I. p. 277).

In euritic or exanthematic fevers, such as small-pox and measles, when the eruption is imperfectly formed or threatens to recede, an occurrence always betokening great danger, such remedies as much accelerate the powers of the system, serpentina is an invaluable agent.

In the sore throat of scarlet fever, or in other affections of the throat, where gangrene is to be apprehended, from the depression of the system, or in dropsy, where the powers, serpentina, when internally, and used as a gargle, alone, or with tincture of capsicum, is more likely to prevent so serious a termination than any other medicine. In none of these diseases should it be exhibited till after the bowels have been thoroughly cleansed out by proper purgative medicines. But there are other diseases, not attended with fever, in which serpentina is extremely useful. In that form of indigestion where no inflammatory state of the mucous membrane of the stomach exists, and where the skin is harsh and dry, serpentina
alone, or better with sulphate of quinine, is eminently serviceable. On the same principle, in the state of torpor or exhaustion to which literary persons are subject, from long-continued or intense mental exertion, this combination is highly useful.

In America, the infusion or tincture of serpentaria is sometimes taken every morning in damp aquifera situations, to prevent internal lepra. It is likewise said to prove useful in the treatment of a kind of pleurisy accompanied with great derangement of the biliary system, of frequent occurrence in autumn, among persons exposed to the exhalations of the marshes in America.

This medicine, and several others, both in America, and in the East and West Indies, are much employed as antidotes against the bite of serpents; and hence the name snake-root. Dr. Hancock states, that the quack, used by the South Americans, served to renew the vital force after the bite of the Lycurgy, a species of disputing and skirmishes arose on the borders of Messenia and Laconia, which gave rise to a confirmed hatred. Prompted by this feeling, without the declaration of war, the inhabitants of Sparta bound themselves by oath never to return home until Messenia was subdued; and they commenced the contest by a midnight attack on Amphiara, a frontier town, which they burnt and gave no quarter to the sword. This was the commencement of what is called the first Messenian war. The chronology of these events, which in themselves are half fabulous, must of course be erroneous, and that the eyes being attracted by the conflicting systems of Newton and Blair, without pronouncing any judgment upon them. The former places the capture of Amphiara b.c. 652; the latter, b.c. 743. Under two able princes, Euphes and Aristodemus, the Messenians continued the war for twenty years with various success; but in the end they were overpowered, and treated with great rigour. They bore the yoke for twenty-five years (Newton, thirty-nine Blair); at the end of which a new generation had arisen, who were impatient of the chains of slavery, the humiliation, and of the tyranny of their Spartan masters. In Aristomenes, a young man of the royal blood, a leader was found qualified to command both their affection and respect. He had been educated at Corinth, and was eminently fitted by nature for the exercise of government. The messenian court refused to move until assured of external support, of which the ancient jealousy of Arcadia and Argos towards their formidable neighbour, Sparta, gave good hope; and those states proved hearty in the cause. The revolt is dated by Pausanias (iv. 15) thirty-nine years after the end of the first war (Ol. xxi. 4), b.c. 658 (Newton places it in 607), and the first battle was fought at a place called Deme. It was obstinately contested, and the victory was claimed by both parties; but even this doubtful issue was encouraging to the Messenians. Aristomenes performed more than one man seemed able to do, and his comrades offered to him the regal dignity. This he declined; accepting however (under the title of regent) the conduct of his troops in matters of military affairs. Upon this he undertook a singular enterprise, 'thinking it important above all things, by securing the Lacedaemonians in the outset, to become more terrible in their eyes for the future, and having a desire of exercising the power given him by easy access) by night, and suspended a shield upon the temple of Athena of the Brazen House, inscribed, 'Aristomenes to the goddess, from the spoil of the Spartans.'

The second battle of Deme and the engagement took place at a village called the Bour's Tomb. The Messenians were supported by auxiliaries from Elia, Argos, Sicyon, and Arcadia; the Lacedaemonians by Corinth and two villages of Arcadia; and the Spartans by Messenians who formed a sort of body-guard to Aristomenes, and fought around him; and to their exertions principally the Messenian legends ascribe the victory gained on this occasion. At their head Aristomenes attacked and routed, after a hard fight, the flower of the Spartan troops ranged round their king, Anaxander. Leaving it to others to improve this success, he led his companions from point to point, wherever the enemy seemed most inclined to make a stand, and finally achieved so complete a victory, that the Lacedaemonians fled without shame, no longer waiting for one another. A great number were killed in the pursuit (see Paus. iv. 16, or Historical Parallels, p. 41), and we might conjecture from the story, that the Messenians, pressing too eagerly, received a check.

The war was continued in a series of predatory incursions. In the course of it, some romantic stories are related of the exploits held of Aristomenes, b.c. 604. (Blair, 682.) A third pitched battle was fought at Megalestaphrus (the Great Ditch), in which the treachery of Aristocrates, prince of Orchomenus in Arcadia, and the murder of the Argives, under the care of their allies, was bribed by the Lacedaemonians, led to the entire defeat of the Messenians. So great a number were slain, that 'having before expected to become masters instead of slaves of the Lacedaemonians, they now gave up even the hope of safety.' Aristomenes found himself too weak to maintain his ground in the open field, or even to defend the inland forts; and he withdrew with his followers to the strong hold of Eira near the sea, abandoning to the Lacedaemonians all the country except a strip of land along the coast, held by the Pylians and Methonians. From Eira he kept up a war of constant incursion along the Lacedaemonian border, carrying off agricultural produce and prisoners of war from both Lacedaemon and Laconia, which he received by the Lacedaemonians. At last the Lacedaemonians were obliged to prohibit the cultivation not only of Messenia, but of the borders of Laconia, 'as tilling the land rather for those who were in Eira than for themselves.'

This compelled the Messenians to seek their spoil in more distant excursions, in one of which Aristomenes was taken prisoner, and cast, with several of his companions, into a pit called Ceadas. The name of the pit was afterwards attached to the sword. The idea of escape then suggested itself; he caught the fox, and allowing it liberty enough to choose its own path, was conducted along a narrow passage terminating in a crevice just wide enough to admit the animal. He enabled himself to enter the crevice, stretched his hands, and returned to Eira. The news of his escape soon spread abroad; but the tale was so singular that the Lacedaemonians refused to credit it, until the rout of a body of Spartans, reported to have been defeated at the battle of Arcadia, made them, as it were, to believe the story of the siege of Eira, convinced them that 'Aristomenes, and no other, had done this.' After this exploit, he offered for the second time to the Ithomian Jupiter the sacrifice prescribed in his promise, but the offering was performed by those who had slain a hundred men in battle. In the course of the war he had occasion to perform it a third time.

In the eleventh year of the siege of Eira, the fulfilment of an oracle warned Aristomenes that the contest could not be much longer protracted. The Messenians were in possession of some mysterious treasure, which, if preserved, so it was said, byacles, would ensure the ultimate restoration of their national existence. This Aristomenes buried secretly in the most desolate part of Mount Ithome, hoping that the gods who had hitherto favoured them would watch over this last deposit of the hopes of his countrymen. One stormy night, the Messenian section was pulled by the violence of the tempest, and by the knowledge that Aristomenes, confined by a wound, was unable to exercise his usual superintendence, the Spartans, warned by a deserter of these intentions, gave his name; and when the alarm was given, the Messenians flew to arms, and for three days maintained possession of the place. At length, being overmatched in numbers, and exhausted by constant fighting, they surrendered. Aristomenes himself, with his followers, were sent to Sparta as prisoners.

The remnant of the Messenians took shelter with their faithful friends, the Arcadians. Bent on avenging his country, Aristomenes selected 500 men of approved courage,
and, in presence of the Arcadians, asked if they were ready to die with him, to obtain that end. All assented, and he died, toss'd up against a tree. Amphilochus, while the army was still absent, and, if they could get pos-
session of the city, to hold it as a pledge for the restoration of
their own land; if not, to meet a glorious death. Three
hundred Arcadian horsemen, and no person else, put the exec-
tion plan into the mouth of Telemachus by Homer, when
he was asked whether he was the son of Ulysses: 'My
mother,' replies Telemachus, 'says so, but I know not; for
she often puts me to the test,' says Homer, R. 215.) This story, which is told in an anonymous life of
Aristophanes, as to the quotation from Homer, is rather a
ridiculous one.

In 435, during the sixth year of the Peloponnesian war,
he gained the first prize in a contest with Eupolis and
Cratinus: his play was entitled the Acharnians, in which
he recommended to the Athenians the cause of peace, as
openly and as strongly as the nature of the people whom
he addressed permitted. The scene is laid at the home of
one of the deme, or small towns of Attica; and the object
he had in view was pointed out by introducing on the stage the
troubleDiecophon, who, disapproving of the obstinacy of his
fellow-citizens, concluded with the Spartans a separate
peace, and is exhibited in the full employment of its unity.
The result of the opposite line of conduct is shown in
the sufferings of Lamachus, who is exposed to the want
of the first necessaries of life, and writhing under severe
wounds received in a sally made to relieve the sufferings of
his fellow-citizens, is described in a manner which is full
of that comic humour for which Aristophanes is so distin-
guished. It is a sort of Aesopian dialogue between Lamachus and
Diecophon. The com-
mend of the latter is to
a man preparing for a
campaign; the responses of Diecophon are addressed to
a person making ready for a convivial entertainment. This play
contains a bitter satire on Pericles for his attachment to
Asgusia, and at the same time a strong testimony to the
vigor and standard of this great peace, as well as a
wry and humorous account of the state of things at
Athenian parties, at this time.

Aristophanes had already made the demagogue Cleon
wrath his subject; but it was not till n.c. 424 that
he poured forth upon him the full measure of his wrath.
It was in that year that the Kraghe, or, as was
more aptly designated it, the Diecophon, the most
valuable, perhaps, of all his extant plays. He held
up before the Athenian people a faithful picture of their own
character with a boldness which we cannot but admire,
and with a severity which they were not then disposed to
bear. A有这样的 will be shown to be
upon the stage except themselves. Athens is represented
as a house, and its master is a stupid old gentleman, Demos
(people); Nicias and Demosthenes are his slaves, and Cleon
his confidential servant, or slave-driver; a sausage-seller, is
the person whose destiny it is to subvert the
demagogue. Thus the dramatic personae are few, and
the plot is perhaps still more meagre. It consists of humili-
ating pictures of Cleon, and a succession of proofs to
show that the character which he exhorts the people to
trust and confidence reposed in him. As an historical
document, however, this play cannot be too highly valued,
as furnishing a strong and faithful picture of one of the
most singular events in the political history of Greece;
and with a favourable view of their character. Demus is irrita-
able, jealous, full of suspicions, a spy to superstition, sickle
in his opinions, and inconsistent in his pursuits; a curious
mixture of acuteness and blindness, of insolence and servility.
It is said that no one was found with sufficient fruit to
act the part of Cleon, or to make a mask to represent him,
and that Aristophanes was himself obliged to appear
on the stage in that character with his face merely painted.
The Kraghe was the first play that Aristophanes brought
on the stage in his own name. There are many touches in
Arbutnott's John Bull, as Mitford remarks, strongly resem-
bling the most striking traits in the character of Demos,
the personification of the Athenians.

Next year, n.c. 423, he produced another play, the
Clouds, which only gained the third prize, though, in later
times it has acquired a notoriety which it does not seem to
have enjoyed at first. This arose, probably, from an idea
first started by Pausanias, in one of his works, and which it
was a main cause of the condemnation of Soocrates (see
also one of the Greek arguments to the play); but when it
is known that the philosopher survived the satire of the
Clouds for upwards of twenty years, the custom of banishing
nothing is more required to prove the untenable nature
of such an opinion. Still it is probable enough that this
play may have done serious injury to the true character
of Soocrates among the populace of Athens. It contains
a powerful and severe attack on the schools of the sophists,
A rise of philosophers who could make the worse appear the better part of action, but nothing, in our judgment, can justify the personal attack which the poet makes on Socrates, whose character, as far as we can form an opinion of it, was very different from that which is represented in the play. The plot is simple and clear; it is wrought up in a masterly style by a variety of comic incidents, and the characters are full of humour. Strepsias is the most prominent; his rusticity strangely contrasts with the pedantry of the sophists. His son has ruined him by his extravagance, and Strepsias expects to be relieved from the dunng of his creditors. He presents himself before the philosopher, whom he finds suspended aloft in a basket; and the whole dialogue which follows between two characters so forcibly contrasted is conceived in the very best style of the author. Last, however, Strepsias is convinced that his genius does not lie in that direction, and he determines to send his son Phaedippides to benefit by the philosopher’s instructions. The youth makes great progress in his work, which incites the creditors and by beating his father, and then trying to convince the old gentleman that it is all right. The play closes with Strepsias setting fire to the school-house of Socrates (ανευόμονε ος αυτοκτονεια); that is, the concluding verses of the play, was well calculated to raise a religious persecution against Socrates. Critically, whom Aristophanes in his Knights had represented inferior to Menoetius, the poet, and the head of theology over the Clouds. This play was caricatured by Eupolis, but it did not prevent the poet from improving his first idea, and it is probably the amended copy which we now possess. (See the point discussed by Moerland, Attic. Mus. II. 2; and by Hermann, Pref. xix; see also the Clouds of Aristophanes, by F. G. Welcker.)

In a. c. 422 appeared the Wasps, an attack upon the jurisprudence of Athens, levelled chiefly at that numerous class of men, who, by their efforts in securing the office of diceæ— an office somewhat resembling that of our Westminster special jurymen; but the parallel, to be complete, would require that the same special jurymen should be almost daily in attendance, and should be eager to discharge the duty. These cannot be said to be any plot. Philodectus is described as absolutely phrensoed with that passion of which all his countrymen partook—a taste for litigation and frequenting the courts of law. His son Beldycon endeavours to reclaim him; but force, persuasion, and argument, are all tried in vain. The son is nearly driven to despair by the obstinacy and prejudices of his father, and at last falls into a self-inflicted most great makeshift from his difficulties. He proposes to convert his house into a court of justice, and to supply it with all suitable pomp. The old gentleman is pleased with the scheme, and the theft of a Serlian cheese by a house-dog enables him to put it into immediate execution. To understand this plot, requires a minute acquaintance with the manners of the Athenians, and also with their judicial system. This play furnished Racine with the idea of his Philotheus.

The play of the Birds was exhibited, a. c. 414, in the seventeenth year of the Peloponnesian war, and during the absence of the Salaminian, an official ship which was despatched to bring back Alcibiades from Sicily. (Thucyd. vi. 53. See Aul. Dia.) Nearly a hundred years before this, an authority has found it almost impossible to say what is the leading idea of the plot; and consequently many critics have pronounced an unfavourable opinion on it. In the Transactions of the Royal Academy of Sciences of Berlin (1827) there is an essay by Stüben on the Birds of Aristophanes, the object of which is to demonstrate that the key to the true interpretation of the play is only to be found by referring to the date of the exhibition and the mission of the Salaminian. With respect to the date of W. Hamilton is preparing a translation of Sivern’s essay.

In a. c. 406 appeared the Frogs, in which Aristophanes attacks, with little generosity, the poet Euripides, who had died a few years previously. (1775) The play is a search of a good tragic writer, and after listening to a trial of skill between Aschylus and Euripides, decides that the merits of the former are far superior to those of the latter. The best of other extant works is the Plutus, which appeared first in a. c. 408, and again twenty years afterwards, a. c. 388. It does not belong to the old comedy, nor does it appear to have any reference to political subjects, being intended probably to vindicate the conduct of the Providence in its ordinary distributions of wealth, and to show the great tendency of riches to corrupt the morals of those who possess them. The moral parts of the Plutus are lost, or at least do not exist, and it contains no Parabasis. The other plays which have been preserved are the Peace (a. c. 419); Thesmophoriazusæ (a. c. 411), an attack on Euripides, in which the poet’s extravagance is represented, but the other plays; Lysistrata (a. c. 411); Ecclesiazusæ (a. c. 392).

Aristophanes is distinguished by the exuberance of his wit, his inexpressible kind of comic humour, and the purity and great simplicity of his language. He introduces, when it suits his purpose, every variety of dialect, coin new expressions for the occasion, makes bad puns without ceasing, and displays, at the same time, all the riches and beauties of the Greek language. It must be confessed, however, that his wit is frequently of a kind which cannot be released by the taste of the present age, partly because his allusions are sometimes necessarily obscure, and partly, also, because they are gross.—Indeed, the sublimity of his allusions, and the indelicacy of his expressions can only be excused because it was the fault of the time and people among whom he lived, and others were probably worse than those who have succeeded him. The constant allusion to the antient comic writers it is difficult to assign, as none of their entire works have been preserved; but if we are inclined to trust the judgment of Plutarch, he was in every respect inferior to Menander. The play of the Clouds, however, is said to have had a high admiration of Aristophanes, and recommended the perusal of his plays to Diodorus the youngest as the best mode of acquiring the purity of the Attic speech. So, indeed, was a photo of his works, that they are said to have been found under his pillow after his death. (Vit. Anonym.)

The plays of Aristophanes, especially in the choral parts, often contain passages of great poetical beauty, but his sub- plots did not, in his mind, form any part of the action of the limb, or of any great length. We doubt, indeed, if he was capable of any continued effort of this description, as we observe a kind of mock solemnity in most of the poetical parts; and he could not long maintain a joke, or some oblique stroke of satire. Where Aristophanes appears to be speaking in his own person, he is the advocate of morality, and the unsparing censor of the gross and degrading habits of many of his contemporaries. He was a friend to peace, and, to lay of dishonour to the enemy of Colossus. The real test of his character must be the Clouds. We do not see how it is possible to esteem the character of Socrates, and at the same time to believe that honest men, and men of the best character, could not long maintain a joke, or some oblique stroke of satire. Where Aristophanes often introduces the gods in the most degrading situations, and he makes an undisguised mockery of all the deities of Olympus. How this was tolerated, even in his age, it is difficult to understand.

There are numerous editions of the plays of Aristophanes.

The first edition was at the Aldine press in Venice, 1498, fol., containing only nine plays. The Thesmophoriazusæ and Lysistrata were wanting. The edition of Kuster contains the valuable Scholia. One of the most complete, containing in addition to the Scholia, an extended introduction of notes, is that of Bekker, in 5 vols. 8vo. Lond. 1829. Bekker’s text is founded on the collation of two exceedingly good MSS, the Ravenna and the Venetian, which were unknown to the earlier editors. It was published in Vienna. The valuable edition of Aristophanes have been published by Dindorf, 3 vols. Lips. 1826. The Knights, Acharnes, and the Wasps have been translated into English verse by Mitchell (London, 1822); and the Clouds, more successfully, by Cowden Clarke. The large number of prose translations of single plays; Plutus, by Fielding and Young; the Birds, by a Member of one of the Universities (London, 1812); Acharnes, Knights, Wasps, and Birds, by a Graduate of Oxford (Oxford, 1830). Aristophanes is
translated into French by Fumain de Sirry (1784), 4 vols. 8vo.; into German by Voss (Brunswick, 1821); and the Clouds and Frogs by Wielert (Gissens and Darmstadt, 1810, 1812). Wieland translated the Acharnes, Clouds, Knights, and Birds. (See Rötscher, Aristophanes und sein Zeitalter: eine philosophisch-literarische Abhandlung zur Alterthumsforsch., Berlin, 1897.)

ARISTOPHANES of Byzantium, the pupil of Callimachus and Zenodotus, the master of Aristarchus, and the founder of the Alexandrine school of criticism, was perhaps born about a.c. 249, or somewhat later. It is not known at what time he removed to Alexandria, but probably he went there young. (See Suidas, Αριστοφανής.) The invention of the Greek accents is attributed to Aristophanes, and the introduction of a system of punctuation. He was the first who attempted to arrange the Greek writers into classes, according to the branches on which they wrote, separating those of the highest authority from writers of inferior merit. This canon of classical writers was afterwards corrected and confirmed by his pupil Aristarchus. The immense number of works already extant in that age rendered some critical enumeration and classification of them necessary, and perhaps we are indebted to Aristophanes and his more distinguished pupil, not only for the purer text, but also for the preservation of many of the best writers, which, if they had not been stamped with their approbation, might have been neglected for those of inferior merit. But it is probably, as it has been remarked, that many writers of the second class fell into undeserved neglect, and ceased to be copied in consequence of being excluded from the canon.

[See ARISTARCHUS.]

Nothing of Aristophanes remains except what may form a part of the large commentary of Eustathius, the Venice Scholia, &c. (See Villoison's Scholia, ii. i. 298, 424, &c., where Aristophanes' edition of the Iliad is referred to.) Aristophanes wrote a work on Συγγενική, or ' terms implying relationship,' (see Eustath. I. ii. p. 645; who also quotes other works written by Aristophanes.) A mere fragment of Aristophanes is printed in Boissias's Ευρυμπερολ of Herodian, 1819, 8vo.

See a passage in Athenaeus (book xii. p. 583, Casaub.) apparently referring to a work by this Aristophanes.

ARISTOCLES (the Greek form of the name is Aristocles) was born at Stageira (the name, before Aristotle's time, appears to have been Stageirus), a town on the west side of the Nymmon Gulf in Chalcidice, in the first year of the ninety-ninth olympiad, or b.c. 384. Nicomachus, the friend and physician of Amyntas II., king of Macedonia, and the author of some medical treatises now lost, was his father; his mother was named Phæstis; and they both belonged to the

race or clan of the Aesclapiads, who were supposed to derive their origin from Panasops or Hypselus, the God of Healing, and of whose members many practised the medical art. Aristotle lost both his parents at an early period of his life:

his father's relations with Amyntas appear, however, to have produced an acquaintance between him and Philip, the son of Amyntas, which was probably one of the reasons why that prince, when he had succeeded to the throne of Macedonia, chose Aristotle as the preceptor of his son Alexander. For the danda brought up under the care of Proxenus, a citizen of Aarines, a city of Mycia in Asia Minor, but who was then settled at Stageira. Aristotle testified his gratitude to Proxenus and his wife by directing in his will that statues of them, as of his parents, should be set up at his expense: he likewise educated their son Nino-

nor, to whom he gave his daughter Pythias in marriage.

In his eighteenth year (Olymp. ci. 2, b.c. 367) Aristotle left Stageira, and went to Athens, the centre of letters and learning. In Athens he studied under the patronage of the Byzas of the name of the philosopher Plato. It appears, however, that during the first three years of his residence there Plato was absent on a visit to Sicily. There can be no doubt that Aristotle paid a particular attention to anatomy and medicine, as appears both from his extant and what we know of his lost writings; and it may be possible (as is indicated by some statements of ancient writers) that in his youth he practised, like Locke, the healing art: but he must from an early age have devoted his whole time to the study of philosophy and the investi-
gation of nature, and have abandoned all thoughts of an exclusively professional career. His eagerness for the acquisition of knowledge, and his sagacity, doubtless attracted Plato's attention at an early period: thus we are told that his master called him the in-
tellect of the school, and his house the house of the reader; that he said that Isocrates (a fellow-disciple) required the spur: some of which traditions are probably true. We are likewise informed that, when reading, he used to hold a brazal ball in his hand over a basin, in order that, if he fell asleep, he might be waked by the noise which it made in falling. In which event Aristotle did not, during Plato's life, set up any school in opposition to his master (as some writers have falsely stated), he taught publicly in the art of rhetoric, and by this means secured the rival of Plato; who, as [see ISOCRATES], whom he appears (although then at a very advanced age) to have attacked with considerable vio-

lence, and to have treated with much contempt. Cephi-
dorus, a disciple of Isocrates, wrote a treatise in four books to defend his master against Aristotle's attacks, in which he likewise charged that philosopher with degrading himself by the composition of a work on proverbs: whence we learn that Aristotle published some writings during the lifetime of his master.

Aristotle remained at Athens till Plato's death in b.c. 347, having at that time reached his thirty-seventh year. Many stories are preserved by the ancient compilers of anec-
doates respecting the intimacy between Plato and Aristotle, caused by the ingratitude of the disciple, as well by cer-

tain peculiarities of his character which were displeasing to the master. But these rumours appear to us to have no other foundation than the known variance between the opi-

ions and mental habits of the two philosophers; particu-
larly the opposition which Aristotle made to Plato's cha-

racteristic doctrine of ideas: whence it was inferred that there must have been an interruption of their friendly rela-

tions. The probability however is, that Aristotle, at what-

ever time he may have formed his philosophical opinions, had not published them in an authoritative shape, or entered into any public controversy, before his master's death; in his Nicomachian Ethics moreover, which was probably one of his latest works, he says, that 'it is painful to him to refute the doctrine of ideas, as it had been introduced by persons who were his friends; nevertheless, that it is his duty to dis-

regard such private feelings; for both philosophers and truth being dear to him, it is right to give the preference to truth.' (i. 6.) He is likewise stated to have erected an altar to his master, inscribing on it that he was a man ' whom the wicked ought not even to praise.' It has moreover been sup-

posed that at the request of the author of the callimachi, Aristotle had married a second wife during the lifetime of his first; but the charge rests on the inaccuracy of Diogenes Laertius, Plutarch, and other late writers, who have misre-

presented some of the transactions about Aristotle as ob-

served in Stobeus, which treatise, if observed, is attributed to Aristotle on very doubtful authority. (See

Lukro, Lecciones Aticas, De Dogima Socratis, § 4.)
It appears that during Aristotle's first residence at Athens, he was employed on an embassy to Philip, to whom he was attached by a double tie, as being both a Macedonian subject and the son of his friend and physician. It is also stated that he was the means of obtaining from Philip some favours for the Athenians. His departure from Athens at the time of Philip's death may have been caused by the enmity between Philip and the Athenians, which arose at that time from a successful attack on Olynthus by the former. It may likewise have originated from the circumstance that he was the son of Alexander, and his residence at Athens, and the reception of an imperial letter by Aristotle on the mind of Alexander: it is likewise stated that he advised his pupil to consider all the Greeks as his friends, and all barbarians (or foreigners) as his enemies. In the year 336 B.C., the maxim of policy which Alexander unquestionably followed, so far as the direction of his conquests was concerned, and which agrees remarkably with Aristotle's views as developed in the first part of his 'Politics.' It was during his residence with Alexander, Philip provided his young relative with an active town, Scythopolis, which had been demolished by Antigonus, in memory of whom benefit the Statagrites consecrated a festival, Aristotle, to their great fellow-citizen, and called a month after his name.

Aristotle did not enjoy his instruction for more than three or four years: as from his seventeenth or eighteenth year his time was almost entirely occupied with public affairs and war. In B.C. 356, when Philip was assassinated, he succeeded to the throne of Macedonia, and two years afterwards he began his expedition into Asia, where he parted for the last time from his master, who went to Athens, having previously recommended to him as his companion in his campaigns a man of his own age, the philosopher Callisthenes, who had received his instruction with Alexander. Xenocrates had two years before succeeded Speusippus in the academy; Aristotle, however, on his arrival, built a new house, and chose a house which from its proximity to the temple of Apollo Lyceus was called the Lyceum. Attached to this building was a garden with walks (in Greek προπορσία), where Aristotle used to deliver his instruction to his disciples; and it is said that he often spent the evening walking and talking with his students, and himself anointed himself; and another lecture, called the evening school, on more popular subjects, to a larger and less select class. It was probably during the thirteen years of his second residence in Athens that he either completed or the greater part of the works which have descended to our days: the foundation of most of them was doubtless laid at an early period of his life; but they appear to have been gradually formed, and to have received continual additions and corrections. Among the works especially belonging to this period of his life are, his treatises on natural history; which, as has been correctly observed by a late writer on this subject, Kald, Bridgewater's Treatise, &c. (p. 299), are not to be considered as forming the result of his own observations only, but as a collection of all that had been observed by others as well as himself. It is stated by Pliny (Nat. Hist. vii. 7) that Alexander the Great often distributed to his companions the names of the various animals, so as to render them all acquainted with the names of the animals. He also often distributed the names of various animals, as well as the names of the animals, to his companions. It is stated by Pliny (Nat. Hist. vii. 7) that Alexander the Great often distributed to his companions the names of the various animals, so as to render them all acquainted with the names of the animals. He also often distributed the names of various animals, as well as the names of the animals, to his companions.
lays claim, stating that 'before his time nothing whatever had been done in it.' (Soph. Encl. c. 34. § 6.) Nearly the same remark applies to his metaphysical treatment. 'But of all the sciences (we use the words of Cuvier) there is none which owes more to Aristotle than the natural history of animals. It is the most simple and easy undertaking, for it only requires a knowledge of the number of species, but he has studied and described them on a luminous and comprehensive plan, to which, perhaps, none of his successors has approached: classing the facts, not according to creatures or geographical affiliations, but according to the organs and functions, the sole mode of establishing comprehensive results: thus it may be said that he is not only the most antient author of comparative anatomy whose works have come down to us, but that he is one of those who have laid the foundations of the true science.' (Biographie Universelle, in Aristot.)

See also Kidd's Bridgewater Treatise, c. 10, § 3, and Appendix, who has given a more detailed comparison of Aristotle's science in the specific with that of modern science. Among the sciences which he found partly cultivated, but which he greatly advanced, the more prominent are those of rhetoric, ethics, and politics. Of rhetoric he defined the province and analysed all the parts with admirable precision. Of politics he said, 'It has been considered to be the last as a partizan of Alexander, and an opponent of the democratic interest. When the anti-Macedonian party obtained the superiority at Athens in consequence of Alexander's death, an accusation against Aristotle was immediately prepared, and the pretext selected was, as in the case of Socrates, impiety or blasphemy. He was charged by Eurydemus the hierarch and a man named Demophilus (probably a leader of the popular party) with paying divine worship to an image of the great king, which constituted a breach of some irreligious duties. In order to escape this danger, and to prevent the Athenians (as he is reported to have said) from force steering against philosophy, in the beginning of B.C. 318 he retired to Chalcis, in Euboea, an island then under the Macedonian influence, leaving Theophrastus his successor in the Lyceum. There he died of a disease of the stomach, in the autumn of the same year, being in the sixty-third year of his age. His friends and pupils were deeply affected by his death, and his health had given way in the latter part of his life, having probably been impaired by his unwearied studies and the intense application of his mind. The story of his having driven through Athens in the night without the least disorder, is certainly considered more fabulous than true. The characteristic of Aristotle's philosophy, as compared with that of Plato, is that, whereas the latter gave a free scope to his imagination, and by his doctrine of ideas independent of the objects which they represent opened a wide door to the dreams of mysticism, the latter was a close and strict observer of both mental and physical phenomena, avoiding all the seductions of the fancy, and following a severe, methodical, and strictly scientific course of inquiry, founded on data ascertained by personal experience. The truly empiri-

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though they are nowhere mentioned in his extant writings) appears to be undoubted: the epoch from which they date is however uncertain, and is variously stated by antient writers. (See Pliny, Nat. Hist. vii. 56. explained by Baily, ibid. liv. 4. alacriusismum § 18.) We know from Cicero (de finibus, lib. i. c. 68.) that the names and chemical properties of the metals were calculated back by the antient priests; and consequently that observations stated to be of remote antiquity may not be less fabulous than the adventures of early kings and heroes.

Aristotle had at this time reached the most prosperous period of his life. The founder and leader of the principal school of Greece, and the undisputed head of Grecian philosophy, surrounded by his numerous disciples and admirers, proceeding from the precedent of his master by land and sea, was universally acknowledged to be the wisest of his age. It is true that he was not less famous for his intellectual power than for his polite manners and amiable character; but it is also true that he did not continue to enjoy the favour of Alexander till the end. Callisthenes, by his free-spoken censures and uncourtly habits, had offended his master, and had been executed on a charge of having conspired with some Macedonian nobles to take away his life (see ALEXANDER and CALLISTHENES); and the king's wrath appears to have extended to his kinman Aristotle, as being the person who had originally recommended him. (Letter of Alexander to Antipater in Plutarch, Alex. c. 55.) It is not, however, probable that this enmity arose from any positive enmity between the royal pupil and his master; nor, even if we did not know to a certainty that Alexander died a natural death, would there be any reason for listening to the absurd calumny that Aristotle was concerned in poisoning him. Aristotle would not have been considered to be the traitor or the murderer of Alexander till he had been treated as a traitor or a murderer; and since he had been treated as a traitor or a murderer, it was not necessary that he should be considered as a traitor or a murderer. A nothing unutterably great man, a noble hero, a statesman, a philosopher, and an orator; and that he best deserves to be taken for a model. The principal divisions which naturalists still follow in the animal kingdom are due to Aristotle, and he had already pointed out several, which have recently been again adopted; after having once been improperly abandoned. If the foundations of these great labours are examined, it will be seen that they all rest on the same method. Everywhere Aristotle observes the facts with attention; he compares them with sagacity, and endeavours to rise to the qualities which they have in common.' (Biographie Universelle, in Aristot.)

See also Kidd's Bridgewater Treatise, c. 10, § 3, and Appendix, who has given a more detailed comparison of Aristotle's science with that of modern science. Among the sciences which he found partly cultivated, but which he greatly advanced, the more prominent are those of rhetoric, ethics, and politics. Of rhetoric he defined the province and analysed all the parts with admirable precision. Of politics he said, 'It has been considered to be the last as a partizan of Alexander, and an opponent of the democratic interest. When the anti-Macedonian party obtained the superiority at Athens in consequence of Alexander's death, an accusation against Aristotle was immediately prepared, and the pretext selected was, as in the case of Socrates, impiety or blasphemy. He was charged by Eurydemus the hierarch and a man named Demophilus (probably a leader of the popular party) with paying divine worship to an image of the great king, which constituted a breach of some irreligious duties. In order to escape this danger, and to prevent the Athenians (as he is reported to have said) from force steering against philosophy, in the beginning of B.C. 318 he retired to Chalcis, in Euboea, an island then under the Macedonian influence, leaving Theophrastus his successor in the Lyceum. There he died of a disease of the stomach, in the autumn of the same year, being in the sixty-third year of his age. His friends and pupils were deeply affected by his death, and his health had given way in the latter part of his life, having probably been impaired by his unwearied studies and the intense application of his mind. The story of his having driven through Athens in the night without the least disorder, is certainly considered more fabulous than true. The characteristic of Aristotle's philosophy, as compared with that of Plato, is that, whereas the latter gave a free scope to his imagination, and by his doctrine of ideas independent of the objects which they represent opened a wide door to the dreams of mysticism, the latter was a close and strict observer of both mental and physical phenomena, avoiding all the seductions of the fancy, and following a severe, methodical, and strictly scientific course of inquiry, founded on data ascertained by personal experience. The truly empiri-

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Holm, b. 83; with which, however, Mr. Edmonds, who fairly and impartially mentions others of his writings, which he calls exotic, from the manner in which he sometimes speaks of them, referring to them on points of no great obscurity or difficulty with a sort of contemptuous or condescending tone which would not do justice to the author of "De Anima" and the "Ethics." (Ed. Nic. i. 13; vi. 4. Polit. iii. 4; vii. 1.) In another place he says, that he has often considered the Platonic doctrine of ideas both in his exoteric and his strictly philo-

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circumstance when, in writing to Atticus on his dialogue de Republica, he says that "he prefixe praemia or introduction (proem) to his Scepticus was a mistaken choice of words, which he calls exoteric." (Epist. ad Att. iv. 16. Other circumstances of Aristotle's dialogues are mentioned by Cicero, Epist. ad Att. xii. 19. Ad Fam. i. 9.) His system of scholastic philosophy in Aristotle, distinguished from that of exotericism, were called acraticus, which is destined for lectures (though he never himself uses that name in his extant writings); and were thus, as Galen says, confined to his scholars. The works of this acraticus and exoteric writings are mentioned by Gellius (N. A. xx. 5), who states that the former included subjects of a refined and abstruse philosophy, and physical and dialectical questions; the latter rhetorical and sophistical exercises. In his extoteric writings, there were the thematic essays (Hermes, in Aristot., Categ. vol. 6 B ed. Ald.). An antient commentator on Aristotle, divides his works into those which he wrote in his own person, or acraticus, and those which he wrote in the form of a dialogue, or exoteric: the latter, he adds, differ much from the former in the clearness of the style and the mode of reasoning employed in them. Simplicius (Ad Aristot., Phys. fol. 2 B), another commentator, gives the same division into acraticus and exoteric, and makes the same statement as to the popular nature of the latter; but under exoteric he includes Aristotle's historical works as well as his dialogues. To this difference Themistius (in Alc. 31) objects, that some of Aristotle's works are obscure and hard of comprehension; but that others are perspicuous, fitted for general readers, and written in an attractive and ornamented style. The statement above quoted from Gellius that Aristotle's scien- tific works are in his miscellaneous writings is rendered absurd by the evidence of Quintilian; he doubts whether Aristotle is the more remarkable for the multiplicity of his knowledge, the quantity of his writings, the sweetness of his style, the soundness of his discoveries, or the variety of his works (s. 1. 83); in his ex- toteric works, however (all of which belong to the acraticus class), his style is in most parts singularly dry and unattractive, and not unfrequently obscure, from the extreme conciseness of the expression and the abruptness of the transition. Cicero particularly speaks of the copiousness and beauty of his style in a treatise, "Comparad ex Analysis," 1 (Phil. 1. 7). Cicero de Fin. v. 5. Niebuhr, Hist. of Rome, vol. i. note 30.)

One of Aristotle's exoteric writings have come down to us; all his extant works belong to the acraticus or strictly scientific class. This would be the more singular, if the story told by some antient authors with regard to the preservation of his writings was true. It is stated by Strabo that the two books which he dedicated to the library of his library, left all his books to Neleus, who removed them to Scepsis, a town in Asia Minor; from him they passed to his descendants, who, being ignorant persons, kept the books locked up, and took no care of them. Afterwards, hearing of the eagerness of the Attalian kings, in whose dominions Scepsis was situated, of obtaining some of his books, they hid them in a cellar, where they were injured by damp and moths; at last the family sold them to Apollion of Teos, at a high price, who, being fonder of books than reading, and being then a student of his, concealed them in his chambers unskilfully in the copies which he caused to be made, and published the works full of errors. Immediately after the death of Apollion, Sylla, at the capture of Athens, brought his library to Rome. Through the intervention of a grammarian, made use of them, as also some booksellers, who increased the number of errors, by employing careless trans- lators. Strabo adds, that the Periatic school after Theophrastus had scarcely any of Aristotle's works, except several of the extoteric writings which were then in a fragmentary and systematic state of study (xiii. p. 608). Such is the substance of Strabo's account, which is in part confirmed by Plutarch (dia. c. 26) and Athenaeus (1. p. 9): but the researches of recent scholars have shown that this narration deserves little faith; insomuch as it appears that nearly all Aristotle's scientific works were known to the followers of Theophrastus in the Periatic school, and that there were numerous copies of them in the Alexandria library; all which and other facts, which we have not space to notice, are inconsistent with the supposition that Aristotle's philo- sophical works were concealed from the world till the time of Apollion of Teos.

The text of most of his extant works moreover bears no marks of the supplements of unskilful revisors or of omissions caused by the decay of manuscripts; this, however, is not the case with all; the poetic, for instance, has come down to us in many copies, and in many parts of the works the text has suffered severely.

Aristotle's genuine extant works may be divided into three classes: 1. Those relating to the philosophy of the mind. 2. Those relating to the physical sciences, both natural and relating to moral and political philosophy. To the first class belong the Metaphysics, the Categories, the treatise on Interpretation, or the Meaning of Propositions, the first and second Analytics, and the Prior Analytics, which, with the exception of Sophistical Arguments, which, with the exception of the first, obtained the name of his Oeorganon, or instrument for the analysis of reasoning. Several of his logical works are lost, particularly his Methodis, or treatise on Method, in eight books. (See Rhet. 1. 2. 10.) To this head may be referred, though with less propriety, his Rhetoric and Poetic: the last of which works is imperfect. Under the second class come the Physics, the treatises on the Heavens, Generation and Corruption, On Life and Death, On the Soul, on the Objects of Sense, on Memory and Recollection, on Sleeping and Waking, on Dreams and Prophecy in Sleep, on Length and Shortness of Life, on Youth and Old Age, on Health and Disease, on Dreams, and the Present and Future Life, and the Elements of Ethics, translated into English by Bekker (vol. ii. p. 974): it appears, however, from Diogenes Laertius, that Aristotle wrote on these subjects. To the third class belong the three ethical treatises, the Great, the Kudeman, and the Nicomachean Ethic, each seems to have been written in different periods of his life, the last being the most mature, and the last, addressed to his son Nicomachus (in which three books of the Kudeman Ethics are embodied), the most complete and matured. There is a short abstract of part of de Financis, which is a treatise on the Virtues and Vices, which may, perhaps, be genuine: some ethical questions are also treated in the Problemas (c. 27-30). The Politics are intended as a conti-
nustion of the Nicomachean Ethics: the genuine Economics are lost, unless the first book of the treatise attributed to him (which is done in one Greek prose, is his collection of 158 Constitutions, both of Commonwealths and Monarchies, in several states, the Democratic, Oligarchical, Aristocratical, and Tyrannical being treated separately, containing an account of the manners, customs, and institutions of each country. The loss of his works on Colonies, on Nobility, and on Royal Government; of his Chronological Collections, and of his Epistles to Philip, Alexander, Antipater, and others, is also much to be regretted. The lost work of the Nicomachean Ethics, Haid, which Alexander carried with him during his campaigns in a precious casket: hence this recension (called the casket-copys) passed into the Alexandria Library, and was used by the Alexandrine critics. (Wolf, Proleg. ad Homer., s. 45.) His entire works, according to Diogenes Laertius, occupied in the Greek manuscripts 445,270 lines. Writings contained in the collection of Aristotle's works falsely attributed to him are, the treatise on the Universe (Kosmologie), the authorship of which (Mr. Payne King of the re-marks) has 'retained the common opinions of his age in the common language of a common declamer, and by a strange inconsistency attributed them to the condensed, refined, and also the latter part of the seventeenth and the whole of the eighteenth century: of late however, the true worth of his writings has been more fully appreciated, and the study of his best treatises has much revived. The best edition of Aristotle's entire works is that by Bekker, 1831, Berlin, 3 vols., quarto, in which the text is established on the authority of more than 100 MSS. of Italy, France, and England. Two volumes from the Greek commentators, edited by Brandis, will complete the work. A cheaper and smaller edition has been recently published by Tauchnitz at Leipzig. Among the numerous lists of his works, the most worthy of notice are those of the Metaphysics, by Brandis; of the Organon, by Buhle; of the Rhetoric, by Gesiiford; of the Poetics, by Tyrwhitt, Hermann, and Gräfensonh; of the Nicomachean Ethics, by Haid, which the English translations of Aristotle are, for the most part, of little value, on account of their unfaithfulness and inaccuracy. That of the Poetics, by Twining, should, however, be excepted. A translation of all Aristotle's works, by Mr. T. Taylor, was published in 9 vols., quarto, London, 1810, but the large amount of the price and the small number of the copies printed have confined the knowledge of this work within very narrow limits. On Aristotle's life, see the ancient biographies prefixed to the first volumes of the edition, and the first volume of the Hellenic Biographies, or B.C., 395-303, by Niebuhr, Hist. of Rome, vol. i. p. 16, and note 342. An extract about Winds, from Aristotle on the Signs of Bad Weather (πενημα, vol. ii. p. 973, ed. Bekker, omitted in the Table of Contents) is contained by Niebuhr as spurious. (Hist. of Rome, vol. i. p. 18.) It appears, however, that Aristotle wrote a treatise on this subject. (πενημα, Diod. Laert. v. 23, πενημα, Anon. vol. i. p. 64, ed. Buhle; see Theophrastus, vol. i. p. 762, ed. Schneider.) The authenticity of the fragments has been disputed. (See Müller, Archivio delle Scienze, 331, n. 1.) A set of Epistles is also attributed to Aristotle, which, like those of Phalaris, Socrates, Euripides, and others, are all spurious. Aristotle's philosophical works many centuries after his death obtained a prodigious influence, not only in Europe, but even in Asia: they were translated into Arabic, and from thence an abstract of his logical system passed into the Elements of Annales, which should here be called Aristotle's searches, vol. vii. p. 89-135, ed. v0. London.) In Europe they acquired an immense ascendency in the middle ages, and were considered as an authority without appeal, and only for the interpretation of the Scriptures informed us that in a part of Germany his Ethics were read in the churches on Sunday in the place of the Gospel. Parts of his philosophy, which are the most worthless, as his Physics, were much cultivated; and his logical writings were in many cases abused so as to lead to vain subtilities and capricious contents about words. The connexion between some of his philosophical tenets and the Roman Catholic theology tended much to uphold his authority; which the Reformation lowered, in a corresponding degree. His doctrines were in general strongly opposed by the early reformers. In 1518 Luther sustained a thesis at Heidelberg, 'What is Aristotle vult philosophi prius opteat in Christo stultificat.' He who wishes to philosophise in Aristotle must be first stultificat in Christ. (Bayle, in Aristotle, n. Y. See also a curious passage of Luther's, containing a most scurrilous attack on Aristotle, cited in Bayle, Luther, n. II.) Luther gave way afterwards, and did not oppose Aristotle to human learning. Melanchthon, who was, however, one of the mildest of the reformers, was a great sup- porter of Aristotle. (See, among his other works, his Moralia Philosophica, Epitome, Argentor. 1524, in which the commentary on the fifth book of Aristotle's Ethics.) Many of his doctrines were in the same century zealously attacked by Pierre de la Ramée (see Ramius), a French philosopher; and Bacon afterwards, with much more acumen; and the latter considered Aristotle as the beginning of human learning. Aristotle's philosophy accordingly fell into undeserved neglect during the latter part of the
fourth and fifth to the tetrachord; that the fourth consists of two such tones and a half, the fifth of three and a half. It is now sufficiently known that this system is erroneous even in the judgment of the ear, and that the only mark of musical tact displayed in it is the determination of the tone, not from the unassisted ear, though on its principles that would be admissible, but from the previous determination of the fourth and fifth of this Cyclode, the tonic and the octave, and three different tones would be derived from the octave, fourth, and fifth, as defined by Aristoxenus. To put in its power to any one to try his system, we subjoin the number of parts out of a thousand, which each note requires; that, is, calling the length of the string which sounds C, 1000, the length (tension being the same) corresponding to the several notes appears underneath them.

System of Aristoxenus

<table>
<thead>
<tr>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>891</td>
<td>794</td>
<td>749</td>
<td>657</td>
<td>595</td>
<td>530</td>
</tr>
</tbody>
</table>

Perfect Intervals 1000 889 800 750 667 600 553 500

Of course the system of Aristoxenus is, so far as it goes, that now known by the name of equal temperament, which Dr. Smith (a stern theorist) prefers to all others, but which we trust will never be in common use, as its first principle is the abolition of all distinction between the characters of the different keys. The above is not on the exact principle of Aristoxenus, because a key agrees with itself; but the practical truth of the fourth and fifth of its scale (a mere accident) brings the preceding representation very close to it.

To complete the system of his followers had its till the time of Ptolemy, who wrote against it in his Harmonics. One of the two treatises attributed to Euclid is Aristoxenean, but the other decidedly the reverse. Thanon mentions both sects; and, if any must be retained term, we assert that they might do by using their principles.

There is an opinion attributed to Aristoxenus, that the soul is the body since the soul relation as the sound to a string to the string itself: this is perspicuous poetry, but nothing else. (In a sense that is taken by Cousin's translation, who cites G. L. Mahne, Diatr. de Aristoxeno Philos. Peripatetic, 8vo. Amsterdam, 1793.)

The editions of Aristoxenus which we find noticed, are the following:再说an Moment Aristoxean Harmonicorum Element. libri iii. &c. &c. Ant. Gagawino Grauniens, Venet. 1562; Latin only. The first Greek text appears to be Aristoxenus, Nicomachus, Alcibiades, by J. Meursius, Leyden, 1618; Antiquis Musicae Auctores septim, Gr. et Lat. a Marcus Meibomio, 2 vol. 4to. Elsiev. 1692. The fragments of the book on Rhythm were published for the first time by L. Morelli, Venice, 1785. For further information, refer to Hawkins's Hist. of Music; Montucchi, Hist. de Math.; Volney, Elements de l'histoire des arts. Gregory, Preface to his edition of Euclid.

ARITHMETIC, from the Greek ἀρίθμητος (arithmētēs), 'the art of numbering,' should mean the science of numbers and the scientific art of multiplying and dividing them, and the names commonly called algebra; it is, however, usually restricted to mean only the science of the expression of numbers by symbols, and the application (not investigation) of all rules relating to them which are useful in the arts of life. Agreeably to the plan which we have laid down for the treatment of general terms (see ACoustics), we shall here confine ourselves to the elucidation, philosophical and historical, of the method of naming and representing numbers, in which we shall refer to such other articles as will, all together, furnish the most complete view of the subject our work can afford. For the method of applying principles in practice, see the names of the various processes, ADDITION, SUBTRACTION, &c. For the science which treats of the place of arithmetics, see NUMBER; and for the history of this branch, see PYTHAGORAS, PÂTO, THEON, EUCLID, DIOPHANTUS, EUKANTHEL, &c.; for that part of algebra which particularly concerns pure arithmetic, see ALGEBRA. For the application of the arithmetic of concrete numbers, see WIGHTS AND MEASURES, and such articles as YARD, POUND, &c.

All the information hitherto possessed on the main points of this system (historically, as that to which we deal more) has hitherto been presented to the world in so complete a shape, that it would be little better than affectation to make any more references than one, in an article which has no pretensions to original research. Of course we allude to Mr. Peacock's History of Arithmetic contained in the Encyclopaedia Metropo- litan, which is certainly the most complete treatise yet written on any one point of mathematical history. In using this work as our universal reference, we regret that we do not know to what extent it has been revised, or what is the number of its owners before we published this number. But as the Treatise itself is of a length answering to more than eighty pages of this Cyclopaedia, and the amount of original matter is impossible; and we therefore use it only as authority for citations of fact, in which we shall refer to the paging of the Encyclopaedia Metropoli- tan. We, however, feel bound to bear testimony to its correctness on all points which our access to books has enabled us to investigate.

We find ourselves in possession of a method of representing numbers so simple and powerful, that the principle and practice of the most complicated rules follows from it with ease. It is so much so that when we separate from the rest the part which particularly distinguishes our Numeration from that of the ancient Europeans, we shall find that our superiority consists in the adoption of the following conventions.

1. The value of a figure depends only upon the simple number for which it stands when alone, but upon the place in which it stands. Thus, in 888 the three signify eight, eight, and eight.

2. The place of a figure as affecting its value, is determined by the column in which it stands, and in the absence of succeeding figures to indicate the existence of other columns, their place is supplied by cipher, which of themselves are considered as having no negative value. Thus the 8 in 800 is of the same value as that in 863.

To complete our particular system, on which, however, none of its advantages depend, we must add that each figure is increased tenfold for every place it is removed to the left. In the next two conventions consists what is called the 'local value' of the figures; in the last is found the reason for the term 'decimal notation,' from the Latin word, decem, ten.

There can be no doubt that the mere decimal notation, which has been in use in almost every age and country, has arisen from the facility which the ten fingers afford for making calculations. The names of numbers have been almost universally formed distinct as far as ten, after which compound names have been employed. The exceptions to the rule are additional proofs of the generality of the principle; they are either deduced from five or from twenty, the number of fingers on one hand; or the number of fingers and toes together. We call the simple symbols of numbers digits, or figures; the Caribees call the number ten by a phrase which signifies 'all the children of the hand' (Peacock, 390); and in many languages the phrases for five, ten, and twenty, either in full or in parts, have the common etymology, with those for the hand or fingers.

In France the scale from 60 to 100 is strictly vicienary by twenties, and in the Indian archipelago the ancient scales have been preserved with the same names, and are applied to NUMERALS. We shall here only quote two results of observation, as laid down by Mr. Peacock (371), which appear to be very well borne out. They are, that 'the natural scales of numeration alone have ever met with adoption,' meaning, by natural scales, those derived from the hands, or hands and feet; and that 'amongst all nations practical methods of numeration have preceded the formation of numerical language.'

But this does not mean that every nation has gone high in the scale of numbers. There are tribes which have never even risen to a quinary scale (by fives), owing to their never wanting, and therefore never giving names to numbers as high as five. Aristotle (P. 391) mentions a tribe which never counted higher than four; and the Yancos on the Amazon have been stopped by the complexity of their language. They count no higher than three, the name for which, in their language, is (P. 399), and in the Arapesh, of a number greater than ten, would mark out a space of ground sufficient to contain them. This is, in its principle, the same fact as that from which the Greeks were driven by their sumptuous notation, viz., the substitution of geometry for arithmetic. [See SQUARE, EUCLID.]

To enable our reader rightly to estimate the advantage which we possess in our notation, we will here describe that of the Greeks, which is only equalled by that of the Chinese.
in its near approach to the Indian, or generally received system, and is very much superior to that of the Chinese in the simplicity of its symbols. We shall omit the substitution of letters for numbers, and content ourselves with abandoning the principle of 'local value,' and substituting in its place a system of symbols as, without departing from the principle of Greek numbers, as a first approximation, may be called ternary.

For the actual signs used by the Greeks, see Numeration, Numerals. Let the first nine numbers be represented as usual, but let ten (instead of 10, in which 1 has local value) be represented by 1', twenty by 2', &c. Let 3' be one hundred, 2' two hundred, and so on; 1' one thousand, 2' two thousand, and so on. Let M stand for ten thousand, and let M affixed to a number make its value ten thousand times as great; thus, d'IM is 9000, 1'IM our notation. We have here improved upon the system of the Greeks, unnecessarily, in order not to confuse the reader, since 1000, 900, 20, and 2, would not among them present to the eye that analogy which exists between 2', 2', 2', and 2', being in fact denoted by β, ι, τ, and ζ.

We now write some high numbers in our own decimal scale, so as to show how the principle of the Greek numbers first, the mere occurrence of a fourth column would suggest the idea of thousands, so that a notion, which we must call one of local value, would be inevitably formed. And perhaps it was so: indeed it is surprising that neither Archimedes, Apollonius, or Diophantus ever detected it and improved the idea. But when we come to look at the second and third column, we see immediately that the continual derangement of the columns would prevent the idea of acquiring correctness. The symbol of vacuity is wanting; and we cannot see how great an impediment that defect presented, because we learn 20, 30, &c, as soon we learn twenty, thirty, &c. And though perhaps 2', 3', &c., might have suggested such a contrivance, yet there was no analogy between (20) and (λ) and (β) and γ (3).

The ingenuity both of Archimedes and Apollonius was employed in the extension of the Indian system, without alteration of its principle. That of the latter we shall imitate. Calling 10,000 M, let ten thousand times ten thousand be called M', ten thousand times that number M'', and so on, and let an affix M' be added immediately after a number which we may suppose that the preceding is to be taken ten thousand times if followed by M', ten thousand times ten thousand if by M'', and so on. The following number

1768,9360,0142,0193

on which we may make the same remarks as before. The method of Archimedes (which preceded this) differed from it only in making ten million the index of the system. We now see why our arithmetic was called ciphering, cipher coming from an Arabic word signifying vacant. One such thought as occurred to Archimedes in the bath (see Archimedes) might have been fourteen centuries gained to the science.

We look in vain for anything like local value in the system of the Egyptians, or any other nation of antiquity who are known with certainty to have very ancient records. That of the Jews was similar to the one just described, so far as it went, and the use of some letters common to both (P. 406) in the numeral system, but not so in the alphabets of the two, proves that the notation of both had a common source. (See P. 406.)

To the same article we must also refer for the Roman system, which extended itself throughout Europe during the first twelve centuries. It is much more rude than the Greek, and is a sufficient proof of the well known inaptitude of the Romans for scientific invention.

The Chinese had several systems of numeration, all containing complicated symbols, and somewhat resembling that of the Greeks in principle; but with this important difference, that the symbol for 30, for example, has direct analogy with that of 3, being made by the juxtaposition of a symbol for ten; so that the improvement upon the Greek scale which we have been obliged to make in order to explain it, renders our imitation of the Greek a better likeness in substance of the Tableau. But they have not a written method of expressing local value; though their Schuo-nom (see Aracus) is a practical use of the principle.

Before we proceed to the history of our own scale, we must extend our remark, that the 'decimal notation' and 'system of local value' are two distinct things. When we agree that 10 shall stand for ten, we merely express that a number in the second column from the right shall stand for ten times as much as the same in the first column. But we are at liberty to suppose that a number in the second column shall mean nine, eight, or any other number of times what it does in the first. Thus, if we choose a quinary scale, in which 10 stands for 5, we reject the symbols 5, 6, 7, 8, and 9, and our numerical scale runs thus—

1 2 3 4 5 10 11 12 13 14 20 21 22 &c.

Thus 20 is ten, because 2 in the second column counts five times. But if we choose a higher scale than the decimal, we shall have to invent, instead of rejecting symbols; if, for instance, we take a duodecimal scale, in which 10 means twelve, we shall have symbols for t and s, and two columns for these; then our scale of number, beginning from ten, is as follows:

f e d c b a 10 11 12 13 14 15 16 17 18 19 11 12 20 &e.

But the scale which best exemplifies the principle is the binary, in which 10 stands for 2, and in which there are consequently no symbols except 1 and 0. The system of numbers in this scale (from one to ten) is as follows:

1 10 100 101 110 100 1001 1010 1001 1010

A dream at Pekin (P. 392) communicated by Leibnitz the following Chinese symbol, called by them the Cova, or linear, and attributed to Fohi, the founder of the empire. It is suspended in their temples, and considered as a mystery.

If the long line be interpreted to mean one, and the broken line nothing, these symbols, each being read from the bottom to the top, give a system of binary arithmetic from 0 to 7 (both inclusive). And Leibnitz asserts that there is a larger number of signs, which goes up to 62. But as no additional information has been obtained upon the subject, which, for anything certainly known to the contrary, may be a hoax, we can only say that there is some presumption that the Chinese long ago possessed the complete principle of the 'local value.'

We trace our own knowledge of the decimal system direct to the Hindoos, who themselves ascribe it to the divinity. As to the manner of its introduction, there are some differences of opinion on that subject. One and the old account is, that Gerbert, after Pope Sylvester II, found it in Spain among the Moors (P. 451) in the latter part of the tenth century. But upon this there are strong reasons for hesitating. (See Sylvester III.) Another, and the probable account is, that Leibnitz of Pisa (see Bonacci and Algherma) introduced it, in 1202, in a work entitled Liber Abbass, &c. And some have supposed that the Abacina (for Alphabines) Tables, which are mentioned principally by Moors at the court of Alhoto, must have been the first in which the system appears. (P. 413.) It is certain that this system had been before the twelfth century, and must probably have been used in the ninth, in the tenth, and possibly in the ninth and Arabs, who ascribe it to the Hindos, and call it by a name which signifies 'Hindoo science.' It is also certain that the Hindos themselves have long used it (see Bia Ganita and Liliwati, names of Hindoo works), and that it is easy to trace the manner in which our numeral symbols have been derived from those of the Sanscrit. In this latter language there are distinct names for unitis, tens, &c., up to
We subjoin a list of names, which the reader may own suit on various points connected with the history of arithmetic, either as a learned or a popular writer. The figures refer to the centuries before or after Christ, in which the individual is supposed or known to have lived; and the Italics are works which are cited.

B.C. 6—Pylagoras. 4—Euclid, Aristotle, Plato. 3—
A. C. 2—Ptolemy, Diophantus. 3—Nicomachus. 4—
Pappus, Theon. 5—Proclus, Eutocius. 6—Boethius. 9—
Mahomed Ben Musa. 11—Gerbert. 12—Jordanus. 20—

We need not of course refer to the work of Mr. Peacock, which we have so often cited.

ARITHMETIC, POLITICAL. [See Statistics.]

ARITHMETIC OF SINES. [See Trigonometry.]

ARITHMETICAL COMPLEMENT is that which a number wants of the next highest decimal denomination. Thus, what 7 wants of 10, or 3 of 100, or 68 of 1000, or 541 of 10000, are arithmetical complements of these numbers. The best way to find them is to begin from the left, subtract each figure from 9, and the last significant figure from 10, as in the following examples, which include all the cases:

\[
\begin{align*}
\text{No.} & \quad 192361 & 12368 175341 & 1234000 \\
\text{Ar. Co.} & 82366 & 8059992 & 8266000 \\
\end{align*}
\]

ARITHMETICAL MEAN. By the arithmetical mean is meant, that number or fraction which lies between two others, and is equally distant from both. Thus the arithmetical mean between 6 and 11 is 10. To find this arithmetical mean, take the half sum of the two numbers. Thus, that of 4 and 17 is 10.5. But any numbers are also said to be arithmetical means between two others, when all together form a series of equally increasing or decreasing numbers. Thus, 2, 4, 6, 8, are arithmetical means between two numbers, divide the difference of those two numbers by one more than the number of means required, which gives the difference between the means. Thus, to interpolate four arithmetical means between 27 and 62, divide 75 (102-27) by 5 (4+1) which gives 15. The means are, therefore, 27+15 or 42, 45+15 or 57, 57+15 or 72, and 72+15 or 87. This is fractional, the same process is employed. [See Average.]

ARITHMETICAL PROGRESSION is a name given somewhat improperly to a series of numbers which increase or decrease by equal steps, such as 3, 5, 7, &c.; or 2, 4, 6, &c. The difference between any two successive terms, being common to all, is called the common difference. The data which distinguish one arithmetical progression from another, are the first term, the common difference, and the number of terms; from these it is easy to find the last term and the sum of all the terms. The first term, multiply the common difference by one less than the number of terms, and add the first term to the product. To find the sum of all the terms; take the number of terms, the sum of the first and last, and multiply the half of either (whichever is most convenient) by the other. Thus, for 100 terms of either the series

\[
\begin{align*}
3 & 6 & 9 & \ldots & \text{(A)} & 1 & 1 & 2 & 2 & \text{(B)} \\
1 & 1 & 2 & 2 & \ldots & \text{(A)} & 1 & 1 & 2 & 2 & \text{(B)} \\
\end{align*}
\]

The rejection of the cumbersome and unnecessary exposition of means in some instances by Wright in 1816, and the system was formally introduced by Napier in 1617: the use of it was much extended by Oughtred in 1631. (See DECIMAL FRACTIONS.) From this time the modern form of means must be considered as established. The invention of LOGARITHMS (which see) is the principal aid to calculation which has been engrafted upon the system.

\[
\begin{align*}
491 & 3 \quad 0 \\
\end{align*}
\]
Algebraically, let $a$ be the first term, $x$ the common difference, and $n$ the number of terms. Let $z$ be the last term and $S$ the sum. Then

\[ S = n \left( a + (n-1)x \right) \]

from which any three of the letters being given, the other two can be found.

For the theory of which this article is a part, see Series, Differences, Integration.

ARITHMETICAL PROPORTION, the relation which exists between four numbers, of which the first and second have the same difference as the third and fourth. Thus:

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 \\
5 & 7 & 9 & 11 \\
10 & 13 & 16 & 19 \\
22 & 26 & 30 & 34 \\
\end{array}
\]

are severally in arithmetical proportion and in every such proportion the sum of the extremes is equal to that of the means. Thus:

\[ 12 + 7 = 3 + 16 \]

ARIUS (Ἀρίους, Arians) was a native of Cyrene, in Africa; the date of his birth seems to be unknown. He was distinguished for his soundness of doctrine, exactness of learning, logical eloquence, and acute acuteness. He has been accused, but without sufficient ground, of restless ambition, and a predilection for innovations. The doctrine which he taught was not at that time a novelty, but had been maintained in the Alexandrine school of divinity, especially by those men, who, having an acute understanding, were nevertheless deficient in the contemplative faculties of the mind. Arius, the two Eusebii, and others, seem to have been rather anxious to defend the church against the introduction of creeds which appeared novel to all who had been brought up in the Alexandrine method of philological divinity. Arius obtained the favour of three successive patriarchs of Alexandria. The patriarch Peter of Alexandria ordained him deacon, but prohibited him from the exercise of ecclesiastical functions, upon Arius, A.D. 306, joining the party of Meletius. The patriarchs of Alexandria, moved by the example of Arius, made him, A.D. 313, presbyter and pastor of the church Bucalus, at Alexandria; and the patriarch Alexander gave him the first rank among his clergy, although he is said by Theodoretus (Hist. Eccles. i. 2) to have been one of his competitors for the patriarchate. But Philoxenius (i. 3) says, on the contrary, that Arius, observing the choice likely to fall on himself, turned it to Alexander.

The patriarch Alexander, A.D. 318, having asserted, in a council of bishops, the unbiddenss of Christ, that the three persons in the Deity, Arius, in reply, accused the patriarch of having fallen into the error of Sabellius, who had confounded the three divine persons. Arius maintained that the Son was created out of nothing in the creation of the universal sphere, and that he could be called God only on account of his participation in extraordinary powers. This doctrine Arius propagated in private; and after he had obtained many followers, he preached it publicly in the church. In order to introduce his opinions among the lower classes, he composed songs for sailors, millers, and travellers, in the measure of popular melodies. The work of Arius called Thaleia contained his doctrine in prose and verse. Alexander endeavoured to reclaim Arius by private admonitions in letters and by conferences, but failing in his attempts, he cited him, A.D. 321, before a synod of nearly one hundred Egyptian and Libyan bishops, convened at Antioch. The doctrine, his person, and his companions, were anathematized. Two letters of Alexander on this occasion are still extant: one is a circular report to the orthodox bishops (Socrat. Hist. Eccles. i. 6; Manili, Collect. Conciliorum Atheniensi, t. ii. p. 397) the other is a letter, full of bitterness, to Bishop Alexander, at Constantinople. This letter calls the Arians Euxiontianos, in allusion to the phrase ο ευσίωνος, out of nothing. Among the followers of Arius were two bishops, and several priests, deacons, and virgins.

Arius now began to travel through the neighbouring countries, where he excited sympathy for his misfortunes, and propagated his doctrine. Eusebius, bishop of Nicomedia, to whom Arius wrote a letter (Epip. Hisc. 69. 6; Theodoret, Hist. Eccles. i. 4), absolved him from the Alexandrine excommunication; he also con-

vended, A.D. 323, a synod in Bithynia, probably at Nicomedia, in his behalf; wrote in his favour to all the oriental bishops, and to the Emperor Constantine the Great, who, being at that time yet unknown, considered his request as trifling, he refused to take it into his consideration, and recommended peace, A.D. 324, in a letter addressed to Alexander and Arius jointly.

Constantine commissioned Hosius, bishop of Corduba, to examine the facts at Alexandria, and the bishops having made a report unfavourable to Arius, Constantine convened the bishops of his empire, A.D. 325, in order to settle the points in dispute between Arius and Alexander. In this council, A.D. 325, at Nicea, the bishops were divided into two parties. The body of Arius persisted in rejecting all confessions of faith which maintained the divinity of Christ and the consubstantiality of the divine word, and he opposed the expression ὁμοους, applying the Son as being of the same essence with the Father. Consequently he was absolved by the synod, and exiled by the emperor to Illyricum, together with two bishops, Theonas of Marmarica in Libya, and Secundus of Poloentia, who continued to adhere to him, after Eusebius of Nicomedia, Theognis of Nicæa, and Marinus of Chalcedon, alarmed by the emperor's threats, had forsaken his party. Capital punishment was denounced against all who would not deliver up the writings of Arius. After the three years of condemnation Arius, through the instrumentality of an Arian priest, who was secretly sent to the emperor by Eusebius, bishop of Nicomedia, and by his sister Constantia. A confession of faith, which seemed to be in unison with the Nicene Creeds, was drawn up, and signed by Arius, A.D. 330, to the emperor, by whom he was reinstated in his church at Alexandria; but Athanasius, then bishop of Alexandria, would not admit him. The synods of Tyre and Jerusalem, A.D. 333, through the influence of Eusebius, re-admitted Arius into church communion, and recommended him to Athanasius; but Arius was sent by his opponents from Alexandria to Constantinople, in order to redeem his death to poison. But Athanasius, who probably had more accurate information, states, that Arius died on the evening preceding the Sunday on which he was to be received into church communion. He was by the magical practices of his enemies. This accusation contains, at least, a defence against the suspicion of poison. Eusebius, who became bishop of Constantinople A.D. 339, obtained by the Arians to celebrate public worship at Alexandria and other places of Asia. After the death of Constantine, A.D. 337, and the fall of the pretender Magnentius, A.D. 353, Constantius became ruler of the whole empire, and used his power to support the Arians in the councils of Arles, 354, and Milan, 355, the decrees of which he maintained by arms against the Athanasians.

Many persons, unable to understand the distinction between the doctrines of Athanasius and Arius, were influenced in the choice of their party by unworthy motives. Most bishops, moved by the court, signed Arian creeds, although some continued to teach Athanasian doctrine. The people, except in occasional tumults, gave themselves little trouble about debates which were heard behind the doors of the churches. Arians rejected the doctrine of Christ being ὁμοους, of similar essence, as well as that doctrine which made him ὑποστάτης, consubstantial, or of equal essence, but the Semi-Arians and Westerns maintained the Philoxenian. The semi-strict Arians, called also Arianists, insisted upon the Son being ἰδεσθης, of another substance. The Goth, Vandals, Suevi, Burgundians, and Lombards embraced Arianism but exchanged it afterwards for orthodoxy.

The history of Arianism may be divided into three periods: the first commenced a considerable time before the life of Arius, having originated in the Alexandrine schools of divinity of which Origen was the most splendid luminary. The second period began with the opposition of the Eusebius to the council of Nicæa, and terminated in the second synod of
Sirmium, A.D. 357. During this period the following synods were held: one at Tyre, A.D. 335, in which Athanasius was deposed and exiled to Gaul by Constantine; and immediately afterwards, at Jerusalem, in which Arius was received into church communion.

Another synod was held at Antioch, A.D. 341, in which the bishops declared that they could not be followers of Arius, because his heresy was the offspring of a presbyter? In this synod, four creeds were approved, in which an endeavour was made to steer a middle course between the Nicene Homoucousi and the definitions of Arius; which two points are considered to be the two extreme divergences from the standard of ecclesiastical orthodoxy in the East. These four Antiochene creeds are extant in Athanasianus de Synods, § 22-25. A general council was again assembled at Sardica in Thrace, in which the bishops of the East and West endeavoured to reconcile the contumacious for both spiritual and ocidental orthodoxy. Their endeavour proved fruitless. The orientals retired to the neighbouring city of Philippopolis, leaving their occidental opponents alone at Sardica.

Arianism, was under Constantius, as victorious in the east as the Nicene creed was under Constantius in the west. The Arianists thought that the Homouncousi orthodoxy was infamously secured the deposition of Marcellus, bishop of Anbyra. The Sabellianism of his disciple Photinus was condemned in the second council of Antioch, A.D. 334, and by another council at Milan, A.D. 346. After the death of Constantius, A.D. 337, the Nicene Synod of Milan, A.D. 353, Constantius endeavoured to establish Eusebianism by violent means in the west. In the synods of Aries, A.D. 354, and of Milan, A.D. 355, he compelled the assembled bishops to sign the condemnation of Athanasius.

The third period terminated with the suppression of Arianism by theodosius I. The last vestiges of Arianism in the Roman empire are found in a law of Theodosius II. A.D. 431.

[For the sources of information on the Arian controversy, see the following articles: — Eusebius Pamphili, bishop of Cesarea; Eusebius, bishop of Emesa; Cyril, bishop of Jerusalem. These were the most distinguished writers in behalf of the Antitrinitarian party. The best writers among the Homousiasts were Athanasius, bishop of Alexandria; Hilarius, bishop of Pictavia; Epiphanius, bishop of Constantia; Basilius, bishop of Cesarea; Gregory, bishop of Nyssa; Gregory of Nazianzus. — 509; Ambrose, bishop of Milan; Epiphanius, diaconus of Edessa, prophetae Syrumorum. Modern works on the history of Arianism are: — Storia critica della vita di ebreos. Bolognia, 1867; Dibiati, Ercole, Testino, Venice, 1746–8; Walsh’s Historie der Ketzeren, Th. 2. p. 385, &c.; J. A. Stark’s Versuch einer Geschichte des Arianismus, Berlin, 1783–85, 9. tom. &c.; J. Ch. Freiherr von Wundemann’s Geschichte der christlichen Gesellschafsm, vol. 2. Miinchen, 1727–35, 8. tom.; Gieseler’s Kirchengeschichte, Bd. 3. p. 351, &c.; Neander’s Kirchengeschichte, Band. II. 767, &c.]

ARK, a chest or coffer. This term is frequently used by our earliest English and Scottish poets.

In 1347, in the brewhouse of the priory of Lindisfarne, was an ark for meal (see Raine's North Durham, p. 92); and among other articles of furniture occurring in an inventory of the household goods belonging to Sherborn hospital, taken in 1636, in the boulting-house, is 'I boulting arck.' (Hutch. Hist. Durham, 1830.) The same word is still in use, in the north of England, for the chest which is sometimes called a meal chest.

Noah's ark was so named from its supposed resemblance to an ark or chest; by which name it occurs both in the Gothic and Anglo-Saxon versions of the passage in Luke, xvii. 27. Wiclif, in this passage, instead of ark, reads ship.

The same term is used in the Old Testament, for the basket or cradle in which the infant Moses was laid when he was put into the Nile. (See Boucher's Glossary, by Stevenson.)

ARK, a great vessel, is the smallest in size and the largest in number of all the vessels of the Mississippi, and is the largest in size and the smallest in number of all the vessels of the Mississippi. It is 113° W. of Greenwich; but this must only be taken as a general and approximate quantity, and the long, thus assigned is probably too much.

James Peak, one of the highest summits of the Rocky Mountains, which lies between the Arkansas and Boiling Spring Creek, is about twenty-five miles N. 57° W. from a point near the summit of Mount Evans, which is 10,562 ft. 10° 44' W. long., by Major Long's party. The Arkansas joins the Mississippi in 33° 26' N. lat., 91° 10' W. long., with a course, following its bends, estimated at 2000 miles.

The sources of the Arkansas and of the great Rio del Norte are probably near one another. Captain Bell, who was with Major Long's party, traced the Arkansas into the mountains till his progress was stopped by the almost perpendicular gradient of the mountains, in which the river pours with great violence. The Arkansas valley, near the mountains, is bounded by high cliffs of inclined sandstone; lower down these disappear, and there is a slope of alluvial soil and river gravel. This soil and gravel are usually red or brown, and furnishing on either side for several miles; and further down still, horizontal sandstone appears forming high bluffs, or precipices, on each side of the valley. Trees of considerable size here grow along the margin of the river, but their tops are not so high as the level plan on each side, and the descent into this deep-sunk channel is in many places quite impracticable; at a short distance, this narrow valley is not seen at all.

The Arkansas flows in an eastern course as far as the meridian of 92°; it has then a winding S.E. course to about 35° N. lat., 95° E. long., from which point it resumes an eastern winding course to about the meridian of 92° 30', from which its course is S.E. to its junction with the Mississippi. And from this junction the Arkansas flows through the great plains which stretch eastward from the base of the Rocky Mountains. Though the term plain is more applicable to this region than any other name, plains are strictly a plain; it is an undulating surface, presenting here and there detached table-lands at a small elevation above it, with some knobs and small ridges, the whole cut up into numerous extensive parterres by the beds of streams of various sizes. The action of the present irregular form of the country is considered to be due, by those who have explored it. The Arkansas valley, for more than 100 miles from the place where it leaves the mountains, contains a considerable quantity of timber, chiefly cotton wood; but further E. the timber almost disappears, and the wide spreading prospect is nothing but a prairie. The river-valley widens in its eastern course, and the bluffs become less elevated; the bottoms are not more than a few feet above the level of the river, in which some parts is spread out a mile in breadth, and contains numerous islands. At some seasons the river is said almost to disappear. About the meridian of 97°, the Arkansas crosses the line marked in MS. map, and the river is again marked by the limestone and coal strata connected with the Ozark mountains; and about a degree, or a degree and a half, E. of this, it enters and traverses the hilly region of the Ozarks, in which it continues up the north-east of the little Rock, which marks the low alluvial country, and the Rock is about 120 miles from the Mississippi, not including all the small bends of the river.

This river is joined by numerous large tributaries. Running into it on the right bank are the Nezrakans or Red Fork, and the Nesuketonga or Grand Saline, which join the Arkansas W. of the meridian of 97°; both of them probably come from the Rocky Mountains.

Near the meridian of 93° the Arkansas is joined on the right bank by the Great Canadian, which rises in the Rocky Mountains, probably three degrees at least S. of the sources of the Arkansas, and is computed to run 1000 miles before it joins the main river. Its greatest width is considerable bend to the S.; a space of great extent is thus included between the Arkansas and the Canadian, in which numerous streams, several hundred miles in length, have their origin and course. The great affluent of the Canadian, the North Fork, lies in the intermediate space; it joins the Canadian on the left bank six or eight miles lower down than the South Fork, which enters the Canadian on the right bank. Near its source the valley of the Canadian is narrow, and the current of the river is high and swift, and affords a many places entirely dry; in one instance observed by Major Long, the Canadian was buried in its sands for more than 100
miles. The waters of the Canadian contain various proportions of lime, lapilli, and sulphate of magnesia in solution, which often render them unfit for use; saltness and nitrous efflorescences, and considerable inerustations of salt, characterize some portions of the country drained by the Arkansas and the Upper Canadian. Major Long’s party, in their exploreation of 1819, 1820, 1821, 1822, explored the Canadian for the Red River, and were not undeceived till they had traced this stream to its confluence with the Arkansas.

The character of this extensive region, W. of the Ozark mountains, and included between the Arkansas and the Rocky Mountains, will be best understood from reading the interesting narrative of Major Long’s expedition. The treaty of 1846 excluded us on the banks of the streams; the high flats above the bottoms present in general nothing but a covering of grass or stunted shrubs. Sandy plains covered with wormwood and other plants; a burning sun which, even in September, raises the thermometer above 90° in the shade; and a general want of timber, water, and navigable streams, render these regions difficult and even dangerous to cross, and only fit for the residence of a pastoral people. Wild animals are sometimes found in abundance, and sometimes it is difficult to meet with them; the black bear, deer, antelope, white wolf, jackal, bison sometimes seen in countless herds, wild turkey, Virginian partridge, and marmol, commonly called the prairie dog, form part of the game of this wilderness. The wandering tribes of Indians are incalculable in numbers.

The annual flooding of the Arkansas commences early in March, and it attains its greatest height in the delta of Louisiana, in June; for the Arkans is after that of the Red River, which lies further S., and contempornaneous with that of the Ohio. The flooding from the Missouri is the latest. In the bluffs of the Canadian, as well as on the upper part of the Arkansas, extensive beech woods are comprised in a ferruginous clay and a fine sand of a deep red colour; owing to this, the Arkansas, and the Canadian also, are generally of a deep red colour, especially during the floods. The waters of the North Fork of the Upper Arkansas are of a greenish colour when not swelled by the rain.

(Darby’s View of the United States; Long’s Expedition to the Rocky Mountains.)

The Arkansas Territory, one of the territories of the United States not yet raised to the rank of a sovereign state. It is bounded by the state of Missouri on the north, the Mississippi on the east, Louisiana on the south, Texas on the south-west, and on the north-west by the western boundary of the State of Missouri. It is bounded by 36° 30' N. lat., and 89° 4' W. long., from Greenwich. The river boundary on the east is about 360 miles, not reckoning all the small curvatures. A line of 170 miles drawn parallel to the river would embrace all the Indian tribes in the interior of Louisiana. The Rio Rojo or Red River, one of the large alluents of the Mississippi, forms the remainder of the southern boundary separating Arkansas from the Mexican territories, and the western meridian from Greenwood, forms the western limit of Arkansas; and the parallel of 36° 30' separates Arkansas on the north from the north-west territory and from the state of Missouri, all but a small portion where the line follows the St. Francis river for 30° south, and then runs for 34 miles eastward to the river Mississippi. The circuit of Arkansas is about 1326 miles, and the area is computed at 121,240 square miles, between one-fifth and one-sixth more than the reputed area of Great Britain and Ireland.

Arkansas may be divided into three physical regions, an eastern, a central, and a western region. The eastern, bordering on the Mississippi, is low and flat, generally covered with dense forest, without good water, and almost without stones. In the central section the ground begins to ascend gradually, and the forests are interpersed with prairies; hills also begin to appear increasing in elevation as we advance. Yellow and white hills, known by the name of the Ozark Mountains, form a continuous chain which probably is an offset from the Mexican system; but about this there is still some doubt. The Ozarks enter Arkansas from the province of Texas, and crossing the territory in a general north-east direction, but nearer to the eastern than the western limit, enter the state of Missouri. The Ozarks are not a ridge of hills, but, like the Appalachian, a mountain-system, probably occupying two degrees or more in breadth; the general direction of the mountains is from south-west to north-east. The falls on the upper Washita (34° 25' N. lat.) are formed by a kind of hard freestone, extending across the bed of the river in the direction just mentioned.

The western part of Arkansas is an extensive elevated level, continually increasing in height as it runs westward towards the Rocky Mountains; it is a country of grass almost without trees, traversed by the long streams which join the Rio Roxo and the Arkansas river. Besides the Rio Roxo, which forms four hundred 400 miles, the south-western boundary of Arkansas, the territory is watered by other alluents of the Mississippi. White River and St. Francis both rise in the Ozarks of Missouri, north of the Arkansas River, and the Black River, which rises in the upper waters of the Arkansas, the territory is watered by other alluents of the Mississippi. The Black River, which rises in the Ozarks, and is united in two main streams, the western called the White River, and the eastern the Big Black River. The Big Black River is formed by numerous streams which rise further N. in the Ozarks; one of these, called Spring River, which is not 200 miles long, discharges more water into the Big Black River than the Canadian, 1000 miles long, into the Arkansas. The united stream, under the name of White River, has a general southern course, and joins the Mississippi fifteen miles above the outlet of the Arkansas, after a course of about 400 miles. A channel forks off three miles above the junction of the main stream with the Mississippi, and runs into the Arkansas. The St. Francis, which joins the Arkansas about thirty miles below the mouth of the Mississippi in a general southern direction, and joins the Mississippi about sixty-five miles direct distance N.E. of the junction of the Arkansas with the Mississippi.

The Ozarks and Spring River are fed by the Red River, rising above the low lands and spreading out into a hilly region of great extent, become the sources of numerous streams. Of these, one of the principal is the Washita. We are not aware that the remotest source of this stream is yet laid down with certainty, but the position of the hot springs near one of its sources has been ascertained to be in 34° 31' N. lat., and 92° 50' W. There are four principal springs; the highest temperature observed was 164° F.; the lowest was 107° F.; thearkansas.

It was computed by Mr. Dunbar’s party that the quantity of hot water discharged by all the four springs and some minor sources is about 377,14 hogheads in twenty-four hours. Later visitors make the hot springs seventy in number. Major Long, who visited them in 1819, states the highest temperature to have been 151° F. Several springs discharged respectively ten, twelve, and twenty gallons of hot water per minute; some of them were at least 100 feet above the surface of the river. The hot springs were discovered as the hot springs. The hot water is colourless and tasteless, and forms a deposit of lime, siliceous matter, and oxide of iron. The Washita, increased by the Saline and several other streams, is formed at the junction of the Arkansas and the Mississippi.

The climate and vegetation of this extensive territory vary with the elevation of the surface and the distance from the level of the Mississippi. The low region along the Arkansas is covered with a dense forest of trees, and an impenetrable undergrowth of shrubs and grass; its fertile soil produces cotton, Indian corn, tobacco, sweet potatoes, and some tobacco, but the sugar-cane will not succeed so far north. The peach, the nectarine, the grape, the papaw, and a variety of other fruits, succeed better than the apple, which is not commonly found. The papaw is about thirty-four feet high, and its trunk not less than a foot in diameter. The heat in summer is intense, and the annoyance from musquitoes sometimes almost insupportable. The only water fit to drink is the rain water; even in large jars sunk in the ground; the river water, when filtered is fit for use, though many of the inhabitants are obliged to dispense with this process. Snakes and other venomous reptiles are not common; by far the commonest are rats and mice, which are seen in great numbers and amount, and are often fatal.

The Ozark region, which commences near Little Rock on the Arkansas, and extends nearly as far W. as the junction
of the Canadian and Arkansas is only partially known. Near the hot springs of the Washita, the soil in the river-valley is of good quality, and the lower hills, which are not above 300 feet high, and some of the upper hills, are covered with a soil of middling quality. The black and pine, oak, with a variety of other woods, and a considerable undergrowth, are found in the valleys of this region. On the rocky parts of the hills there are three or four species of vines, said to produce a splendid extract of resin. The temper, with the depth of the atmosphere at the springs on the 31st of December, 1864, was 29° at sunrise, 32° at 3 p.m. with a wind S.E. and snow. On the morning of the 30th of December it became 34° at sunrise and 53° at 3 p.m. with a high N.W. wind. On January 2, 1865, the thermometer was 6° at 9 a.m. The Ozarks between the Arkansas and the Red River, though resembling the Appalachians as to general direction, are said not to show, like the mountains east of the Mississippi, a set of parallel ranges.

The real sources of the Washita are about 100 miles N.W. of the hot springs in an elevated region, from which some small tributaries flow into the Arkansas, and others into the Washita itself. These hills are covered with pine and post oak, that the grey sandstone is the prevailing colour in the landscape. In the river-valleys of these mountains, as for instance, on the Suline branch of the Washita, there are lands not inferior to any in the Mississippi region. The Wabas, or wild turkey, the ash, hickory, and sugar-maple. These trees, the undoubted marks of a rich soil, are also found along the base of the mountains. S.E. of the hot springs, and form an exception to the general remark, that the best soils in Arkansas are in the river alluvium. The deer and the wolf abound in these high regions; and the wild turkey is still numerous on the banks of the White River. (For the geological structure and general character of the Ozarks see that article.)

The region W. of the Ozarks has been already partially described. It commences near the junction of the Canadian and Arkansas; and though timber and thick undergrowth are found in the bottoms of the rivers, we trace from this point, or about a degree westward, the great red sandstone formation with its bare and monotonous surface which extends to the Rocky Mountains. The red colouring matter of the sandstone stains the waters of the Canadian a dark red colour, and the soluble salts associated with this rock give its waters a strong saline taste.

The mineral wealth of the territory is yet hardly known. Iron certainly exists, and probably lead and coal; salt might be procured from the saline fountains, or the saline springs near the Washita, and in other places.

The Arkansas derives its name from a tribe of Indians, probably now extinct; they spoke the Osage language. It was first explored and settled by the French in 1685. In 1768 the Spanish, who, just before the French possession of it till 1800, when, by a secret treaty, it was given back to France. In 1803, Louisiana was purchased by the United States from France for 15,000,000 dollars, and it continued, according to the terms of the purchase, not only the state so called, but Arkansas, Missouri, and the N.W. territory. The post of Arkansas, on the left bank of the Arkansas river in the low country, is an old Spanish settlement. Little Rock, the seat of government, is higher up another mile, on the right bank, 34° 43' N. lat. 92° 13' W. longitude. The population in 1830 was 30,358, of whom 4576 were slaves.

The governor is appointed by the president, with the consent of the senate; the term of office is three years, and the salary 2000 dollars. There are four judges, with salaries of 1200 dollars each. The militia of the territory was 2029 in 1831. The territory sends one delegate to Congress. The fishery employed by the state that we have seen makes fifteen counties. According to a statement in the Encyclopaedia Americana, the limits of what is properly called Arkansas territory have been reduced to 45,000 square miles. The population of Arkansas consists of Indians, some from Spanish, Americas, and such adventurers from all countries as are found on the verge of civilization. Education does not exist in the territory, and the power of law is yet too feeble to repress and punish acts of personal violence, which are not uncommon.

Of the Indian tribes as at present existing in Arkansas, we can give no satisfactory account. The Quapaws, Choctaws, some Osages, and other tribes, still inhabit the territory. The Chickasaws Indians are now endeavoring to select a suitable location for the purpose of assembling in council, and forming a government. (Darby's View of the United States; President Jefferson's Message of February 19, 1804, communicating Dunbar and Hunter's Visit to the Hot Springs of the Washita; Long's Expedition in 1817, and his Account of the Arkansas; Nuttall's Arkansas; American Almanac, 1834.)

ARKEEKO, a sea-port on the western coast of the Red Sea, in 15° 39' N. lat. and 37° 36' E. long. It lies three days' journey from the island and town of Massowah, where the vessels from Jidda and other ports call. The goods that are destined for the Abyssinian market are then carried to Arkeeko, where the kaifias or caravans assemble. From Arkeeko the kaifias journey in a southward direction, passing the Tartar mountains, and proceed to Dixan, the first Abyssinian town on that side, and thence to Adowa, the chief mart of trade in the kingdom of Tigre. [See ADOWA.] Arkeeko is about forty miles N. by E. of Dixan. and about 100 N.E. of Adowa, but the distance is much greater by the road or track which the kaifias follow. Arkeeko lies in a sandy flat country which stretches between the coast of the Red Sea and the foot of the Taranta and Assauli mountains, and is an important place. Its maritime region is not now under the power of the Abyssinians, but is occupied by native independent tribes, nomadic and predatory like those of the Arabs, and often at war with their Abyssinian neighbours. They are nominally Mohammedans, but are mainly Pachas, a Tartar tribe, who live in the island of Massowa, and pay no tithes. They are altogether of Tartar origin, and speak the Tartar tongue. The Hauri tribe occupy the country immediately to the south of Arkeeko, and when at peace they escort the kaifias between Arkeeko and Dixan. The town or village of Arkeeko is under the rule of a pachas, or native chief, who is himself under a sort of dependence on the aga or military governor of Massowa, which latter used to be appointed by the sherif of Mecca. The authority of the pachas extends to the boundary of the kingdom of Tigre. The territory of the Baharnagash, a dependency of the kingdom of Tigre, stretches to within twelve or fourteen miles W. of Arkeeko. Mr. Salt gives a very bad account of the people of Arkeeko: 'they are much worse than their neighbours of Massowa, who are themselves not so good as the worst of the Arabs.' The bay of Arkeeko is separated to the eastward by the Giddam mountain and promontory from Annesley's Bay, which stretches from Massowa to the island of Adula, which was formerly the maritime emporium of Abyssinia. [See ADULA; Salt's Abyssinia; Valentia's Travels.]

ARKLOW, a town in Ireland, in the barony of Arklow, county of Wicklow, 46 miles south of Dublin, on the road to Waterford. It is on the south bank of the Owen, or Avoca, about 500 yards from the sea, and has a main street, running nearly parallel to the stream, with a gentle descent towards the sea; this forms 'the Upper Town.' At the upper end of this is a barrack with a walled yard, connected with an old tower partly destroyed by Oliver Cromwell. Towards the lower end of this street, the road by the coast from Wicklow, which leads by a bridge over the Owen, enters the town. From about a little below this is the port of the town, consisting of mud cabins, built very irregularly. There is a handsome modern church, on a rising ground about the centre of the town, and a square chapel on an open and convenient spot in the Upper Town. The shore is skirted by a line of sand hills. Some steps have been taken to improve the haven, which is bad and little used, except by the fishermen. The herring fishery is small, and the herring are caught with lines and hands in each. In the intervals between the herring seasons, the men dredge for oysters on the beds off the coast; they carry their oysters to Liverpool, and bring back earthenware and coals. Their children in the mean time make nets. This fishery is of some importance. The town, which amounted in 1821 to 3808, and in 1831 to 4783. Arklow has a fever hospital and a dispensary. There are four fairs, at which are sold cloths and woolsen of different descriptions, also black cattle, pigs, &c.
The parish of Arklow is a rectory and vicarage in the diocese of Dublin, episcopally united from time immemorial to that of Drogheda, and parochially to those of Kilbride, Killaharrie or Kilmain, and Temple Michael, all contiguous. Besides the ruins of the castle above-mentioned, there were the remains of a monastery for Cistercian friars, which was suppressed, as we have already observed, by Richard Fitz William, fourth butler of Ireland (a former officer of state); but these are now removed.

In the rebellion of 1798, Arklow was the scene of a very severe contest. On the 9th of June, a body of insurgents, who were already given to be twenty thousand, of whom 4000 or 5000 carried guns, and 31,000 advanced against the town, which was defended by nearly 1600 men, under the command of Major-General Needham and Colonel Skinner, who were afterwards advanced to the number of 20,000. The insurgents successively fell upon each part of the town near the sea—the fishery, which consisted then, as now, of thatched cabins, inhabited by fishermen. The contest, however, was severest at the upper end of the town, and was maintained with great courage, the Durham Fencibles especially distinguishing themselves in the defense. Ultimately, about nightfall, the rebels were repulsed, and retired, without being pursued, towards Gorey, after suffering considerable but not well accredited loss. (Carisle's Top. Dict.; New Stranger's Guide; Musgrave's Memoirs of the Rebellion in Ireland; Gordon's Hist. of Ireland; Shaw Mason's Stat. Account of Ireland.)

Wrigley records that among those extraordinary men whose ingenuity has exerted a most powerful influence upon the condition of civilized society, was born at Preston, in Lancashire, on the 23rd of December, 1732. His father was a humble walk of life; and as he was the youngest of thirteen children, we may suppose that the amount of school learning which he received was exceedingly scanty. He was brought up to be a barber, an occupation which could afford but little promise of distinction, and it is probable that, had he continued to follow that business, the powers of mind which he exhibited, and to which his great success in life must be attributed, would have lain dormant, or might have been stifled by the petty cares attendant on that calling. Nevertheless, he at an early age broke away from the humdrum routine of circumstances which had occurred eighteen years before. One of the witnesses—the principal one—had been employed by Arkwright to assist in making the models for his machine, and, in order to induce him to leave the service of the real inventor, for whom he had previously made a similar machine. The combination against Arkwright which produced this trial was of a very powerful description, and without wishing to impute to anyone base motives, one can say without fear of perjury, it is at least probable that all were ready to listen to and to reward witnesses who were willing to aid their cause, without inquiring too nicely into the actual merit of their testimony. Of late, the case of a still earlier invention has been brought forward, to which no allusion was made upon the trial in 1785; a circumstance which makes it probable, that the memory of its true nature was at that time completely effaced from the public's mind, not only from from of Arkwright himself, then a very illiterate and ill-informed man, knew no more of this earlier invention than the rest of the world after attention had been directed to the subject for so many years.

Arkwright's contrivance was brought to light and published, and there can be no doubt that it contains the principle of Arkwright's patent to an extent which deprives him of the honour of having been the first inventor of his art. It equally deprives of that honour the men upon whose testimony Arkwright lost his cause. It cannot, however, be considered impossible, or even improbable, that two men should actually invent the same machine. Wrigley's contrivance had been tried in Birmingham and at Nottingham in 1741, but was found to be unsuccessful, that the machinery was sold in 1743, and it is not known what became of it. That twenty years afterwards Arkwright should have had more than a traditinary knowledge of Wrigley's plan is possible, since he drew up to be presented to Parliament in 1782, and which was printed and extensively circulated three years before the trial already alluded to, he makes mention of the fact in their correspondence. Charles Paul and others of London invented an engine for spinning of cotton, and obtained a patent for such invention; after

**Additional hands for preparing the cotton.** The limit to which this species of employment could be carried was soon reached, and we see the productive mode of spinning that by the one-thread wheel, then the only machine known, had not been discovered, the progress of the cotton manufacture must have been stopped, or at best would have been extremely slow. In the Manufacture, tells us, that at this time: "it was no uncommon thing for a weaver to walk three or four miles in a morning, and call on five or six spinners, before he could collect well to start the remainder of the day, and no advantage of the country. It bas been said that the cotton yarn then produced in England did not exceed in quantity what is turned off by 50,000 spindles at the present day, being about one hundred and fifth part of the number then in use. This case is far from being a clear advantage under the head of Cotton Manufactures, but some slight notice of the state of things preceding the great invention of Arkwright appears necessary, in order to show more clearly the advantage which the country has derived from his inventions.

It has been much the fashion to deprecate Arkwright's talents, and even to deny him altogether the merit of being an original inventor; and he bas sometimes been considered as a plagiarist or pirate of other men's ideas. If, however, the evidence is carefully weighed upon which it bas been attempted to convict him of this serious charge, we think it will be found to rest upon very slight grounds; while the proofs which we have given in which he bas been the first to take his direction in the order of the manufacturing of the vest concerns in which he was afterwards engaged, are unquestionable. The evidence brought forward upon the trial for repealing his patent in 1769 is not very conclusive, and nothing, however, of circumstances which had occurred eighteen years before. One of the witnesses—the principal one—had been employed by Arkwright to assist in making the models for his machine, and, in order to induce him to leave the service of the real inventor, for whom he had previously made a similar machine. The combination against Arkwright which produced this trial was of a very powerful description, and without wishing to impute to anyone base motives, one can say without fear of perjury, it is at least probable that all were ready to listen to and to reward witnesses who were willing to aid their cause, without inquiring too nicely into the actual merit of their testimony. Of late, the case of a still earlier invention has been brought forward, to which no allusion was made upon the trial in 1785; a circumstance which makes it probable, that the memory of its true nature was at that time completely effaced from the public's mind, not only from
being constantly invaded, and it is incredible, that, if he had possessed a knowledge of the particulars of Wyatt's pat-
tent, he should have thus drawn public attention to it, since he was not acting from a patentable machine, as the production of the specification would at once have deprived him of every ground upon which he attempted to establish his own rights as an inventor.

It was perhaps unnecessary on this occasion to enter at greater length into this matter, which, however, it was impossible to pass over unnoticed, considering how greatly the question of Arkwright's inventive talent has at various times been controverted. We shall now proceed in our ac-
count of the history of this man, on that occasion of his having been in reality what he represented himself to be, the inventor of the ingenious machine for which he obtained his patent.

In the course of his inquiries after some person qualified to assist him in making the movements for his first proj-
ected machine, which, as we have already said, was one for producing perpetual motion, Arkwright 'became ac-
quainted with a clockmaker, named Kay, then residing at Warrington, whose services he engaged and retained for
four or five years, first at Preston and afterwards at Not-
ttingham. The account which Kay himself gave of this connexon upon the trial in 1785, where he was the prin-
cipal witness, speaks the truest and most unanswerable
of his having been unjustly accused of felony.

From the year 1767, it appears that Arkwright gave him-
self up completely to the subject of inventions for spinning

cotton. In the following year, he went to Preston, and set
about manufacturing his spinning-frame, for which he
founded a dwelling-house attached to the free grammar-school of that town. At this time Arkwright's poverty was such, that, 'being a burgess of Preston,' he could not appear to vote during a contested election; the party with whom he voted gave him a decent suit of clothes. Shortly after,

apprhensive of meeting with the same kind of hostility which had a short time previously been shown to a man named

England, who also had invented a machine for reeling

labour in cotton-spinning, Arkwright left Lancashire to go to Nottingham. Here he made arrangements with

Mesers. Wrights, bankers in that town, for obtaining the

necessary supply of money; but these gentlemen, after a

short time, declined to continue their advances, and intro-
duced him to Mr. Need, a stocking-manufacturer of that

place, as a gentleman likely to enter into his plans. Mr.

Need was at that time in partnership with Mr. Jedediah

Sstrutt, of Derby, the ingenious improver and patentee of

the stocking-frame, whose opinion he naturally asked upon the occasion; and it is a remarkable fact, strongly corro-
borative of Arkwright's claim to be the original inventor,

that, although Mr. Strutt saw and at once acknowledged the

great merit of the improvement of Arkwright, of which the

inventor, from the want of mechanical skill, had been

unable, with all his powers of contrivance, to supply.

These defects were easily remedied by Mr. Strutt, and in

the year 1769 Arkwright obtained his first patent for spin-

ning with rollers, and Mesers. Need and Strutt became his partners in the manufacturing concerns which it was pro-

posed to carry on under it.

The improvement for which this patent was obtained con-

sisted principally in the use of two pairs of rollers, the first

pair slowly revolving in contact with each other; while the

second pair, at a little distance, was made to revolve with
greater velocity. The lower roller of each pair was fluted lengthwise, which Arkwright called 'the inside' or 

mechanism by which means the two would have a sufficient hold upon the cotton passed between them. The cotton, when passed through the first pair of rollers, had the form of a thick but very soft cord, and was no further altered in its texture than receiving a slight compression; but it is evident that, as the second pair of rollers moved with twice, thrice, or ten
times the velocity of the first, the cotton must be drawn out twice, thrice, or ten times as much, when delivered from the first rollers. In the year 1772, on the ground of Arkwright not having been the original inventor of the process, but a verdict was given in favour of the patent, which no one afterwards attempted to disprove.

The first mill erected for spinning cotton by this method was at Nottingham, and was worked by horse-power; but in 1771 another mill was built at Cromford, in the parish of Wirksworth, in Derbysire, to which motion was given by

water; from this circumstance the machine was called the wa-
ter-frame, and the thread received the name of water-twist.

Previous to this time no establishment of a similar na-

ture had existed in Great Britain, and the same system of

management was applicable; and it strongly mars the

judgment and mental powers of Arkwright, that although

the details of manufacturing or commercial business were

altogether new to him, he at once introduced a system of

arrangement, machinery, and work which had universal

ly been adopted by others, and which, in all its main features,

has remained unaltered to the present time.

The great invention, which has been very slightly de-

scribed above, has in its various applications and combina-

tions of machinery, for which a second patent was

obtained in 1775. His right to this patent was disputed in

1781, on the plea that some of the contrivances which it

comprehended were not original; and his monopoly was

invaded to such an extent by other cotton-spinners that to

maintain it he was obliged to bring actions against nine

different parties. The first of these actions was tried in

July, 1781, when he was not-suitcd, not on the ground

originally taken by his opponent, but because it was held

that the specification or description of the invention which

he had enrolled, did not comply with the terms upon which

the patent was granted, viz. that it should contain such a

full and particular description of the construction of the

machine as would enable the public to avail themselves of its advantages after the expiration of the term for which the monopoly was granted.

The result of this trial occasioned Arkwright not only to

abandon the other eight actions which remained to be tried,

but also, for a time, to give up his patent on his second patent. It was on this occasion that he drew

up and published a pamphlet, to which allusion has already been made, and which he called his 'Case.' The object of this pamphlet was to impress the unsophisticated mass of the legisla-

ture with the propriety of interfering for his protection.

Having in the beginning of 1785 obtained the testimony

of several competent persons in favour of the sufficiency of

his specification, Arkwright then commenced a new action, which was tried in the year 1787.

By this time, however, the number of persons interested in destroying that monopoly had greatly increased; on the faith of the former verdict the large cotton capitals had been embarked which would have been subjected to heavy de-

preciation if the patent could have been sustained, and ac-

corprisingly in a very few months an action was brought for

the cancelling the patent by a writ of e vice facias, nominally

at the suit of the crown, but actually prosecuted by the


cotton-spinners of Lancashire, who would have been liable to

penalties for continuing to use the invention. These

parties actually formed an association of cotton-spinners

and engaged scientific gentlemen to discover the
t

correct the defects of the patent and to arrange the
evidence for its overthrow. It was on this occasion that the

testimony of Kay was adduced to show that, previously to

the beginning of 1768, the principle of spinning with rollers

was understood by another person who was likewise brought forward to corroborate the fact, and upon this evidence the jury found a verdict for the crown, and thereby annulled the patent. A new trial was applied

for in the following term, on the ground that Arkwright had procured evidence to rebut that upon which the verdict was grounded, but the motion was refused by the court.

The opposition here described was not the only difficulty with which Arkwright was to contend from his oppo-

nents. Although the yarn which he made was so far

superior to that produced by the old method of spinning that it could be used for warp, they combined to discomfit

its use. A very considerable stock lay upon his hands, in conse-

quence, and he and his partners were driven to under-

take the conversion of this yarn into manufactured goods.

They first used it with perfect success in making stockings, and had, soon after, when they found the market as

they are made at the present day. But here another diffi-


cultly assailed them. Their orders for this description of

manufacture, then new to England, were exceedingly

great, but could not be complied with, on account of the demand on the part of the labourers for equal wages, by which

yard, as being calicoes similar to those imported, and upon

which a like duty was levied, while other English-made

cloths were subject to only half that rate. It was not until

application for relief had been made to parliament that this

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obstacle was removed, and a large accumulated stock of cloth was disposed of. On this occasion an act of parliament was passed, in spite of the strenuous opposition of the Lomonders, declaring that the manufacture of stuffs made entirely of cotton spun in this kingdom has lately been introduced, and some doubts are entertained whether it is lawful to use it, it is declared to be not only a lawful but a laudable manufacture, and is therefore entitled to payment in the same manner and at the same rate per square yard when printed, painted, or stained with colours.

Five years expired from the first establishment of the works at Cromford before any profit was realized, but after that time they continued to flourish beyond the expectations of the proprietors. The establishments were greatly extended, several new ones were formed, and, in many cases, Arkwright took a share with other persons in the erection and working of cotton-mills. This is the result of pitting the opinion of the courts in regard to his patent. For several years, the market prices of cotton twist were fixed by Arkwright, all other spinners conforming to his scale. The same quality of this article which now sells for about 3s. per pound, sold, in 1790, for ten times that price, and was as high as £ 1. 18s. per pound in 1756; and although a great part of this difference is no doubt owing to a progressive economy attained in the processes of manufacture, it is not without its bearing on the larger price makers, and has been exceedingly profitable to the spinner.

Mr. Arkwright was appointed high-sheriff of the county of Derby in 1786, and on the occasion of presenting an address of congratulation to the king on his escaping the attempt on his life by Macaulay, a man of distinction, received the honour of knighthood. Notwithstanding the increasing inconvenience which he experienced from a severe asthma, with which he had been occasionally afflicted from early life, Sir Richard continued to give the most unremitting attention to business, and superintended the daily operations of his large establishments, adding from time to time such improvements to the machinery as were suggested by experience and observation. He sunk at length under a complication of diseases, contracted if not produced by his sedentary habits, and died in his house at Cromford, on the 3d of August, 1792, in the sixtieth year of his age, leaving behind him a fortune estimated at little short of half a million sterling.

Considering the difficulties in which he was placed by the deficiency of his early education and the unfavourable tendency of his early employment, Arkwright must be acknowledg'd to have been a very extraordinary man. Even without claiming for him the honour of having been an original inventor,—an honour which, upon the best consideration we can give to the conflicting evidence brought forward, we are still inclined to award him,—we may certainly assign him a place of pre-eminence in the annals of human ingenuity, as well as the most unerring judgment. His plans were all laid with skill, and pursued with energy; he displayed the most unceasing perseverance in pursuit of his end, and a perseverance which would have borne down most men; and he forms one among the bright instances afforded by the annals of this country, that talent, when thus allied with patient energy and persevering industry, will not fail to ensure ultimate success to its possessor. (Library of Entertaining Knowledge; Baines’s History of the County of Lancaster; Godson’s Treatise on the Law of Patents.)

ARLES (Arelate, Caesar; ARGVduna, Strabo), a town in France, in the department of Bouches du Rhône, 458 miles S. from London through Lyon, Arles, Tarascon, Avignon, about 440 by Mende, Nimes, Beaucaire, and Tarascon, crossing the Rhône between the two last-mentioned towns. It is 75 miles by a circuitous route through Aix and Tarascon, from Marseille, the capital of the department, but by the road through the route, about 35 miles, the marshes near the coast. 43° 40' N. lat., 4° 35' E. long. from Greenwich.

The city is on the left bank of the Rhône, just at the point where it receives the river Gardonne, which encloses the marshy island of La Camargue, or Carmagane. It is in a district abounding in marshes and pools, which surround it on almost every side, and produce vapours which are carried to the city by the winds. But for this circumstance, it would be described as a very fertile country around, with its verdant meadows, presents some agreeable scenes; and the alleys of mulberry-trees make pleasant promenades.

The town itself is but ill built, with narrow, crooked streets, and old houses. A bridge of boats unites it with the suburb of Trinquetaille, on the opposite bank of the Rhône, and serves also as a place of resort when the inhabitants wish to enjoy a cooling breeze. There is a Gothic cathedral, which, it is said, was founded by St. Baudias, a bishop of Arles, A.D. 625, and partly by Cardinal Alphonse, one of his successors, in the 15th century. The portal is distinguished by sculpture of a grotesque and somewhat indecent character. The most striking modern edifice is the town hall, which was rebuilt after the design of the architect Mansard. It is of white stone; and its two façades (for it stands between two places, or squares) display three orders of architecture intermingled. There are several antiquities intended to set an exception to these several stones. The system of Arles on the banks of the Rhône gives it considerable advantages for trade. There is also a navigable canal, which runs through the marshy district on the left bank of the eastern or main channel of the Rhône, from Arles to the Port de Bouc, on the Mediterranean; and this canal, for the greater part of its course, runs nearly parallel to the main channel, and is about 10 miles from it. The corn, wine, fruits, manna, and oil of the surrounding country, find sale at Arles; and several manufactures are carried on, as of glass bottles, soap, silk, tobacco, and brandy. The sausages of this place are in high estimation among the inhabitants. It contains an academy, a college of navigation, a high school, a museum of antiquities, and a public library. Before the revolution there were many religious houses.

Arles is the capital of an arrondissement containing thirty-three parishes, and about 70,000 inhabitants. It was formerly the seat of an archbishop, who had for his suffragans the bishops of Marseille, Toulon, Orange, and St. Paul-trois-Châteaux—the remains of a much greater number of bishoprics ascribed to it. The sites of these cities are now joined with the province of Gallia Narbonensis. Other authors make it a Roman colony; and it was probably from the circumstance of some of the colonists belonging to the sixth legion, that it got the name of Arelate, which we have here written. Arelate is most common, but we find also Arelas, especially in the poets, Arelates (Ar-le-da, Strabo), and Arelatam (Argle-don, Polyen); and in later times, Arelatus. The city appears to have suffered considerably from the Allemann during the During the time of the Roman empire, but in the early part of the fourth century it rose to greatness and distinction under the patronage of Constantine the Great. This prince appears to have built the port of Arelate which lay beyond the Rhone, and which forms in the present day the suburb of Trinquetaille, in the island of La Camargue. He gave to Arles the name of Constantia, which it continued to bear in the time of Honorius (a century later), who transferred to it the seat of the provincial capital of Gallia, which had previously been fixed at Trieres.

The dignity of Arles survived the fall of the western empire. It was the residence of a king of the Visigoths, and a prefect of the exarch; kings of the Ostrogoths, who afterwars possessed property. It was afterward to the king of the Merovingian family, who became masters of Arles after the Ostrogoths, the city declined. In the ensuing period which succeeded, we find it described as a subject of the kingdom of Aries, sometimes of Burgundy; the duration and extent of which are subject to considerable doubt. Arles passed under the dominion of the emperors of Germany, but, by Boniface IX. of the Roman Curia, in 1214, a republic, governed by a chief entitled the Podestat, elected by the people. It had also a chief judge, the Vignier, appointed by the Podestat, and two Consuls, nominated by the
Archbishop, to take charge of the police. In a word, it appears to have become a municipal corporation; and under this constitution flourished to such a degree that its alliance was sought by Genoa and other commercial towns. Its independence was indeed overthrown, in the middle of the same century, by Charles 1. Count of Anjou (brother of Louis IX. of France, or St. Louis), who was recognized as Lord of Arles, in feudal subjection to the emperor of Germany. Above a century after, the emperor Charles IV., appointed the dauphin, afterwards Charles VI. of France, his viceroy in all the kingdom of Arles; and as the emperors quietly withdrew from all supremacy over it, the city, with its territory, came finally under the kings of France.

The antiquities of Arles are numerous and important; but the doubtful nature of some of the buildings, to which different names have been given, makes them apparently more numerous than they are, and occasions some difficulty in the description. There are the ruins of an aqueduct; of two temples, one supposed to be of Diana; of a triumphal arch; of a theatre, three columns of which make up what is called Tour de Roland; of a building, which is variously supposed to have been a temple of Minerva, a palace of Constantine (called Le Trouille), and the capitol or seat of the municipal legislature; of baths, the stores and galleries of which were discovered in digging for the foundation of the town-house and of the pedastal of the obelisk; and of urns, lacrymatoryia (sea-bottles*), patens, lamps, and other utensils which have been obtained from the tombs. Three remains deserve a more extended notice: the obelisk, the amphitheatre, and the ancient cemetery, called the Campus Elysius (Elysian Fields), or, by corruption, Eliscamp.

Originally of one piece, but when dug out, was found to be broken at the point; the broken part was discovered in another place. Its dimensions are about fifty-five English feet high, and the base is about seven feet and a half square. It rests on four lions couchant at the four corners: the lions lie on a low table covered with a sculptured incrustation, and are high, and has on its four sides Latin inscriptions, containing the most fulsome panegyrics on Louis XIV., to whose honour the obelisk was erected. The summit was crowned with a rosette, and with three figures of Victory, the largest of which is nearly nine feet high, and has on the ensign of Le Grand Monarque. Whether these emblems of royalty have survived the fervours of the revolution, we have not been able to ascertain; but the obelisk itself, which is the only ancient part of the monument, maintains its place.

Of the amphitheatre, the circular part remains, although blocked up with houses, are sufficient to convey an idea of the former grandeur of the edifice. It consisted of three stages, the lower of which, owing to the uneven surface of the site, was for the most part under ground, except on the north and north-east, where several arches appear above ground. The inequality of the site, by thus concealing or burying the greater part of the first stage, made it necessary to place the principal entrances on the second, which contains sixty arches (including the four principal entries), the number which is also in the third stage. The parapet which surrounded the third stage has disappeared, and it is impossible to say of what kind that part of the architecture was in its original order. The rows of seats which surrounded the arena (see Amphitheatre) have almost entirely disappeared, and the space which they once occupied, as well as the arena itself, is filled with sand to the level of the second stage, and covered with houses. Three towers have been built during subsequent wars. The once open arches of the outer wall have also been built up, and the exterior defaced and hidden by houses erected against it. This amphitheatre is built of stones, inferior in hardness and whiteness to that of the amphitheatre at Nimes: it is less perfect than that edifice, but was capable of holding about five thousand more spectators.

The principal dimensions are thus given in Guiz' Description des Arènes or de l'Amphithéâtre d'Arles. 1665:

<table>
<thead>
<tr>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circumference of the oval</td>
<td>1265 or 1245</td>
</tr>
<tr>
<td>Longer diameter, N. to S.</td>
<td>466</td>
</tr>
<tr>
<td>Shorter do. E. to W.</td>
<td>441 or 338</td>
</tr>
<tr>
<td>Longer do. of the arena</td>
<td>249 or 246</td>
</tr>
<tr>
<td>Shorter do. do.</td>
<td>126 or 124</td>
</tr>
</tbody>
</table>

Breadth from the outer wall to the parapet of the arena across the benches | 110 or 109

Number of persons whom the amphitheatre would contain, above 23,000.

The measurement of the circumference given in Le Grand Dictionnaire de Martinide rather exceeds the above; and he gives the diameter of the arches in about 338, thus above twenty-one English feet, the width as eighteen or nineteen. He adds that the walls are above two toises or about thirteen English feet thick, formed of massy blocks of stone without lime or cement to unite them; and that the amphitheatre would conveniently hold 30,000 persons.

Excavations have been made in the amphitheatre within a few years, and many antiquities discovered.

The cemetery of Campus Elysius is on a pleasant hill out of the city. It divided into two parts. On the first of these, called Moulartre (from which is a beautiful prospect), the ancient monumental stones have mostly been carried away to present to different individuals, or broken up to be used as building materials; but there still called Eliscamp, contains several tombs, those of the Pagans being distinguished by the letters D M (Dés Morts), and those of the Christians by a cross. The same causes which led to the removal of nearly all the tombs of the other parts, materially diminish those in Eliscamp.

An ancient statue, which is called by Martinide and others a statue of Venus, but which an old writer, François de Rebato, Dean of the See of Arles (in a tract bearing date 1659), and the writer in the Encyclopédie de Malthus, describe as a statue of Diana, was dug up in 1651. It was found in digging a well, in several pieces; and has been

* These dimensions are to be considered as approximations rather than as rigidly exact; for the two columns, though both taken from the same source, being reduced, one north and one south (the ruins are not parallel, and the penis are b in French), and the other from French tomes, feet, and inches, do not agree.

Obelisk of Arles.

The obelisk decorates one of the squares next to the town-hall. The time when it was brought to Arles and the other circumstances attending its transport are unknown. It is of granite; similar to that of the obelisks which were carried from Egypt to Rome, but is without any hieroglyphics. It appears never to have been set up in antique times, but to have lain where it was placed on being landed. For many ages, it was buried in the earth in the garden of a private individual; it was discovered in 1388, but in 1675, under the direction of the town-council, was brought from its concealment, and raised on a pedestal. It was so called on account of their supposed use; considered by others to have been intended for perfumes.
much admired. It was restored and transferred in 1864 to
the gallery at Versailles, and subsequently to the gallery of
the Louvre.

It is supposed that the country round Arles was by no
means so marshy in the time of the Romans; the obstacles
were then got over by means of the sea or into the
channel of the Rhône having arisen since.

The people of Arles are considered to have retained more
than those of most other towns of the manners of antient
times. One instance of their adherence is far from credit-
able: their Rights were kept up both till a comparatively late
period. Horse and foot races are still practised. The beauty,
grace, and gentility of the women are much praised.

Arles was the native place of the Emperor Constantine II.
son of Constantine the Great; of Mary of Arles, a Catho-
licist; and of Savieren, a mathematician and biographer
of some merit. (Le Grand Dictionnaire de Martinetière;
Géographie de la France; Encyclopédie Méthodique;
&c.)

ARLON (the Roman Oroolaimum), a small town in the
Duchy of Luxembourg, belonging to the King of the Ne-
thelands, in 40° 44' Lat., and 5° 47' E. long. It stands
on a hill, near the sources of the Semoy, a branch of the
Maas, fourteen miles W.N.W. of the town of Luxembourg,
and between that and the town of Neufchatel. Its popu-
lation is about 3,600. It has some iron works and furn-
ces, a considerable corn trade, and linen and woollen
manufactures. Arlon was once a town of considerable im-
portance; it was fortified, and was taken by the French
and the Spaniards in the wars of Louis XIV. It was
entirely destroyed by a fire in 1785. Arlon was the
birth-place of the two learned brothers Busleyden,
one of whom became cardinal and archbishop of Toledo in
1477; the other was an historian and the founder of the
College of the three languages at Louvain.

ARMA'DA. This term, which is derived from the Latin
word armata, 'armed,' and consequently from the
same root as the French armes and our arms, is used in
Spain to denote exclusively a naval armed force, or fleet
of war. Nota is used in the same language for a fleet of
merchant men. Armado, which occurs in Shakspere's
King John, act iii. sc. 4, Sandy's Travels, p. 51, &c. is
corrupted from the French, and answers to an armée (see Travels, i. 79.)

'Spread was the huge armado wide and broad.'

Ben Jonson, however, writes it correctly, Armada.

Nares, in his Glossary, thinks that this word was not
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consisted, at this time, of 130 vessels: 65 of these were galleons
and larger ships; 25 were ship-built ships; 19 tenders;
13 small frigates; 4 were galleasses; and 4 galleys. The
soldiers on board amounted to 19,295, the mariners to 4850;
of these, 3330 soldiers and 1293 mariners had been supplied by
Portugal; besides which, those in the galleasses amounted to 1200,
and those in the galleys to 888. There were also on board 2431 pieces of artillery, and 4575 quintals
of powder: 247 of the pieces of artillery had likewise been sup-
plied by Portugal. Two thousand volunteers of the most
distinguished families in Spain, exclusive of the sailors and
soldiers already mentioned, are stated to have accompanied
the expedition.

Philip's preparations, in the Netherlands, of a further
force, were not less advanced than those of Spain. Besides a
well-appointed army of 30,000 foot and 4000 horse, which
the Duke of Parma had assembled in the neighbourhood of
Nieupoort and Dunkirk, that active general had provided a
number of flat-bottomed vessels, fit for transporting both
horse and foot soldiers, and light galleys for carrying them from the
towns in the Baltic. Most of these vessels had been built
at Antwerp; and, to prevent the Dutch from intercepting
them should they pass by sea, they were sent along the
Scheldt to Ghent, thence by the canal to Bruges, and so to
Nieupoort, where the Dutch flag was hoisted for convoy.

This laborious undertaking, in which several thousand
workmen had been employed, was already finished, and the
duke now only waited for the arrival of the Spanish fleet;
hoping that, as soon as it should approach, the Dutch
and English ships, which cruised upon the coast, would retire
into their harbours.

The details of the regular force which the English assem-
bled to oppose the Armada, both on land and at

dune or into the

channel of the Rhône having arisen since.

The people of Arles are considered to have retained more
than those of most other towns of the manners of antient
times. One instance of their adherence is far from credit-
able: their Rights were kept up both till a comparatively late
period. Horse and foot races are still practised. The beauty,
grace, and gentility of the women are much praised.

Arles was the native place of the Emperor Constantine II.
son of Constantine the Great; of Mary of Arles, a Catho-
licist; and of Savieren, a mathematician and biographer
of some merit. (Le Grand Dictionnaire de Martinetière;
Géographie de la France; Encyclopédie Méthodique;
&c.)

ARLON (the Roman Oroolaimum), a small town in the
Duchy of Luxembourg, belonging to the King of the Ne-
thelands, in 40° 44' Lat., and 5° 47' E. long. It stands
on a hill, near the sources of the Semoy, a branch of the
Maas, fourteen miles W.N.W. of the town of Luxembourg,
and between that and the town of Neufchatel. Its popu-
lation is about 3,600. It has some iron works and furn-
ces, a considerable corn trade, and linen and woollen
manufactures. Arlon was once a town of considerable im-
portance; it was fortified, and was taken by the French
and the Spaniards in the wars of Louis XIV. It was
entirely destroyed by a fire in 1785. Arlon was the
birth-place of the two learned brothers Busleyden,
one of whom became cardinal and archbishop of Toledo in
1477; the other was an historian and the founder of the
College of the three languages at Louvain.

ARMA'DA. This term, which is derived from the Latin
word armata, 'armed,' and consequently from the
same root as the French armes and our arms, is used in
Spain to denote exclusively a naval armed force, or fleet
of war. Nota is used in the same language for a fleet of
merchant men. Armado, which occurs in Shakspere's
King John, act iii. sc. 4, Sandy's Travels, p. 51, &c. is
corrupted from the French, and answers to an armée (see Travels, i. 79.)

'Spread was the huge armado wide and broad.'

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unequal fight, contented himself with harassing the Spa-
niards on their voyage, and with watching attentively all
the advantages which might be derived from storms, cross-
winds, and other accidents. It was not long before he
discovered the Spanish galleon of three deckers under
admiral Recaldo. This he did in person; and on that oc-
casion displayed so much dexterity in working his ship,
and in loading and firing his guns, as greatly alarmed the
Spanish crew, who were taken by surprise that the
English kept closer to each other; notwithstanding which,
the English on the same day attacked one of the largest
galleasses. Other Spanish ships came up in time to her relief,
but in their hurry, one of the principal galleons, which
had been in company with the others before those from
another ship, and lost one of her masts. In consequence of
this misfortune she fell behind, and was taken by Sir
Francis Drake; who, on the same day, took another
capital ship, which had been accidentally set on fire. Se-
veral other encounters happened, and in all of them the Eng-
lish proved victorious. Their ships were lighter, and their
sailors more dexterous, than those of the Spaniards. The
Spanish guns were planted too high, while every shot from
the English proved effectual. The Spaniards, however,
still continued to advance till they came opposite to Calais,
where the Duke de Medina, having ordered them to cast
anchor, sent information to the Duke of Parma of his arrival,
and directed him to send the largest squadron of his force.
But the duke, though he embarked a few of his troops, in-
formed Medina that the vessels which he had prepared
were proper only for transporting the troops, but were utterly
unfit for others. The English, by this reretreat on the part of
his enemy, brought nearer, and the coast cleared of the Dutch
ships which had blocked up the harbours of Nieuport and
Dunkirk, he could not stir from his then station (at Bruges)
without exposing his army to certain ruin. In compliance
with this request, the Armada was ordered to advance; and
it had arrived within sight of Dunkirk, between the English
fleet on one hand and the Dutch on the other, when a sud-
den calm put a stop to its motions. In this situation the
fleets remained for a whole night, and on the morrow at
night of August the 7th a breeze sprung up, and Lord
Howard had recourse to an expedient which had been
planned the day before. Having filled eight ships with
pitch, sulphur, and other combustible materials, he set fire
to them, and sent them before the wind against the different
divisions of the Spanish fleet. The Spaniards beheld these
ships in flames approaching them with great dismay: the
darkness of the night increased their terror, and the panic
soon prevailed through the fleet. The crews of the different
vessels, anxious only for their own preservation, thought
nothing but to escape from immediate danger. Some
weighed their anchors, whilst others cut their cables, and
suffered their vessels to drift away. The English, by a
fusion many of the ships ran foul of one another, and
several of them received such damage as to be rendered
unfit for future use.

When night returned, Lord Howard had the satisfac-
tion to perceive that his stratagem had produced the desired
effect. The enemy were still in extreme disorder, and their
ships widely separated and dispersed. His fleet having re-
ceived a great augmentation by the ships fitted out by the
nobility and gentry, as well as by those of Lord Seymour,
who had left Juan de Nasseau as alone sufficient to guard
the coast of Flanders, and being vigorously seconded by Sir
Francis Drake and all the other officers, he hastened to
improve the conjuncture, and attacked the enemy in different
quarters at the same time with the utmost impetuosity and
ardour. The engagement began at four in the morning of August the 8th, and
lasted till six at night. The Spaniards in every rencontre
displayed the most intrepid bravery; but, from the causes
already mentioned, did little execution against the English,
while many of their own ships were greatly damaged, and
ten of the remaining were either run aground, sunk, or com-
pelled to surrender.

The principal galleass, commanded by Moncada, having
Manriquez, the inspector-general, on board, with 300
mule-galley-slaves and 400 soldiers, was driven ashore near
Lyme. Five of those cast ashore were taken by the English.
One of the capital ships, having been long battered by an
English captain of the name of Cross, was sunk during the
engagement. A few only of the crew were saved, who
related that one of the officers on board having proposed to
surrender, he was killed by another who was enraged at his
proposal; that this other was killed by the brother of the
first; and that it was in the midst of this bloody scene that
the ship went to the bottom. The fate of two other of the
vessels of the same sort is described by Conti, the confidant
of money and other officers, who were slain, and three
more were captured and brought to England.

The Duke of Medina now not only despaired of success,
but saw clearly that by a continuance of the combat he
should risk the entire destruction of his fleet. The bulk of
his vessels rendered them unfit not only for fighting but
for navigation. He had therefore determined to abandon the
further prosecution of his enterprise; yet even to get back to Spain was difficult: he resolved, there-
fore, to sail northwards, and return by making the circuit of the
British isles. Lord Seymour was detached to follow in
his rear, but from the bad supply of ammunition which he
had received from the public offices, was deterred from
renewing an attack which, in all probability, would have led
to the Duke de Medina's success.

A dreadful storm arose, after the Spaniards had rounded
the Orkneys, and the whole fleet was dispersed. Horses,
mules, and baggage, were thrown overboard to lighten a few
of the vessels; and the rest of the ships were dashed to pieces
on the rocks of Norway, on the coasts of Scotland and the
North Sea; others were thrown upon the coasts of Scotland
and the Western Isles—the wreck of one being still visible,
it is said, at Tobermory, in the Isle of Mull; and more than
thirty ships were stranded on the coast of Ireland, from
them the west, on different parts of the coast of Ire-
land. Port na Spagna, on the coast of Antrim, near the
Giant's Causeway, obtained its name from this circum-
stance. (See 2d, p. 326.) In the night of September 5th,
these, some afterwards reached home in the most shat-
tered condition, under the vice-admiral Recaldo; others
were shipwrecked among the rocks and shallows; and of
those which reached the shore many of the crews were
starved to death, and the rest were conducted to one place
and another, and exchanging their situation with those
who had escaped, it is supposed that in the course of the
war a number of the enemy, and others put to the sword by
command of the lord-deputy; for he, fearing lest they
would join with the Irish rebels, and see-
ing that Bingham, governor of Connaught, whom he had
once or twice commanded to show rigour towards them as
they yielded themselves, had refused to do it, sent Fowl,
deputy-marshal, who drew them out of their lurking-holes
and hiding-places, and beheaded about two hundred of them.

The Duke de Medina having kept to the open seas,
escaped shipwreck on the coast of the United Provi-
ced, arrived at Santander in the Bay of Biscay about the end
of September, with noe more than sixty soyle oute of his
whole fleet, and those very much shattert.

This day of the 17th was reckoned a great loss upon the
coast of England to have amounted to fifteen ships and
above 10,000 men, besides seventeen ships and 5394 men
sunk, drowned, and taken upon the coast of Ireland.

The statements, however, published at the time apparently
upon authority, say. 'In July and August, ships 15, men
4791; sunk, &c., upon the coast of Ireland, 17 ships, 5394
men;' making a total of 32 ships, and 10,185 men.

There is a very curious work relating to the Spanish Ar-
mena preserved among the Liber Linense, at the Lin-
neum; a volume of extreme rarity, which was finished at
Oporto, 1588, where the fleet was in the port of that
place prepared for the expedition, entitled La Ferretera
Armada, y el Don Felipe nuestra Sefior mandó zarpar en el puerto de la Ciudad de Lisboa, en el Reyno de Portugal, el día de mil y quinientos y ochenta y ocho; hecha por Pedro de Paz Salas, fol. Lib. 1583; and Antonio Alvarez,
Imprime. This copy in the King's Lib. is dated 'the 22d,
One of which was said at the time of its publication for
Lord Burghley, to acquaint him with the true detail of all
the preparations; and he has noted in his own hand, in the
margins of different pages, a variety of particulars relating
to the expedition, besides a number of names of the
commanders of one Spanish vessel to another different
vessel. The following are a few of Lord Burghley's notes:—
Galeon S. Philippe; ' taken at Flushing, 31 July.
D. Francisco de Toledo; ' this man escaped into Nuropt.
La Nao Capitana; ' this ship was taken by Sir Francis Drake.' El Gran Grifo Capitana; 'this man's ship was dashed to pieces, in the Is. de Fanfare, Scotland or Barca de Amburg; 'she was drowned over against Ireland.' San Pedro Mayor; 'wrecked in October, in Devonshire, near Pimmouth.' La Galesa Capitana nombrada S. Lorenzo; 'this was drowned afoer Cabo Santa Maria.' It perhaps need not be necessary to give an explanation of the lord-deputy's barbarous conduct in Ireland. Members of some Irish families were on board the Spanish fleet; — Admundo Estacio; 'brother to James Estacio, Viscount Binteran, in the Province of Oconore.' Tristan Vindlage; 'Wynland.' Ricardo Bre- vey, Roberto Laseo, Christoval Lombardo; 'of Mouster.' The copy of this work in the Royal Library, from which a part of the text of the earlier part of the present treatise has been printed, is accompanied by twelve views of parts of the coast of England, showing the different situations of the Spanish Armada and the English fleet through the whole of the contest. This also, which is a separate work, is of very rare occurrence, entitled Expiditionis Hiberniis in Anglicam Vera Descriptio, Anno Do. MDLXXXVIII. published by Robert Adam, and engraved by Augustine Ryther. The different actions and positions represented in these charts are all accurately represented in a greatly reduced form, printed by A. Mott, Field in 1590, and sold at Augustine Ryther's shop, entitled A Discourse concerning the Spanish Fleet invading England in the yeere 1588,—a copy of which is also preserved in the library of the British Museum.

I will also give the text of the annexed chart, viz. Whereupon several monies were coined, some in memory of the victory, with a fleet flying with full sails, and this inscription, Venti, vidi, fugi; 'It came, it saw, it fled;' others in honour of the Queen, with re-ships in the sea, will be found in the Histoire Mddicale des Pays-Bas, tome i. p. 383-386; and in Pinkerton's Medicall History of England, pl. vii. no. 7, 8; pl. ix. no. 1, 6.

Philip II. published two jettons, with the inscription, Immensus Tremor Oceani, 1587 and 1588.

It is usually said that the circulation of an English newspaper first began in 1588, when The English Mercury was published by authority for the prevention of false reports. Concerning Mercure de France, for the year 1587, printed at London, 23d. July 26th, and Nov. 24th, are preserved among Dr. Birch's historical collections in the British Museum; but as they are marked as Nos. 56, 51, and 54 in the corner of the margin, it is evident that such publications had occasionally been resorted to at critical times, much anterior to the event of the Spanish Armada.

The chief details in the preceding account have been drawn from Camden's History of Elizabeth; Strype's Annals of the church; Elia's Original Letters; and Watson's History of Philip II.

ARMADILLO (Dasypus, Linneus), in zoology, a genus of mammals belonging to the order Edentata, and forming, with the allied genera Chinchilla and Chrysochis, a small but very distinct family intermediate between the sloths and ant-eaters, and characterized by the possession of molar teeth only. The sloths, on the contrary, as has been shown in the article Ate, have not only the ordinary molar teeth, of the speaking kind; they are likewise provided with large and powerful canines; though, as far as we know anything of their economy, they appear to be a purely herbivorous family, and to be even incapacitated by other details of their structure for the consumption of a living prey; whilst the ant-eaters, as we have seen under that article, are not only deprived of canine, but likewise of molar teeth; consequently, are without teeth of any description of any kind. The family of the order Edentata is remarkable for that literal answers to the name and definition. Nor are these the only distinctions which subsist between the three families of edentatus mammals which we have here indi-

atted. Others have already pointed out in the articles just referred to, and it will suffice to mention, in addition, that the ant-eaters differ from the other two families by the want of claws, a most important and influential element in the external structure of all vertebrated animals, and the armadillos, the more immediate subject of our present consideration, by the peculiar nature of their external covering. 'When we speak of a quadruped,' says the eloquent Buffon, 'we immediately carry with it the idea of an animal covered with hair, as that of a bird or a fish suggests the corresponding ideas of feathers or scales respectively, as attributes inseparable from these beings; yet nature, always more fertile in her resources than we are, has adorned this order with as curious, and as rich a structure as escapes at every moment from our most extensive observations, and astonishes us by her exceptions, still more than by her general laws.' A remarkable instance of the truth of these words is the following; and it is particularly interesting to us, because it is the first time that we give to the public our own observations. The legs which we are about to consider. Instead of hair, the armadillos are covered with a species of hard bony crust, forming three bucklers on the head, shoulders, and rump, respectively, the latter being connected by a number of transverse moveable bands, very similar in form and structure to the plate armour of the middle ages, from which indeed these animals have acquired the name of armadillos, a name of Spanish origin, which has been adopted by English writers. These bucklers are connected with the soft skin of the rest of the animal as to form an effectual protection to the belly, and partially to cover the legs and feet; whilst the pliancy produced by the movable bands interposed between the bucklers of the rump and shoulders, and which are themselves covered and ground by a series of small teeth or spines, permits a more rapid motion. The bucklers themselves, as well as these connecting moveable bands, are composed of numerous small polygonal plates, placed contiguous to one another like the transverse ribs of a beam, but without the slightest articulation, and they are incapable of separate motion. The whole thus forms a kind of shelly buckler not unlike that of a lobster; and though incapable of actual motion, yet the thinness of the shell, and, during life, the pliancy occasioned by the animal, enable it to accommodate itself to a certain degree, and thus to accommodate itself in some measure to the motions of the body. But the great and principal motions, as already observed, are entirely due to the moveable transverse bands, or the forcible and rapid motions of the body, and which vary in number according to the species, and even within certain limits according to the age, sex, or individual. These are situated immediately above the loins, or in the region to which all the principal motions of the animal economy have been assigned; the bucklers of the head and shoulders are entirely disunited, and have none of these moveable bands interposed between; but that of the head projects considerably beyond the point of the scapula, and is the more distinctly marked, which is indeed so short as to be barely distinguishable. We have in former articles had repeated occasion to speak of the megatherium, and to point out the analogies which that singular extinct animal bore to the sloths and ant-eaters. Here again we have a point to itself in the character and point of view, and in fact it appears to have been a kind of connection between the most opposite and incongruous animals, and to have had a more or less intimate relation to every known genus of Edentata. It was but very lately, however, that we had reason to suspect that it presented any very close affinity to the armadillos in particular, other at least than the general want of teeth, which forms the distinguishing character of the order to which both these genera belong; but the recent discovery of fossil bones of the megatherium in the republic of Buenos Ayres has made us acquainted with a new and unexpected analogy between these animals.

The bones of the head of this singular animal are very different from those of a buckler, of very large dimensions, manifestly belonging to the same animal, and perfectly similar in structure and appearance to those of the armadillos. This discovery was alone worthy of notice in the memoirs of the most remarkable inhabitant of the antediluvian world. The throat, breast, belly, and thighs, of the armadillos are naked, or covered with a thick granulated skin, thinly covered with down. The hoofs are small, and nearly round, but as a whole they are quite flat, and are provided with a number of long hairs; but with this exception, the body is covered only by its peculiar shell. The tail is straight, round, thick, and pointed: it is adapted, at the root, to a
notch or cavity in the posterior edge of the bucker of the group, and, with the exception of one species, is uniformly occupied. With many legs, the bucker of the armadillo, of numerous small pieces connected together, but capable of a certain degree of motion, and thus admitting of considerable flexibility in the tail itself. The head of the armadillo is flat, and terminated by a pointed snout. Its snout is more like that of a mole, to turn up the earth in search of roots and worms. Their ears are erect and pointed, and their eyes very small. They have flat, coriaceous bodies; and their legs are so disproportionately large that in some of the species they are capable of elevating the body above the surface of the ground. Their toes, also, of which there are either four or five on the ante- rior and invariably five on the posterior extremities, are remarkably short, but they are furnished with extremely long powerful claws. Their teeth are not adapted for digging or burrowing. So rapid indeed are the armadillos at this operation, that they easily bury themselves to any depth beyond the reach of their pursuers. They can only be forced from their subterranean retreat by directing smoke or water into their burrows: their strength and the tenacity of their hold are so great, that they have been known to leave their tails in the hands of the hunter, rather than permit themselves to be captured. Yet, shortness of their legs, and the heavy corporeal make of their bodies, the armadillos run with a velocity which could not be anticipated from their general appearance. Most of the species will easily outstrip a man until it is awesome to consider the ratio of the run to the size of the animal. The forefeet of these animals average from three or four feet, at an angle of about 45° to the plane of the horizon, then make a sudden bend, and terminate at the distance of eight or ten feet from the mouth. Here, for the majority of species, the number of young is two: for the greater number of the species, and for the greater number of the species, are neither so swift nor so timid as the nocturnal species.

The teeth of the armadillos are all of a simple cylindrical form, and stand apart from one another like those of the general class of carnivora. There being six or seven in number, from seven or eight to seventeen or eighteen on each side of each jaw; and so are arranged, that when the mouth is closed, the upper teeth fit into the interstices of the lower, and these into the interstices of the upper teeth alternately. The animals never attempt to bite, nor has nature given them any other means of defence than the ease and rapidity with which they avoid danger by burrowing. Their food consists principally of fallen fruits, roots, and worms; but their very destructiveness to the eggs and young of such birds as build their nests on the ground, and greedily devour worms, frogs, armad lizards, and, M. d'Azara says, even viper. The chief animal food of the armadillos, however, is de- rived from the immense herds of wild cattle which cover the plains, and the numbers, that are to be met with in South America. These are rarely slaughtered but for the sake of the hide and tallow; and as the caresses are left to rot on the pampas or plains, the smell soon attracts vast crowds of cattle. Their ordinary interments, therefore, consist of great numbers of armadillos, which greedily devour the half-putrid flesh, and soon become extremely fat and corpulent. In this condition, notwithstanding the filthy nature of their food, their flesh is esteemed a great delicacy, both by the native Indians and by the Portuguese and Spaniards of America. The animal is roasted in its shell, and considered one of the greatest dainties which the country produces.

The armadillo consists of a ring of bony plates for the protection of the bucker, of numerous small pieces connected together, but capable of a certain degree of motion, and thus admitting of considerable flexibility in the tail itself. The head of the armadillo is flat, and terminated by a pointed snout. Its snout is more like that of a mole, to turn up the earth in search of roots and worms. Their ears are erect and pointed, and their eyes very small. They have flat, coriaceous bodies; and their legs are so disproportionately large that in some of the species they are capable of elevating the body above the surface of the ground. Their toes, also, of which there are either four or five on the anterior and invariably five on the posterior extremities, are remarkably short, but they are furnished with extremely long powerful claws. Their teeth are not adapted for digging or burrowing. So rapid indeed are the armadillos at this operation, that they easily bury themselves to any depth beyond the reach of their pursuers. They can only be forced from their subterranean retreat by directing smoke or water into their burrows: their strength and the tenacity of their hold are so great, that they have been known to leave their tails in the hands of the hunter, rather than permit themselves to be captured. Yet, shortness of their legs, and the heavy corporeal make of their bodies, the armadillos run with a velocity which could not be anticipated from their general appearance. Most of the species will easily outstrip a man until it is awesome to consider the ratio of the run to the size of the animal. The forefeet of these animals average from three or four feet, at an angle of about 45° to the plane of the horizon, then make a sudden bend, and terminate at the distance of eight or ten feet from the mouth. Here, for the majority of species, the number of young is two: for the greater number of the species, and for the greater number of the species, are neither so swift nor so timid as the nocturnal species.

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thus attacked, has the faculty of rolling itself up in a round ball like a hedge-hog, but they are generally timid and extremely helpless, and none ever attempt to defend themselves either by using their teeth or claws.

Up to the year 1801, the period of the publication of Don Feliz Azara’s *Essays on the Natural History of the Quadrupeds of Paraguay*, a work invaluable for the numerous original and acute observations which it contains upon this department of zoology, the various writers upon this subject had distinguished the different species of armadillos from one another by the comparative number of the movable bands which separate the bucklers of the crown and shoulders. Azara, however, showed that the number of these bands is by no means, as had been heretofore supposed, constant in the same species, but that within certain prescribed limits this number varies invariably according to the shape and size of the individual, and consequently that it is necessary to seek in other characters for more definite and certain means of distinguishing the species. ‘Of all the species,’ says this author, ‘which I have described, I have had individuals of the second, fourth, and seventh, with both six and seven bands each; of the fifth I have seen individuals with six, seven, eight, and even nine bands; of the sixth with five, six, and seven bands; and although, having encountered but few individuals of the other species, I cannot affirm the same thing so positively of them, yet I have no doubt but that they are subject to the same variation as the others.’ These observations of Azara have rendered it necessary to look for other and less variable characters of specific distinction; and accordingly Baron Cuvier, for greater facility of description, has divided the whole genus into five small groups, principally distinguished from one another by the number and form of their teeth and claws. After the example of Buffon, he and other French zoologists employ the name of *tatus*, or *tatou*, by which these animals are distinguished among the Guaraní Indians, the aboriginal inhabitants of Paraguay and the southern provinces of Brazil, instead of the more common and certainly more appropriate name of *armadillo*, by which they are known to English and Spanish writers. The first of Baron Cuvier’s subdivisions:

1. *The Cachichames,* have four toes on the anterior and five on the posterior extremities, seven teeth only on each side both of the upper and lower jaw, a pointed muzzle, and a long tail, surrounded by a succession of ossuous rings, each of which is composed of a number of polygonal plates arranged in numerous series. The two middle claws are excessively large and of equal length; the lateral, particularly the internal, which represents the thumb, are much shorter, but all are powerful, trenchant, and well fitted for burrowing. This division belongs

2. *The peba* (*D. peba*, Desmarest), called by the Guaranís *tatuouhou*, or *black tatu*, is extremely common in Paraguay, though it does not extend to the province of Buenos Ayres. This species is well figured in the original edition of Buffon’s celebrated *Histoire Naturelle*, and described by Dumeril under the name of *D. peba*, a name, according to Guillaume, is the generic name of the armadillos among

the Indians on the banks of the Orinoco: Azara calls it the black armadillo, from its Guaraní name; and it has been admitted that the species conforms to the somewhat ambiguous appellations of *Dasypus novemcinctus, D. octocinctus*, and *D. septemcinctus*, three different species being thus formed from the same animal, under the erroneous supposition that the number of the bands between the bucklers of the shoulders and crown was variable in the same species.

The length of the peba, from the snout to the origin of the tail, is about sixteen inches, that of the tail fourteen, and in circumference of the tail at the base in inches, about two feet, long and straight; the nose extremely elongated, taper, and terminated by a sort of small muzzle something resembling the snout of a hog; the mouth is large; the eyes small, and placed on the sides of the head; the nostrils close together; the tail long and attenuated; the legs short; and the feet small. The buckler of the shoulders extends in front over the whole neck, and towards the rear as far as the back, descending on each side to the elbows. It is composed of small pieces adhering to one another, and disposed in numerous parallel concentric rings, having the concavity towards the front, the first ring embracing the neck of the animal. The buckler of the crown extends from the back to the origin of the tail, and descends on each side to the knees. It is composed, as in the former case, of small pieces arranged in a great number of parallel concentric rings, passing transversely over the hips, but having their concavity turned in the opposite direction. The rings forming the shoulder are of a much larger size, and each one emerging in such a manner that the last embraces the root of the tail. When viewed externally, the little pieces composing these bucklers have the appearance of irregular tuberces, but when examined on the under side of the buckles they are formed by very numerous as those of the cells of bees, and fitted as precisely to one another. Between the bucklers of the shoulders and crown are interposed a variable number of transverse movable bands marked with zigzag lines from side to side, and in some degree gliding over one another according to the different motions of the animal. Out of fourteen individuals examined by Azara, there were two with six of these movable bands, one with seven, eight, and four with nine; and it was observed that the full-grown ones always had the greatest number of bands, which renders it extremely probable that new bands are detached from the bucklers as they are required, by the increasing growth of the animal. The buckler of the crown descends from the ears to the muzzle, and covers each cheek as far down as the orbits; and there are small detached scales interspersed in various situations over the throat, the under-jaw, the legs, the tail, and feet, and even on the outer surfaces of the eyes.

3. *The mule armadillo* (*D. hybrida*, Desmarest), called *M’bourigou*, or mule tatu, by the Guaranís, in allusion to its long upright ears, differs from the last species principally by its smaller size, and the comparative shortness and smallness of its tail. The length from the nose to the origin of the tail is stated by Azara to be only eleven inches and a quarter; the tail itself is six inches and a quarter long, and three inches in circumference at the root; whence it appears that the tail of the present species is only half the length of the body, whilst in the tatu-peba its dimensions are very nearly equal. The legs of the present species are also rather shorter than those of the peba, the body is broader and less covered with hair on the under surface, and it moves about as if literally heavier in consequence of being separated to a greater distance from one another. Their number generally varies from five to seven without distinction of sex, but it is to be observed, that the former number is only found in very young animals; and hence the difference in the number of the two species make it sometimes difficult to distinguish
between the adult M'bouriqua and the young peba, especially if great attention be not paid to the comparative length of the body and tail, which forms the only certain criterion. This species inhabits the open uncovered country, like the former, but extends much farther south, and is common on the pampas of Buenos Ayres. It differs from the peba more by its habits than in external form, for it is not nocturnal, nor does it burrow with the same facility as that species. The female brings forth from eight to twelve young ones about the beginning of October, and it is a common belief among the country people, confirmed, in one instance, by an actual dissection performed by Azara, that the individuals of a particular litter are invariably of the same sex.

3. The *tatu* cerradeiro (*D. serradeiro*) is a species very similar in size and proportions to the mule armadillo; but the point of its tail is terminated by a horny case of a single piece; the moveable bands are broader, and the plates of the croup buckler are of considerably larger size. We know very little more about this species than the few characters here reported. It inhabits the woods of Brazil, resides in burrows, and is found abroad at all hours during the day-time. Koster is the only traveller who mentions this animal, but Baron Cuvier had an opportunity of establishing its specific distinctions, by the examination of some specimens brought to France by M. Auguste de St. Hilaire.

II. The second subdivision which Baron Cuvier establishes among the armadillos, and which he calls *Alas was*, is characterized by having the claws and teeth in all respects similar to those of the preceding, save that the number of the latter amounts to nine or ten on each side both of the upper and lower jaws; but the animals of the present group are immediately distinguishable from all others of the genus by the faculty which they possess of completely rolling themselves up like a hedgehog into a round ball, in which situation they may be turned about, or even, it is said, thrown over precipices, without receiving any material injury. There is but a single known species.

4. The *Mataco* (*D. apar*), Desmarest, and *D. tricinctus*, Linnaeus, called also Botica, or the little ball, from its facility of assuming a spherical form, is nearly fifteen inches long from the nose to the origin of the tail; the head is three inches long, and the tail not quite two inches and a quarter. The head is oblong and of a pyramidal form; the muzzle pointed; the ears short and nearly round; and the legs and claws comparatively smaller and weaker than in the other species; the tail also is much shorter, and does not taper so much; it is flattened at the root, and covered above with a rough granular crust. The small pieces which compose the bucklers and moveable bands are themselves of very irregular figures, and disposed in a more confused manner than in other species, bearing no distant resemblance to a number of small rough fragments of stones thrown at random over the surface. The buckler of the shoulders forms a prominent angle on each side which advances forwards over the cheek; it is composed of nine or ten parallel bands of small plates, of a polygonal figure, except those of the last row, which, like the plates of the moveable bands, form irregular parallelograms. The buckler of the group is composed of thirteen transverse rows of small plates, similar to those of the shoulders, and between the two bucklers are interposed three moveable bands only; a number by which the mataco is readily distinguishable from all other armadillos, though it is probable that it may vary in a small degree, as it is found to do in other cases. Its usual resource, and only defence when frightened or surprised, is to roll itself up; for it does not construct burrows like the tatu peba, nor does it possess sufficient speed to escape by flight. It is found in Brazil, Paraguay, and Buenos Ayres, but is nowhere very common.

III. The *Eucounce*, or third division of Baron Cuvier, have five toes on the fore foot, and nine or ten teeth through-out, but they are principally distinguished by having two teeth in the intermaxillary bones of the upper jaw, resembling, as it were, the incisor teeth of ordinary mammals, and thus forming an exception, not only to the other armadillos, but even to the order of centiantes, which are principally characterised by their want of teeth of this description.

5. The *poyou* (*D. Eucuncis*, Desmarest, *D. Scincicus*, Linnaeus), or yellow-footed armadillo (for thus Azara interprets the name), measures about sixteen inches from the nose to the origin of the tail, which is itself about half the length of the body. The head is large, flat, and nearly triangular, the face short, the muzzle obtuse, the ears erect and of moderate size, and the eye small. The number of movable bands varies from seven to eight, according to the individual; the tail is surrounded at its base with three or four bony rings, but throughout the rest of its length it is merely covered with regular tuberculous scales, and the internes of the moveable bands give origin to a great number of long, bristly, grey hairs, and the female is provided with only two pectoral mammae. But independently of all other considerations, the fact that the poyou is easily distinguished from all the other armadillos by the unusual flatness and broadness of its body, and the consequent comparative shortness of its legs, it is very common in Paraguay, and burrows in the ground with an almost incredible agility. Its strength and activity are very remarkable; and notwithstanding the shortness of its legs, it runs so swift, that few men can outstrip it.

It is of a restless, unquiet character, bold, curious, and intrepid; when any noise is made at the entrance of its burrow, or when otherwise tormented, it grunts like a young pig, and comes forth without fear to investigate the cause; yet when actually attacked it is incapable of making any sort of defence, and can only save itself by retreating to the bottom of its hole, or burrowing to a still greater depth. The poyou feeds much upon carrion, and for this reason its flesh, though fat, is never eaten by the inhabitants of European origin, though the Indians make no distinction in this respect between it and the other armadillos. When it stops or rests, it has a custom of squatting close to the ground like a hare in her form, and in this situation the great breadth of the body is remarkably apparent, being nearly three times its height.

6. The *Hairy armadillo* (*D. Villorum*, Desmarest) measures fourteen inches in length from the nose to the origin of the tail; the head is nearly four inches in length, the ear two-

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thirds of an inch, and the tail five inches. In form and appearance this species bears a very strong resemblance to that last described, but it is of smaller size and has a lighter color. The hairs are more closely set, and the belly is covered with a finer hair, a circumstance from which it derives the name by which it is most usually distinguished.

The head is triangular, the muzzle pointed, the ears large, elliptical, and inclined outwards, and the number of movable bands varies from six to seven. It will be useful to refer to the individual. The border of the bucklers, as well as the lower side of the movable bands, is indented in a remarkable manner, and forms sharp angular points, which serve to approach the species to the former, not less to distinguish it from all the other known armadillos. There are eight teeth on each side, both above and below; numerous long, flexible, brown hairs spring from every part of the body, but more especially from the sides and belly, and the tail is from half the length of the body, as in the poyou, has only two pectoral mammes.

This species does not inhabit Paraguay, nor, as far as we are at present aware, any other part north of the Rio Plata, but it is found at every step on the Pampas or plains of Buenos Ayres, south of that river. In an expedition,” says Azara, “which I made into the interior, between the parallels of 35° and 36° south latitude, I met with vast multitudes of this species, and so that there was scarcely an individual of the party who did not each day capture one or two at least; for, unlike the poyou, which moves abroad only during the night, this animal is to be found at all times, and upon being alarmed promptly conceals itself, if not intercepted in April, when they are so extremely fat, that their flesh surfeited and pallid the appetite; notwithstanding which the pioneers and soldiers ate them roasted, and preferred them to beef and veal. The hairy armadillo,” continues M. Azara, “like others of the genus, has undoubtedly a very acute sense of smell, since it scents the carcasses of dead horses from a great distance, and runs to devour them; but as it is unable to penetrate the hide, it burrows under the body till it finds a place where the earth is soft enough to allow it to remain putrid. Here it makes an entrance with its claws, and eats its way into the interior, where it continues feasting on the putrid flesh, till nothing remains but the hide and bones, and preserves their position, that it is impossible, from a mere external view, to anticipate the operations which the armadillos have been carrying on within. The same author observes further, that this species never constructs burrows to reside in, that it avoids low, damp situations, and is only found on the dry upland plains.

7. The pichy (D. Minutus, Desmarest) measures only ten inches in length from the snout to the origin of the tail, which is itself four inches and a half long; the head is two inches and eight lines long, two inches broad across the orbits, and the ears are a quarter of an inch in length, and very sharp-pointed. The frontal buckler is composed of irregular plates, the eyes being small and nearly concealed under its margin; there are no plates on the temples, but their place seems to be supplied by a pencil of stiff brown hairs; the neck is extremely short, and furnished above with a row of minute scales; the shoulder buckler presents nothing remarkable, but that of the croup is deeply indented along the edges, and the movable bands, to the number of six or seven, according to the age of the individual, are composed of rectangular plates, bordered on each side by compressed scales, rounded and pointing backwards. Each scale is more or less distinctly marked with two longitudinal linear depressions, which divide it into three parts, of which the middle is plain and of an oblong figure, but the lateral, as it were, divided into six or eight tubercles. The claws are but moderately developed, the tail is covered with strong scales disposed in rings, and the interstices of the scales and bands are furnished with a considerable quantity of hair, though less abundantly and not so long as in the other species.

This pichy inhabits the Pampas to the south of Buenos Ayres, and extends from 36th of latitude southward to the confines of Patagonia. It inhabits burrows, to which, however, it does not confine itself during the day, like some other species; its flesh is said to be tender and rich and well tasted.

Two individuals of this species, which had been brought from Port Desire, on the east coast of Patagonia, lived for some time in the Jardin des Plantes at Paris, and would doubtless bear even the rigour of our more northern climate without injury or inconveniency.

IV. The Kabaassou, or fourth division of Baron Cuvier, have likewise five toes, both on the anterior and posterior extremities, but those of the fore feet are disposed obliquely, in such a manner, that the thumb and index are small, the middle and fourth toes armed with tremendously large trenchant claws, and the fifth very small. This construction gives them the means of burrowing with extraordinary facility, and of clinging to the ground with such determination and obstinacy, that it is with the utmost difficulty they can be taken from it. They have nine or ten teeth throughout.

8. The Tatouay (D. Tatouay, Desmarest), or wounded armadillo, is so called by the Indians in allusion to its tail, which is, as we are told, deprived of the crust or bony tube which covers this organ in all the other species. The whole length of the tatouay, as given by Azara, is twenty-six inches and a half, which if we subtract seven inches and a half for the length of the tail, it leaves one foot seven inches for that of the body. The tail is round, pointed and naked, with the exception of a few small round scales or crusts on the under surface of the third nearest to the extremity, which frequently trail along the ground when the animal walks; the test is covered with soft brown fur, interpersed with a few stiff short hairs on the superior surface. The head is longer, narrower, and more attenuated than that of the poyou, though considerably less so than in the peba and mule armadillo; there are eight molars on each side of the upper, and seven on each side of the lower jaw; the ears are unusually large, being nearly two inches long, and in figure forming a segment of a circle; the body is round; the claws of the fore-feet, particularly that of the middle toe, are excessively large; and the female is provided with only two pectoral mammas. The bucklers of the croup and shoulders are composed of ten and seven rows of scales respectively, each scale forming an oblong rectangle, those of the coccia being the largest of all; the movable bands are thirteen in number, composed of scales much smaller than those of the bucklers, and of a nearly square figure. The habits of this species are altogether unknown. It inhabits Guyana and Brazil, and is rarely found so far south as Paraguay. Baron Cuvier, in his enumeration of the species of armadillos, inserted in the fifth volume of the Osornas Fossiles, part i. p. 120, mentions an undescribed species closely allied to the present, but differing, among other characters, by the comparative shortness, and still more perfectly naked tail. We know nothing more of this animal than what is contained in this slight notice.

9. The Pariodonta, or last subdivision of the armadillos, in addition to the unequal toes and enormous claws of the kabaassou, have from twenty-two to twenty-four small teeth throughout, on each side of the jaws, making in all from eighty-eight to ninety-six teeth—a greater number than are found in any other mammal. This group contains but a single species at present known, viz.: —

The Great Armadillo (D. Gigas, Cuvier), which is nearly three feet three inches in length, from the nose to the origin of the tail; the head is seven inches, and a half long, the ears an inch and three-quarters, and the tail one
foot five inches. Its superior size is alone sufficient to distinguish this species from all the other known armadillos, but it possesses numerous other characters not less remarkable. Its head is proportionally smaller than in the other species, the forehead is more prominent, and the face, from the eyes downward, assumes a tubular cylindrical form, like that of the peba; the ears are of a moderate size, pointed, and habitually crouched backwards; the bulk of the shoulders and hump are composed of nine and eighteen rows of plates respectively, and separated by moveable bands to the number of twelve or thirteen, formed of rectangular scales, about half an inch square. The tail is remarkably thick at the root, being upwards of ten inches in circumference: it is gradually attenuated towards the tip, covered with plates disposed in rings at the base, and forming spiral or crescent-shaped lines throughout the rest of its length. The claws are remarkably large and powerful, but in their relative form and dimensions differ little from those of the tatuayo already described.

This species inhabits Brazil and the northern parts of Paraguay. It is never found in the open country, but keeps close to the great forests, and burrows with surprising facility. Those who are employed in collecting the Jesuits' bark frequently meet with it in the woods, and report that when any of their companions happen to die at a distance from the settlements, they are obliged to surround the body with a double row of stout planks, to prevent it from being scratched up and devoured by the great armadillo.

ARMAGH, an inland county in the north of Ireland, in the province of Ulster. It is bounded on the N. by Lough Neagh (see Lough, Neagh), on the E. by the county of Down, on the S. by the county of Louth, and on the W. by the counties of Monaghan and Tyrone. The greatest length, which is from north to south, is nearly 32 English miles; the breadth, from east to west, is about 20 miles. The area is estimated by Dr. Beaufort, at 454 square miles, or 290,786 acres; but he observes that this is very much under the full number of acres, from fractions having been rejected in the calculation; other estimates give 454 square miles, and 233,919 acres. It is subdivided into eight baronies, divisions nearly corresponding to the hundreds of English counties. The county was erected by the Lord Deputy of Ireland, Sir John Perrot, in 1554. (Ware's Antiq. of Ireland.)

The surface is hilly, but, except in the south and west parts of the county, which are more rugged, the hills do not rise to any great height; the soil is generally fertile, except in the mountainous district just noticed, though even there the land is cultivated to a considerable extent, and is thickly peopled. The principal mountains are Sliegh Gullen (1900 feet); Sliegh Girkin, or the Nevy Mountains (1340 feet); the Foyth Mountains, lying along the Nevy river (892 feet); and the Foughall or Faughell Mountains (822 feet), a little to the north-east of Jonesborough. These may all be considered as forming one group in the south-east part of the county. They are a continuation of the Mourne Mountains of the county of Down. (See Down.)

Granite is their principal constituent. To the N. of this mountainous district a considerable tract extends from the county of Down on the one side, to that of Monaghan on the other, in which greywacke and greywacke-slate are the prevalent rocks; while red sandstone predominates in part which lies along the margin of Lough Neagh. Sienite is traced in the neighbourhood of Newry; and mica-slate composes the sides of the narrow valley between Sliegh Gullen and Sliegh Girkin. Limestone skirts the Blackwater and Callowen水. (Trans. of Greq. Soc. vol.)

The Callen, the chief river in the county, rises in the barony of Fews, and flows N. into the Blackwater; but its course cannot be estimated at more than twenty-six or twenty-seven miles. There are several small streams along it, such as Lough Clay in the west, from which a small stream flows into the Callen; Lough Ross, and the loughs of St. Patrick and St. Peter, on the border towards the county of Monaghan. The river Bann forms the boundary of the county, separating it from that of Down, and affording water-carriage from Lough Neagh to the Bay of Carlingford; the Blackwater on the N.W. separates it from the county of Tyrone.

In 1788 the medium temperature in the neighbourhood of the city of Armagh, distant about thirty-two English miles from the Irish Sea, and elevated about fifty-eight feet above the coast, was ascertained (by means of a ball sunk sixty feet to the bottom of a well) to be 74° Fahrenheit. (Trans. of Royal Irish Acad. 1788.) But we are informed that it is 49° 5' at the observatory.

In the neighbourhood of the chief town, numerous inclusions of coal-fields indicate an ancient fertility of the soil, and in this vicinity there are a few orchards. In the northern part of the county, towards Lough Neagh, there are very extensive bogs, the soil of which is very black and peaty; but the improved cultivation has cleared off some parts of these, as well as of the greatest part of the mountainous districts. The principal landed proprietors are Lords Charlemont, Gosford, and Caledon; Mr. Brownlow, Mr. Gopo, and others. A large portion of the soil belongs to the church and to college establishments and corporations, which have not the power of granting freehold leases for lives; the common tenure on other properties is a lease for twenty-one years and one life. To such an extent has sub- chasing been carried that one county resembles in some parts a disjoined village, and general poverty has been the usual result. If a father had a family the land was divided among his sons, and part of it went, frequently as a portion to the daughter. The linen trade, carried on as it is by the individual weaver, is considered to have promoted this division of land. There seems, however, to be a disposition at present to check this system, and to consolidate the small holdings into larger farms.

In the hands of such occupiers we cannot expect superior husbandry. The description given of the state of tillage in the flat parts of the county of Antrim [see Antrim] may also be applied to that of the county of Armagh. The rotation of crops, if so irregular a succession deserves that name, is similar in each; the joint contribution of animals to form a team for the plough, and the 'con-aces' of the dry cutter, as described in the account of Antrim, are found in this county also. The joint team for the plough is indeed rather more respectable, consisting usually of two horses, one belonging to the driver, the other to him who holds the plough. Oats are the chief kind of grain raised. Wheat and barley are not so extensively grown. The cultivation of wheat, which was introduced into Ulster at a comparatively recent epoch, has increased materially; and Belfast, the great outlet of its produce, now exports corn of excellent quality to England; the consumption of wheaten bread among the peasantry is also much greater than formerly. Potatoes and flax are also among the chief articles of agricultural produce; but the potatoes are very inferior in their quality to those grown in England. Grazing is little attended to in any part of the north of Ireland. The little farmers or cotters keep cows, but they are badly managed and hardly treated; patches of the artificial grasses are sown; and part of the grass (which, in Ulster, is commoner to the south) is turned out for the cattle. They also serve the cows for food, but the want of fodder in winter materially diminishes the quantity of milk. Few beasts are fattened, the crowded population leaving little land for pasture. The greatest extent of farming is by the little farmers; keep cows, a considerable quantity of butter is sold for export. The breed of cattle is small and stunted. Sheep are not much attended to, and their wool is not produced in greater quantity than the domestic.
purposes of the grower require. The horses are inferior in size and appearance: the linen merchants, who travel about to different markets, use, a small, hardy, and sure-footed native breed of hacks. Goats and pigs are reared, the latter in great numbers.

Although agriculture has been improving since the time of Mr. Wolfe, the output of the farms is still inadequate for many of the foregoing particulars; yet it is still very inferior to that of England. The fields are ill-closed and ill-drained, and not kept clear of weeds; the farming in many cases is slovenly, though there are instances to the contrary.

Linen is the staple manufacture, and the county has consequently been affected by the decline of that business. The mode of manufacture by small farmers has already described. It does not appear, however, that the cotton manufacture has gained any footing; but a mixed fabric of cotton and flax, called 'Unions,' has been partially substituted for that of linen. The demand for linen is not so active as it has been, and yet all that the weavers bring to market is sold. The introduction into England and Scotland of machinery for spinning flax has been felt in Ireland, where it has reduced the wages of spinners, which were always low. They cannot now earn more than eighteen pence per week. Spinning machinery has been introduced to a certain extent into this county.

The condition of the weavers has been materially affected by these causes. At one time there were 10,000 looms in operation; 22. 6d.: now their earnings do not average more than 1s. a day (which is about the pay of a field labourer), but it does not appear that there are many of them out of employ. The depression of the linen trade has led to the emigration of the people into the manufactured towns, the decline of the manufacture, and the consequent stagnation of the trade: others give more time to their little farms; and the introduction of steam communication with England has given them a new and better market for their produce. The county, therefore, is richer than it used to be, though these changes without shoes or stockings. The habits of the peasantry are also improved.

The moral character of the females is correct; and the peasants also an affection for the woods of their aged parents. Mendicants here, as in Ireland generally, are numerous, and, as a body, very immoral.

The mineral productions of this county are inconsiderable. Marble is quarried near Armagh; and at Kendy, about eight miles from that city, a lead mine was once worked. The chief roads are those from Dublin to the city of Armagh, one through Newry, and the other through Castle Blayney; the continuation of these to Coleraine; and the roads from Armagh to Belfast, Monaghan, and Londonderry.

The population in 1821 was 197,427, and in 1831 220,651. It was estimated by Dr. Beaufort, in 1790, at 3,500,000, of whom the counties of Armagh (population 9,189), and Lurgan (population 8,842). [See Lurgan.] The others are all small, as the following list, with their population in 1831 will show:—Tandragee, 1,559; Richhill, 937; Newry, 1,510; Kendy, 896; Charlemont, 517; Marsh, 1,643; Blackwater, 326; Loughgall, 1,329; and Portadown, 1,591. Part of the more important town of Newry (population 13,134) is in Armagh; the greater part is in the county of Down. [See Newry.] It is probable that through the population of the country is dense, it is not much collected in towns and villages. The number of pupils at schools in the county in 1821, was 12,407, viz., 6,529 boys, 5,878 girls; in 1832 it was 3,706, viz., about 7,900 boys, 5,290 girls; of about 600 was the sex not stated.

Three members are returned to the imperial parliament from this county: two for the county itself, and one for the city of Armagh. It is difficult, from the variation of authorities, to state the number of parishes in the county. In the population return for 1821 twenty-three parishes, as used for civil purposes, are given as wholly or partly in this county; but these, from the confusion of the names and from the ejection of perpetual curacies, must not be regarded as coincident with the existing ecclesiastical divisions. It is not very easy to ascertain the state of religious

parties in the county. In 1812 Mr. Wakefield estimated the proportion of Catholics to Protestants in all the mountainous parts, and being mixed with Protestants in the more level. He observes that the influence of the priests was small; and the bigotry of their flocks not so great as in the south of Ireland. In the year 1824, according to the reports of the commissioners of education in Ireland, the proportion of Catholic scholars to those of Protestants of all classes, was 53 to 81 by the returns of the Protestant clergy, or 32 to 78 by those of the Catholic clergy; but the different rank in life of the Catholics and Protestants renders this an unfit criterion of the relative population. The proportion of the pupils of the Established Church to Presbyterian was at the same time about 4 to 1. In regard to the returns of the Catholic clergy, or 4 to 30, according to those of the Catholics. This was, as the parties are on a more equal footing in their rank in society, affords a better criterion; but Mr. Wakefield, in 1812, thought that of the Protestants in this country (county?) a very small proportion belonged to the Established Church. But we have reason to believe that in this opinion Mr. Wakefield was mistaken.

Among the antiquities of the county may be mentioned the cairn on the top of Slieve Gullion, said to form the roof of a cavern of artificial construction; and that called the vicar's cairn, about five miles south-east of the city of Armagh, on a lofty hill, which is thought to be excavated, (Mem. Arch. d. x. p. 79.) the church of St. Patrick, 1849; and Dr. Beaufort's 'Memoir of a Map of Ireland, 1792; Parliamentary Papers.'

ARMAGH, a city of Ireland, in the barony and county to which it gives name, 81 miles from Dublin. It is in the northern part of the county, and the neighborhood of the river Boyne. It is called Callen, a feeder of the Blackwater, which flows into Lough Neagh.

The town is on an eminence, with the cathedral in the centre crowning the summit, and is surrounded by small eminences. Some of the streets form an irregular circuit the round the cathedral, and on the slope of the hill; all the others, leading into the town from the surrounding country, terminate in the same fashion. There are three streets leading to the summit, and lead to the cathedral enclosure. Armagh, which had sunk greatly to decay, owes much of its reno- vation to the munificence and public spirit of Dr. Richard Robinson, Baron Rokeby, who was archbishop from 1765 to 1794. The town is farther than three-quarters of a mile from north to south, and above half a mile from east to west.

Of public edifices the cathedral preserves the last notice, although in richness and beauty of architecture it is inferior to many of our English cathedrals. Its situation is commanding, from being on the summit of the hill on which the city is built. After undergoing many changes from the period when St. Patrick is said to have founded it (about 445), it was destroyed in 1566 by Shane O'Neil, who wished to revenge some insult which he thought had been offered him by the primate (Liftus). It was rebuilt in 1616 by primate Hampton, and in 1642 it was again destroyed by Sir Phelim O'Neil during the primate of the celebrated Usher. It was again rebuilt by primate Margetson in the year 1675, and repaired and improved by primate Robinson; and a complete restoration is at present going on. It is in the form of a cross 156 feet long from east to west; and in breadth across the transepts 119 feet in the clear. From the intersection arises a square tower (the battlement of which is 31 feet above the roof) surmounted by a spire 49 feet high. From the ground to the top of the weathercock is 150 feet.

Part of the tower and the spire were built during the pri- vacy of Robinson. The same prelate built near the town a handsome archiepiscopal palace, of large dimensions, and in a light and pleasing style of architecture. It is in the midst of a lawn skirted by plantations; the offices are detached and hidden behind a plantation at a small distance. He also contributed largely to the elevation of a new school-house in the city, containing large lecture room, and school-room, apartments for the master, and a spacious walled play-ground. This school, an exceedingly well-endowed royal foundation of Charles I., long main- tained, under the union of the two kingdoms, was, when Robinson appointed, a high reputation, and was regarded as the Westminster or Eton of Ireland. A public library and an observatory were built and endowed by the same
primate, who also directed the erection of barracks, procured the establishment of a county infirmary, and ornamented the city with a new market-house and shambles. By refusing to grant leases except on the condition of the tenants rebuilding the houses, he raised the place from an almost dead state. He also created 'the most beautiful and flourishing inland towns in Ireland'.

Armagh is the seesize town of the county, and has a jail, as well as a handsome courthouse, lately built. It is lighted with oil, but parts of the streets are still in darkness. The water supply is from a pool or reservoir called Lowry's Lough, on an eminence east of the city. Main and lateral pipes run through every street; but the water is not very good, owing to the preparation of flax in the surrounding district.

The chief trade is in linen, which is made in the country around, and brought into the town on the market-day (Tuesday), and sold by the weavers to the drapers for bleaching. There are five fairs in the year. It is probable that the general depression of the linen trade has affected the prosperity of this place. The population of the town, in 1821, was 8,463, and in 1831, 9,189; but the number of the county was 30,000. Armagh sends one member to parliament. Before the Reform Bill, the franchise was in the hands of twelve burgesses, self-elected, who returned the primate's nominee.

The see was erected by St. Patrick in the fifth century, and was made an archbishopric in 1152. The archbishop bears the title of 'Lord Primate and Metropolitan of all Ireland.' The diocese was once divided into two parts, the English, now the upper, and the Irish, now the lower part. It extends into five counties — Armagh, Londonderry, Louth, Leitrim, and Tyrone. The archbishop's province includes the sees of Dromore, Derry, Down and Connor (united), Clogher, Kilmore, Ardagh, and Mallon. The see of Dromore is attached to the old diocese of Armagh, but can never be occupied by it whenever that see becomes vacant. The chapter consists of a dean, precentor, chancellor, treasurer, archdeacon, and four prebendaries, with eight vicars choral. The see is valued in the king's books at 138l. 17s. 10d. and by the board of first-fruits at 400l. The primate's income was estimated by Mr. Arthur Young, in 1779, at 8000l. per annum, and by Mr. Wakefield (1812) at 12,000l.; it was really 15,000l., but is diminished by the church Temporalities Act. He presents to sixty parishes in his own diocese, and to six parishes in other dioceses.

The number of benefices in the diocese has varied considerably, from the formation of unions and the erection of parishes. It is a subject of inquisitorial inquiry in Ireland (dated April, 1831), it appears that there were then eighty-three benefices, sixty-eight consisting of single parishes or separate portions of parishes, and twenty-five of two or three parishes or portions of parishes united. The diocese of Clogher, when vacant, is to be incorporated with that of Armagh.

Armagh is a rectory, being, with several other parishes, comprehended in a parochial union, in which six curacies (four of them perpetual) have been instituted. The living has been for a long time held by the dean of the cathedral. The cathedral is the parish church; and there is another place of worship belonging to the establishment. There are a dean, an archdeacon, a precentor, four benefices, and two meeting-houses, both on a large scale; a place of worship for the Seceders; another for the Independents, and two Methodist meeting-houses. There are several churches in the outparts of the parish. One of them, at Grange, owes its erection to the munificence of primate Robinson. It is of white stone, and its tall spire makes it a handsome object. Besides the county infirmary above-mentioned, there is a lunatic asylum at the east of the city, which is connected with the hospital for the poor.

Armagh has a hospital, which has been built, and is maintained at the expense of the present primate; a 'shop for the poor' has been instituted by the munificence of his family; and a mendicity substation is also maintained.

* Primate Robinson's tomb stands near Brian Boru's, on the road from Armagh to Newry. His body was brought over to Armagh and interred in a vault under the cathedral. A picture of him, by Vertue, is a copy of a painting that includes a white, life-size figure of the late 'primate' by Acton, one of Dean Drelincourt's, by Heseltine, and some other pieces of sculpture by Irish artists.

Armagh formerly contained many monastic establishments. The priory of the regular canons of St. Augustine was said to have been founded by St. Patrick, and was, for some years, one of the most celebrated religious establishments in Ireland. There were several other monastic houses (Culdrum or Cullers), which were secular priests, and served in the choir of the cathedral, their prior being a precentor there; a friary of Dominicans, and one of Franciscans.

In the early periods of its history the town was subject to many severe visitations. Conflagrations happened in the years 670, 687, and 778. In 832 the Danes plundered it; and in 839 they burnt it to the ground with all its sacred edifices. On six other occasions in the same century it was laid waste by these barbarians. The annals of the following centuries abound with notices of plunderings or fires. During that period Armagh was plundered thirteen times; it has been burnt (partly or wholly) seventeen times. Probably no town ever suffered three times in one hundred years, without misfortunes. (Young's Tour; Wakefield's Account of Ireland; Liber Hiberiae; Parliamentary Papers, &c.)

The position of the observatory of Armagh is 34° 21' 12" N. lat. 6° 28' 32" E. long. (A.M.)

ARMAGH OBSERVATORY. [See Observatory.]

ARMAGNAC, a county in the province of Gascony (Gascony), chiefly comprehended in the present limits of the department of Gers. While the old divisions of France continued in use, it had Languedoc on the east, the Agenois and Condomois on the north, Gascony Proper on the west, and Bearn, Bigorre, and Comminges on the south. All these, except Languedoc and Bearn, are subdivisions of the modern province of Gascony. For the purpose of the present map it is shown in all its extent, as described by Pignol de la Force. (Nouvelle Descrip. de la France, 2d edit. 1722.) It extended on the east to the Garonne: and on the south, some of the districts included in it (as les Quatre Vallées) stretched into the very heart of the Pyrenees. It comprehended the districts of High or White Armagnac, Low or Black Armagnac, Astarac, Brulhois, L'Eauze, Fezensac, Gaure, Pesenaguoch, Pomagne, Les Barous, Riviere-Verdun, Riviere-Bas, les Quatre Valles (de Magnac, de Neste, d'Aure, and de Barousse), already noticed, and Nebezoun. The chief towns were Auch (population, in 1826, 11,000), and Mont de Lignac, (population 4000), L'Isle Jourdain (population 3000), Montabert (population 2000), Nogaro, Fleurence (population 3000), Leyrag Vic, or Lavat, Castelnau de Magnac, La Barthe, Mauléon, Arreau, or Arreau, and Sarrancolin. These, which, with the exception of Leyrag Vic, are all purely Pyrenean, may be regarded in the departments of Gers and Hautes-Pyrénées, in the map of France published by the Society for the Diffusion of Useful Knowledge, will give some idea of the extent and ramifications of the province of Armagnac. [For an account of such of these places as require further notice, see AUCH, LIGNAC, MIRANDE, GERS, AND HAUTES PYRENEES.]

The county of Armagnac arose in the tenth century by the division of the lands of the Count of Paezenez, in the district of Bearn, on the north of the county of Paezenez, which adjoins Bigorre, and thus became the first Count of Armagnac. The failure of the elder branch of the family of Paezenez (which had retained that title) brought the territory under the sway of the younger or Armagnac branch in the early part of the twelfth century. The domains of these nobles were extended by subsequent acquisitions, especially under Bernard, Count of Armagnac, constable of France under Charles the Selles, and by the marriage of the Constable of France with the heiress of Armagnac, who brought with her the ambition, haughtiness, and cruelty, who gave name to one of the factions which then divided that unhappy country. John, the last Count of Armagnac, having incurred general hatred by his high-handed and treacherous conduct towards Louis XI. of France by his political conduct, caused the
downfall of this ancient and powerful family. Besieged in 1472-3 in Lecture, of which he had got possession, he was himself killed and the town taken by the army of his enemies, not infested; and though it was subsequently re-established by Francis I, it reverted to the crown by inheritance on the accession of Henry IV. It was again re-established in 1643, during the minority of Louis XIV, in favor of Henry of Lorraine, Count of Harcourt, and his heirs male.

Armagnac was commonly divided into High and Low:—

High Armagnac comprehended only the district so called, in the concession of Auch and Lectoure; and Low Armagnac included all the other districts given above. It is very fertile in grain and wine. Its bravery is of good quality, but not equal to that of Cognac. Very fine Bourbon pears are also produced. (Pugnet de la Fiere, Dictionnaire de la France; Martinot, Le Grand Dictionnaire; Balbi.)

ARMAGNAC, COUNTS OF, were descended from the ancient dukes of Aquitaine and Gascony, and took their title from the county of Armagnac. John I increased the importance of his family by marrying a daughter of the House of Bourbon. He was one of the powerful chiefs, in the south-west of France, strongly opposed to the claims of the English, and for this reason highly trusted by the French king, by whom he was made governor of Languedoc. Although he found him accompanying the Black Prince in his Spanish expedition against Peter the Cruel, he was still the prince's enemy when he renounced the Connétable title and took the one of Count. His grandson, John III, who married the heiress of the House of Comminges, led an army of adventurers into Italy, where he laid siege to Alessandria, and fell under its walls in 1391. Bernard, younger brother of John, of 1410, gave his daughter in marriage to the Duke of Orleans, then too young to head his party, and the task consequently fell to the Count of Armagnac. This distinction enabled him to rally under his banner the warlike and newly populated Gascons, and in the year 1410, he took Paris. The cruelty with which these rude bands treated the court and the people round the capital inspired them with horror for the cause of Orleans, and it is a no small degree to give that character of atrocity to the civil wars of the time in which they stand unequalled.

The Armagnacs were composed of a rustic or pastoral population: the Burgundian cause was chiefly supported by the burghers of the north of France and Flanders; and thus the Dutchmen and peasants increased the animosity between the opposite parties. In 1412 both Armagnacs and Burgundians courted the alliance of England. The former made the higher offers, and stipulated the Aquitaine to John, in return for his support. The discovery of the articles of this treaty, which were found upon one of the emissaries, did more to weaken the party of the Armagnacs in France, than even their cruelty or their want of success. In the following year, however, the excesses of the Burgundians having disgusted the Parisians, the Armagnacs obtained for the first time the superiority in the capital, and indeed throughout the kingdom.

The accession of Henry V, to the throne of England, his alliance with Burgundy, his invasion of France, and the victory at Agincourt, changed the face of affairs. The Count d'Armagnac, who had not been present at the battle, but who took the south with a small army to defend the capital, was now the sole reliance of the dauphin. He was accordingly created Constable in the last days of 1415, and he soon showed himself an active and severe leader. Towards the citizens, especially of Paris, he showed himself a merciless tyrant, levying contributions, disarming them, forbidding them to meet in any numbers, however small, and punishing the least murmurs by the sword of the executioner. In the field he was not so successful. The Earl of Oxford, with very inferior forces, put an end to the hopes of the Armagnacs to disgraceful flight; and the Count, in his rage, had no other satisfaction but that of hanging some of his own runaway soldiers. His cruelties and his defeat weakened him as a chief, and he was overthrown by terror. The harshness made an enemy of the queen, who meditated on making use of the authority of the dauphin to shake off the Armagnac yoke. The dauphin, John, son of Charles VI, soon expired, it was said by poison; and at the same time the death of Mark, duke of Burgundy, completely detached the good fortune or the treachery of the Count d'Armagnac.

Queen Isabel, whom the Count of Armagnac had confined at Tours, was not, however, without her revenge. She communicated to the Duke of Burgundy her wish to escape from her prison in which she was confined under an expedition undertaken by that prince rescued Isabel from the hands of the Count. The Burgundians soon drove the soldiers of Armagnac from the open country, and compelled him to come to terms with the Count of Paris. But the universal hatred borne to him rendered all his efforts at resistance vain. One of the gates was betrayed in the night to the enemy, and the Burgundians got possession of Paris, but they did not without a contest. The Count and the chief members of the Armagnac party were respected, but after a few days the populace, being exasperated by past struggles, and excited by recollection of the tyranny of the Armagnacs, burst open the prisons, and massacred all within. This took place on the 13th of June, 1418. A white scarf, worn obliquely over the person, was the badge of the Armagnacs. The populace cut a stripe of flesh, in form of this scarf, from the body of the murdered Count. More than 3000 persons are said to have perished in this revolution.

John, Count of Armagnac, grandson of the preceding count, though less powerful as a party chief, was equally notorious for his cruelty. An incessant intercourse with his sister, which he avowed was designed to cover by a marriage, first drew upon him the indignation of the pope Pius II., and of his sovereign, Charles VII. He was excommunicated, and forced by the royal troops to take refuge in England. A peace was concluded between him and the Count of Paris against him before the parliament of Paris: he first appeared to answer the charges, but upon his again taking to flight, he was condemned, and his domains confiscated. The count, by repudiating the woman of the pope's anger, and procured the reversal of his sentence of excommunication. Under Louis XI., in 1461, the Count of Armagnac obtained possession of his fiefs, but soon joined in the revolt against that prince, which the Burgundians abetted.

Louis XI. purchased the cessation of his enmity at the price of 10,000 crowns,—a sum bestowed in vain. For several years, Armagnacs seemed an enemy in every sense worthy of Louis XI.,—revolting, defending himself bravely, when overcome at last by another submission once more, and again setting the traitor. In his character and career he resembles the late Ali Pacha of Janina, and he met with a similar fate. Cardinal Albé, who was sent against him by the king, entered into negotiations with him, concluded terms of peace, and even a secreted wafer was broken and taken by both parties in sign of good faith. Relying on this, Armagnac relaxed in the vigilance he had preserved, and the soldiers of the cardinal found means to introducethemselves into his castle, Lecture, and to massacre the count and his followers in 1473. The king's commands required the total extermination of the Armagnac race. Jeanne de Foix, the legitimate wife of the count, who was pregnant, was compelled by a swallow a draught of poison. His brother Charles was seized, tortured, thrust into an unlavish dungeon, but survived, and was liberated after the death of Louis XI.

A descendant of the family was created cardinal under Francis I.; he was known as an upright administrator and a patron of letters. He died in 1585, at a very advanced age. [See N. MARDY.]
from the pacha of his district, to whom authority he sub-
mitted. The band was composed of and commanded by
Greeks exclusively; and, according to Fauriel, the number of
exiles, immediately prior to the revolution, amounted to
severely taxed and partially reduced in number, at
unrestricted, were called pillikari: their costume was
that generally known as the Albanian: their arms consisted of a
yatchan, sabre, musket, and pistols; they were brave and
veterary, and did not hesitate in the decision of
their independence; but his cruelities drove the greater part to rebellion, and they fled to
their naives fastnesses. Here, as in the Morea, they
maintained a sort of turbulent independence, and, at the first
revolution, issued forth to assist in the liberation of
their country. (Emerson's Modern Greece; See Leake's
Morea, ii. 106.)

ARMINIA.

The extent of country designated by the name Armenia is not defined by any permanent natural
boundaries. In the course of its history it finds its limits
exposed to constant changes.

In the broader sense of the expression, Ar-
menia may be said to embrace the country from lake Urmi
and the junction of the rivers Kur and Araxes in the east,
up the upper course of the Kizil Irnak or Halys in the west;
and from the upper course of the rivers Chorok and Kur in the
Taurus range, to the banks of the rivers Mardar, Mardin, and Nisibis in the south. This extent is given to
Armenia in the outline of a map prefixed to Avdall's trans-
lation of Michael Chamich's History of Armenia. (Calcutta, 1827, 2 vols. 8vo.)

The Armenia of Herodotus (v. 52) bordered on the west
on Cilicia, from which country it was separated by the
Eu-
phantor; towards the N. it included the sources of the Eu-
phates, which are already described as passing by a
level plain; and the Euphrates, which are distinctly defined; probably Mount Miusus separated it from
Mesopotamia, and Mount Ararat from the country of the
Assyrians, who occupied the valley traversed by the Araxes.
(See Renell's Geograph. Syst. of Herodotus, vol. i. p. 369, 20 edit.)

The Armenia of Strabo (xi. 14) is limited on the S. by
Mesopotamia and the Taurus; on the E. by Great Media
and Atropatene; on the N. by the Iberes and Albani, and by
the Parochothre and Caucasus mountains; on the W. by
the Tiberini, the Parydades and Skydases mountains, as
far as the Lesser Armenia, and to the country on the
Euphrates which separates Armenia from Cappadocia and
Caucasus.

Abulfeda and other oriental geographers not only extend
the limits of Armenia considerably to the N., so as to include
Tiflis and part of Georgia, but also comprehend Cilicia and
part of Cappadocia under the appellation of Belad-al-Armenia.
(See the Geographical works of Abulfeda translated by A. C.
Lugd. Batav. 1755, fol., and the Geographical Works of
Sadik Isfahani, edited by Sir William Ouseley, London,
1822, 8vo. p. 6.)

The greater part of Armenia constitutes an elevated table-
land, intersected in all directions by rapid streams, and with
numerous ranges of higher mountains rising above it. Armenia, in fact, belongs to the great plateau of Iran; its
southern boundary, like a wall above the
lower level of Mesopotamia, is the Kuranian range, which
passes in a N.W. direction a little to the N. of Mosul, is
cut by the deep bed of the Tigris at Ezirah, passes a little
of Nisbin, and past Mardin to the point where the
Euphrates traverses the great range of the Taurus.

Near the town of Erzerum we find a chain of mountains
which, by several projecting branches, is connected with the
Caucasus, and separates the valley of the Khor and its
elevated branches, the Khor and Akhul, which are the headwaters of the Araxes in the east, while the upper course of the northern branch of the Euphrates, often called the North Frat, marks
its southern declivity. Its parts bear different names:

Amahs. The marks known as the Khor, Khor, and
Akhal, are the headwaters of the Araxes in the east, while the upper course of the northern branch of the Euphrates, often called the North Frat, marks its southern declivity. Its parts bear different names: among the
Armenians, the names of Khor, Akhal, and Akhal, are the
headwaters of the Araxes in the east, while the upper course of the northern branch of the Euphrates, often called the North Frat, marks its southern declivity. Its parts bear different names:

The chief of the Bi
calhak, Bin-gheul, &c., and among the
Armenians by the names of Khor, Akhal, Bin-gheul, &c., and among the
Armenians by the names of Khakhakidh, Bakh-
kar, Garin, &c. These mountains mainly correspond to the
shores of the Sire, Sire, and the Mones Mosch-i,
one of the estates. The Bin-gheul, or Pinhakk, gives origin to
the Araxes and to the northern branch of the Euphrates [see Araxes]; on the Barkhur the river Kur has its
source.

The chain of hills which separate Armenia from Georgia, beginning near the Akhal, is divided into four
branches, the Meridional, the Tauric, the Khor, and the
in the form of a long narrow valley, running from the
northern to the southern end of the country, and forming a
large part of the boundary between Armenia and
Kurdistan.

South of the Araxes we meet with a range of mountains,
called by Colonel Montemont the Mosian (Miasii) hills, some
of which are covered with eternal snow, extending from the
banks of the Araxes opposite Erivan in the west to the
Euphrates. These are the Taurus range, the
Towers, Aghir-dagh, Al-dagh; in Armenian, Dager-
dagh and Massis. They must not, in consequence of the
first, be confounded with the Montes Massi, the Greek
and Roman geographers, which are further south. At the
eastern extremity of this chain, and washed by the Araxes, is
a situation of elevated mountains, the Abus of Potlemy (Man-
nett, v. ii. p. 140), called by the Turks Agri-dagh, and by
the Persians Koh-e-Nuth (i. e. Mount Noah), and believed by
the natives to be the Ararat of Scripture. Parrot, the
first European traveller who ascended this mountain, found its
height to be 16,200 Paris or about 17,250 English feet.

This mountain, according to the traditions of the
Armenians, is the Ararat of Scripture. The
Ararat of Scripture is the present Mount Judi, S.W. of the
Lake Van, in the Gordyian mountains. At a distance
of about forty miles from Mount Ararat, on the northern
side of the Araxes, there is another high peak, Mount Ali
Barad, near to the frontier, of which Colonel Montemont states to be
15,000 feet. [See Ararat.]

To the west of the Araxes, we find the Kure, Julii, and Amadjan mountains (the Mones Gordyani of the antients), towards the frontiers of Persia the Kara-dagh. (See Saint-Martin, Memoires sur l'Armenie, vol. i. p. 36-54.)

This chain of mountains and their accumulations of
snow contain the sources of innumerable streams. The
Tigris has its origin in the Niphates, but its sources have
not yet been determined with precision. Herodotus (v. 52) speaks of three rivers, each bearing the name of Tigris:
the western streams coming from the country of the
Armenians, the third, farther to the east, from the
Malatien. This is supposed by Manner to be the third upper branch, viz. the Delphil, or the Dihoc, as far as
far as the Tigris. But there are some objections to this opinion, it as the great Zab, and other
streams, which must have been crossed on the road to
Susa. Pliny makes the remark (Hist. Nat. vi. c. 31) that
the Tigris is called by this name only when it flows rapidly,
and that as far as its course is slow it is named Digilus:
according to Josephus (Antiq. Jud. i. 2), the entire river was
called Digilus. The name of Tigris almost unchanges in
the present Dijzat. What Pliny relates of the Tigris passing
through the lakes Arzilus and Thespis seems applicable
to the branch which passes by Erzen, for the lake Thespis
of Pliny is probably the same as the present Dijzat. (See
Strabo. xi. 14, ii. p. 461, ed. Tauchn.) The river Ken-
trites, mentioned by Xenophon (Anab. iv. e. iii. 1) as forming
the frontier between Armenia and the country of the
Kurdischi (or Gordyani), is supposed by Manner to be the
third upper branch, viz. the Delphil, or the Dihoc, as far as
the Dijzat. What Pliny relates of the Tigris passing
through the lakes Arzilus and Thespis seems applicable
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through the lakes Arzilus and Thespis seems applicable
to the branch which passes by Erzen, for the lake Thespis
of Pliny is probably the same as the present Dijzat.
Pliny, this river bears at first the name of Pyrixrates, and farther on that of Omiras, and is called Euheirates only after entering the plains of Syria and Mesopotamia. The Murad-chai flows in a western direction as long as it remains within the limits of Armenia. It is probably the river by which Meso is conveyed by Xerxes (4th B.C., iv. 2), who says that the ten thousand Greeks in their retreat forested it, the water only reaching up to the navel; the sources of the river they understood to be at no great distance, but in this they were somewhat misinformed, if they crossed it, as suppose, on the W. side of Lake Wan. The river Te-leboas, over which the Greeks had passed before they came to the Euheirates (Arab. iv. c. iv. 3), has not yet been well determined. The Murad-chai joins the Euheirates near Kebban, 363 miles from Babylon, and that passage through the Taurus mountains, the course of the Euheirates is interrupted by rapid water which obstruct the navigation to and from Syria.

The Cyrus or Kur is the principal river of Armenia. It has one of its sources in the hills north of Karab, and another in the Lake Phraran near Akhal-kalak. They meet at Pikel. The Kur then passes by the forts of Khertvis and Aspinanda, and farther down by the towns of Gori and Titilla. Near Jetab or Jevat the Araxes joins the Kur, and the two rivers pour their united waters through three mouths to the Caspian Sea. Of the Araxes or Aras, which has its source at Dekman in the Bin-Gheul hills near Erzerum, something has already been given in a separate article. [See Aras.]

The Chorokh has its source in the hills west of Barbed. In its upper course it is called Masaatesseri, and farther down taken by the name of Azakh. Its entrance into the plains of Balkhash. Spor, Khotjurj, Berdagrace, and Arvin, and after having during the greater part of its course followed a north-eastern direction turns westward, and falls into the Black Sea between Batum and Kutais or Gonin. (See the Nouveau Journal Asiatique, vol. xii. p. 459-476.)

Among the lakes of Armenia, that of Wan is the most important. It lies in a basin surrounded by lofty hills on the S.E., and, N., and is separated from the lower end of Urnig by a chain of islands. Its elevation is no doubt several thousand feet, but we are not aware of any measurements being made. Polomeny mentions it under the name of Lake Arissasa: this name still survives in the fortress of Ariss situated on the northern side of the lake, which is noticed as one of the principal towns of Armenia by oars of old geographers. (See Abu'lfaida, in the Index to Schulten's Vita Saladinii; Ouseley's Sack Illyfaham, pp. 6 and 62.) The circumference is estimated at 10 miles. It contains two considerable islands, on which have been built Armenian convents. Fourteen vessels are constantly employed in conveying goods from the different towns on its banks. Eight of them sail into the lake, and are of great importance. Jaubert (Voyage en Arménie et en Perse, p. 127) describes the scenery of the surrounding hills as extremely picturesque. (See Col. Monteith, in the Journal of the Royal Geographical Society, vol. iii. p. 50.)

Towards the north-east of Erivan is the lake of Gounka or Sevan, also named Kiagar Kuni. From it springs the river Zengay or Zenghi, which passes by Erivan and then falls into the Araxes.

In the Masia or Mosian hills, west of Mount Ararat, and at a distance of twenty-seven miles towards the south from Karr-kulla on the Araxes, Col. Monteith visited a lake of twenty-four miles in circumference, at the extraordinary elevation of 11,000 feet. At its western extremity a stream came from it, passing Bayazid and Maku, and then falling into the Araxes.

The climate of Armenia, notwithstanding its southern position, is, in the higher regions, extremely cold. The summits of several of its mountains are covered with eternal snow. The German traveller, Schulz, who visited Armenia in 1827, found the hills between Trebizond and Erzerum, especially the Oghiat and the Karakaspa, covered with deep snow, and a lake of frozen ice; and Thomson found the sea near Erzerum thinly frozen over during the night in July. On the southern boundary of Armenia, and on the road from Diarbekir to Bedilia up the valley of the river of Bedilia, the winter is extremely severe, and the snow so deep that the river is entirely covered with snow in April. (Avril, Voyage en divers états d'Europe et d'Asie, Paris, 1829, 4to, p. 46, &c.) The climate at Etchmiadzin near Erivan in the valley of the Araxes around Mount Ararat, Ker Porter found even in November mild and delightful; but he observes, that the cold during winter even here is sometimes 16° or 18° below zero of Fahrenheit. (Travels, vol. i. p. 191.)

The plains verging towards Azerbaijan and Persia are said to be scorched in summer with excessive heat, and to require a great deal of water for cultivation. (See the Map of Western Asia.)

The soil of Armenia exhibits in many places appearances of volcanic products. This was particularly remarked by Col. Monteith in the neighbourhood of the town of Maku, situated in a narrow valley that extends from the Araxes plain near Ararat in the direction of the Lake Wan; and also in the country around the lake of Gouchka.

Strabo (xii. c. 14. t. i. p. 461) and Pliny (xxvii. 23) mention that the Roman army in Armenia in plundering stones and metals. Strabo, in particular, mentions gold-mines and stories of its passing through the Taurus mountains, the course of the Euheirates is interrupted by rapid water which obstruct the navigation to and from Syria.

Abundant mines of rock-salt are found in the valley of Kulpia, which slopes towards the Araxes, at a distance of thirty-three miles from the latter river. (Arab. c. 3.) Besides these, there are many other rich gold-mines; Col. Monteith observes, 'have for many ages supplied Georgia and even the Caucasus with salt. A range of hills, bordering the valley on the east side, is apparently entirely composed of that mineral, and in the sides of these numerous excavations have been made. Under the Persians, these mines were farmed for 3000£, per annum, and a village of 100 families was employed exclusively in working them."

Marco Polo (edit. of the Peris Geogr. Soc. p. 311), in his account of Armenia, notices a copious well of mineral oil near the confines of Georgia. The oil, he says, is extensively used for burning and other purposes, and people come from remote countries to get it.

The valleys of Armenia are fertile in grain, tobacco, manna, hemp, cotton, and in fruit-trees, particularly a large description of apple, and walnuts. The excellence of the wine of the district of Aras is said to be the best in the world. (Estabamcamb Priorio de mundo et melior, 1. c. 311.)

Strabo (xx. c. 14. t. i. p. 462, ed. Tauchn.) speaks with praise of the Armenian horse. 'Horses from the house of Aragamsh (i.e. from Armenia) are enumerated by the Hebrew writer in the Bible (xxvii. 23), and the trade brought for sale or exchange to Tyre. Near Erivan, Sir Robert Ker Porter saw a large kind of buffalo employed for the purposes of agriculture.

Armenia seems at an early period to have been divided into the Greater and the Lesser Armenia. Armenia Minor was the part west of the Euheirates. It appears to have comprised, in the time of Strabo, the districts of Arabik and Devriki in the present Turkish pashalik of Siwas, and those of Erzingham and Dururan in the pashalik of Erzerum. During part of the middle ages the country was also named Cis or Sis, in allusion to the capital of Cilicia, which for a time took its name from Armenia Major. Armenia Major is native writers divided into fifteen provinces, which Saint-Martin (i. p. 65) enumerates as follows:—1. Upper Armenia, 2. Dakik, 3. Kubak, 4. Udé, 5. Fourth Armenia, 6. Dururan, 7. Ararat, 8. Vaskuragan, 9. Siumnikh, 10. Arax, 11. Piray, 12. Ahkmdish, 13. Mogkh, 14. Gorkhajdkh, 15. Persarmenia.

At the present day Armenia is divided among Turkey, Persia, and Russia. The Russian frontier between the two countries is about thirty miles from Fort St. Nicholas, about ten miles south of the river Phia or River; following the course of the hills which here include the valley of that stream, the frontier first takes an eastward direction, and then crosses the Avarachai on the S.W. branch of the Kur, follows the course of the Arpat-chai to its junction with the Araxes, and after crossing the latter river proceeds S.E. straight towards the Ararat, leaving the western summit of that mountain on the Russian
The frontier then follows the Araxes during the greater part of its middle course, till where that river breaks through the eastern borders respectively of the lake Wan. The town of Wan is supposed by Colonel Montheith to have at present about 20,000 inhabitants. Erivan and Nakhchivan are the two principal towns of Russian Armenia. The former is situated on the right bank of the Araxes near the rivulet Zengeh, and peopled by numerous villages: it has about 14,000 inhabitants. At a short distance from Erivan is situated the celebrated Armenian convent of Etchmiadzin, or Etchmitzach, the seat of an Armenian patriarch, which was founded according to tradition by St. Gregory, A.D. 304. It is among the Turks known under the name of Ulch-kilsis, i.e., 'the three churches.' This convent is all that now remains of the once celebrated city of Vagharshapat, which was supported by Saint-Martin (vol. i. p. 115) to have been founded in the sixth century before the Christian era.

The latest publication relating to Armenia seems to be the Researches of the Rev. E. Smith and the Rev. H. O. Gwynn in Armenia, &c., 3 vola. Boston, 1813. We have not had an opportunity of consulting this work for the present article.

**History of Armenia.**—The Armenians call the propositor of their nation and the first ruler of their country Haig or Haik, whose father they believe to have been Torgoma, the Thorgarma of Scripture (Genesis x. 3), the son of Gomer and grandson of Japhet. Haig had originally lived in the kingdom of Assyria, and was retired from the oppression of the Assyrian king Belus, and established himself in the hills of the neighbouring Armenia. Belus pursued the emigrant with an armed force into his new abode, but was defeated by Haig and fell in battle. This is said to have happened about three hundred years before the Christian era. (Arevai, i. 6.)

About three hundred years later, Aram, the sixth successor of Haig ruled over Armenia. He signalized his reign by the conquest of part of Media, Assyria, and Cappadocia. The governor appointed by Aram in the last province laid the foundation of a town, which he called after his own name, Mishak, Majak, or Mazarz: it was subsequently named Massap. The conquests of Aram made him master of the people over whom he ruled, and neighbouring nations called them Aramides, and subsequently Armenians, from the name of their king. (Moses Chorennes. p. 47-49. ed. Whist.)

His son and successor, Arn, fell in a war with the Assyrian king. Semiramis. Armenia then became dependent on the Assyrian throne, though it was still governed by native princes. King Scardobi, about the middle of the eighth century before Christ, threw off allegiance. His son, Parnor, or Paroer, was first the governor of Assyria and Media and of Babylon, in their revolt against Sardanapalus. After this, the kings of Armenia were again independent sovereigns.

In the reign of Paroer, the contemporary of Nebuchadnezzar, and the fifth king in succession from Paroer, the family of one of the exiled Jewish nobles, Shambat, came into Armenia. From him descended the great family of the Bagratians, which subsequently, about the middle of the ninth century of our era, came to the throne of Armenia.

The next king but one after Haikak, was Dikran, or Tigranes I., who assisted Cyrus in his rebellion against Assyria and the Medes. To him Armenian authors (Moses Chorennes. p. 71; Avdall, vol. ii.) ascribe the foundation of the city of Tigranocerta; but Plutarch and Strabo assign it to Tigranes, the contemporary of Mithridates. He was followed by his youngest son, Vahagn, who became celebrated under the name of Vahagn; and Vahagn and his successors were all Armenians and Georgians composed and sung poems in his praise.

A corps of Armenians formed part of the Persian army in the expedition of Xerxes against Greece. They, and a corps of Phrygians, were the soldiers of Gisges; both commanded by Artochmes, a son-in-law of Darius. Herodotus, in mentioning these facts (vii. 73), expresses an opinion that the Armenians were a colony of the Phrygians; but the tradition inclines to consider them as of Thessalian origin, but his arguments are not very convincing.

About the middle of the fourth century before our era Vahagn was employed in the cause of the Macedonians against Mithri-

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rines, a Persian, was appointed by Alexander three years after the death of Alexander. Already in the year 317, how- ever, we find Antiochus IV (the Great) heading a rebellion against the reigning governor, Neoptolemus, threw off the Macedonian yoke, and maintained himself for thirty-three years as an independent sovereign. After his death the Armenians were obliged to submit for a time to the Seleucids. In 198 B.C. they divided into two Armenian nobles, Artaxias and Zaritras, availed themselves of the moment when Antiochus the Great had suffered a de- feat from the Romans (4 c. 190), to declare their country free from the sovereignty of the Seleucids. In 187 B.C. Antiochus IV, at this epoch divided into two kingdoms, that of Armenia Minor on the western, and that of Armenia Major on the eastern side of the Euphrates. In Armenia Minor the de- scendants of Zartis to which the fall of Mithra- ridates the successor of the country became attached to one or the other of the neighboring states, and in the reign of the emperor Vespasian was made a Roman province; subsequently its limits were extended so as to embrace Me- litene, Arvane, and part of Caediaonia; and under the By- zantine emperors we find it divided into Armenia Prima and Secunda, the former governed by a consul, the latter by a duces (ψυρακο). (See F. A. Cramer's Geographical and Historical Description of Asia Minor, Oxford, 1832, vol. ii. p. 148, &c.)

In Armenia Major the family of Artaxia (the Armenian Arsacid) maintained itself till the year 5 c. 5, and gave eight, or, according to others, ten kings to the Armenian throne. According to the writers (I. M. Dionnes i. 93-60) the son-in-law and ally of Mithridates. He reigned himself master of Armenia Minor, Cappadocia, and Syria, but lost all these conquests after the defeat of Mithridates. Locutus, etc. and defeated Tigranes and defeated Tigranes, the mixed and numerous army of Tigranes. (Plut. Lucull. 23, &c.) The peace concluded in the year 43 c. 63 only left him Armenia. His son and successor, Artavasdes, was perished severely by Marcus Antonius, and delivered, as a prisoner into the hands of Cleopatra, the queen of Egypt (c. 34). After this time Armenia became an object of unceasing contention between the Romans and the Parthians, who alternately instilled and defrauded its rulers.

In 122 A.D. Armenia was subjected to Tigrates, or Tiridates, the son of Khosru, and the only survivor of the Arsacide family, supported by a Roman army, made it free again. Early in the fourth century Tiridates and many of the Armenian nobles were converted to Christianity by St. Gregory, whose pope Sylvester I. in a.d. 319, confirmed as pontiff of Ar- menia. The conversion of Constantine to the Christian faith occurred in the same year. Armenia was, while establishing friendly relations between the Greek empire and Armenia, exposed the latter country to the in- creased hatred of the heathen government of Persia. New conquests were attributed to Armenia, and the Great entered into a compact with the Persian king, Sa- pores, according to which the eastern part of Armenia was to belong to Persia, and the western part to the Roman empire. Saporos, with a view to conciliate the minds of the Armenian nobles, many of whom were quitting the country in disgust, appointed Khosru, an offspring of the Arsacide family, as a tributary king over Persian Armenia. In 428, however, the Persian king, Bohram V., deposed Ar- taces, or Artash, the last of the tributary Arsacide rulers, and, with the consent of the degenerate Armenian nobles, appointed a Persian officer to govern the country. All the efforts of the Persian court were now directed towards the suppression of Christianity in Armenia, and the introduc- tion of the doctrine of Zoroaster, as the difference of reli- gion appeared to be the chief obstacle to the lasting fealty of the province. On these grounds the Armenian Chris- tians became subject to constant vexations, and even cruel persecution, from the year 490. The 'History of Varton,' translated from the Armenian of Elissius, by C. F. Neumann (published by the Oriental Translation Committee, London, 1830, 4to.), exhibits a detailed and history painting picture of the troubles which, while the influence of Armenia was suffering about the middle of the fifth cen- through the fall of the Sassanian dynasty in 632, Ar- menia did not enjoy tranquillity, as its provinces soon be- came the scene of conflict between the Grecian and the rising Mohammedan empire. In 855, during the caliphate of Motawakkel, an Arabian army, under the command of the famous Abd al-Rahman ibn Ziap, conquered Armenia, and were brought to Bagdad, where the greater number of them were forced to become converts to the Mohammedan reli- gion; only Sempad, the Bagratide, died a martyr to Chris- tianity. His son, Ashik, appointed Kish of Turkmund, a man of great ability, who, in 859, instilled him king of Armenia. He became the founder of the Bagratide dynasty, which occu- pied the throne of Armenia till the year 1066. During the greater part of the tenth century, in the reign of Apas IV (953-951), and an obscure man named Ramp II. (977- 989), Armenia enjoyed tranquillity. Not long after- wards the country became an object of contest between the Byzantine empire and the Seljukide Turks. Gagik, the last of the Bagratides, was defeated by the Seljuks, and his kingdom (1072), and Armenia, though still partially governed by na- tive princes (the Orpeliens and others), became mainly de- pendent on the Greek empire, while in the northern prov- inces, the Turks, and in the southern parts, the Kurds, en- croached upon its limits.

From the year 1226, Georgia and Armenia suffered much from the incursion of the Mogols, which continued till near the end of the thirteenth century. (See Klaproth's paper entitled "Les Entraves des Mongols dans l'Asie," in the Nouveau Journal Statistique, vol. ii. pp. 193 and 273.)

After the murder of Gagik, and the fall of the Bagratide dominion in Armenia Proper, Berdus, brother of Ramp II., last king, fled to his family to Phyrgia, and established an Armenian principality in the Taurus mountains north of Cilicia, which gradually extended its boundaries to the coast of the Mediterranean sea. It soon derived importance from the influence it enjoyed over the principalities which were being established in Europe during the crusades. Leon II., who reigned from 1185 till 1219, was in 1198 crowned king of Cilicia, by Archbishop Conrad of Mainz, who was sent for that purpose by the German emperor, Henry VI., and Pope Celestine III.; and the prince was afterwards permitted to him by the Greek emperor, Alexius. The Cilicio-Armenian kingdom continued till the latter part of the fourteenth century. The last king, Leon VI., was in 1375 taken prisoner by the Turks of Cilicia, and, after a long captivity, was allowed to make an exile through Europe, from one country to another, till he died at Paris in 1393. (See Vahram's Chronicle of the Armenian Kingdom in Cilicia, translated by C. F. Neumann, London, 1831, 4to. Published by the Oriental Translation Committee.)

The Mamluks were soon obliged to yield up their rule over Cilicia, and part of Armenia Proper, to the Ottomans. The Armenians, now a nation without a country or home, rather than lose the Mongol occupation in the countries of their fathers, spread themselves all over Asia and Europe. As early as the year 1331, Armenian refugees came to Kars in the Lausius (Lussiata.) Others followed the Ottoman conquerors into Syria, and the Cilician (1327) Theobald and Signor gave them a patriarca. They were well received in Russia, where numbers established themselves at New- Nakhechivan, on the Don, at Moscow, and at St. Petersburg. In 1661 twelve thousand families were led forcibly away from Armenia into Persia, by the command of Shah Abbas. They settled at Julfa, one of the suburbs of Isaphan, giving to this quarter of the city the name of their city, Julfa, on the Araxes, in Armenia. Many who still remained at Tauris, Erzerum, Kars, and Bayazid, have recently with- drawn to the Russian provinces south of the Caucasus. Armenian merchants are now found established in India, on the islands of the southern Archipelago, in Singapore, in Afghanistan, Persia, in every part of Asia Minor, in Syria and Egypt; and in nearly all the countries of Europe. Almost every important fair or mart, from Leipzig and London to Bombay and Calcutta, is visited by them.

The Armenian language, observes M. Klaproth (Encyclopédie des Langues Orientales, t. ii., p. 262, &c.), is an Arme- nian, and overcharged with consonants. Besides a great number of Indo-Germanic roots, it shows many analogies to the Finnio dialects of Siberia, and other languages of northern Asia. According to the studies of D. Pasch (Ethnographische Studien in Armenien, Mithridates, vol. i. p. 430, &c.), the Armenian does not belong to any known family of languages, but stands quite alone. Its grammar is excessively complicated like the northern languages of Europe, it has an article attached to the end of words. It does not distinguish the
Moses of Khorèn, or Khòrnì, in the province of Daran, was named Kerthôngh, or Kerthoghais, i.e. 'the grammatician poet,' is considered by the Armenians as the first of their classical writers. He had from his early youth attached himself to Sahag (or Isaac), the patriarch of Armenia, a descendant of St. Gregory, who, in concert with Mesrob, most zealously endeavored to propagate Christianity, and to diffuse a love for knowledge among his countrymen. Moses was by him sent to Alexandria, where he lived in order to become familiar with the Greek language. He resided there several years, and returned to Armenia (442) by way of Rome, Athens, and Constantinople. Moses was subsequently raised to the archiepiscopal dignity, and appointed bishop of Ardzunni, and died in A.D. 478, it is said at the age of 120 years. We possess a Chronicle by him, divided into three books (edited, in Armenian and Latin, by the brothers Whiston, London, 1731-32.), in which he gives the history of Armenia from the time of Haig down to the death of Mesrob and Sahag; also a treatise on rhetoric, and a work on geography. Saint Martin is also inclined to ascribe to Moses of Khorèn an Armenian translation of the Chronicon of Evæcus (edited, in Armenian by Auchi, at Venice in 1818, and in Latin, in the same year, by Mai and Zuber, at Milan), which was printed from an old MS. on vellum, found in 1794 by Zuber at Constantinople.

Elianaus, or Elianaus, aTimeline

Moses of Khorèn, was secretary to Vartan, a prince of the family of the Magonianoi; in 449 he was appointed bishop of the district of the Amadunians. He wrote a history of the religious customs and laws of Armenia, of which we have no certain eye-witness. An English translation of this work, by C. F. Neumann, was published at London in 1831 by the Oriental Translation Committee.

Another distinguished contemporary of Moses Chorenensis was the philosopher Davit. He visited Athens, where he attended the lectures of Suriac, the teacher of Proclus; he afterwards went to Constantinople, where he seems to have remained for a considerable period. He died in Armenia, it is supposed, early in the sixth century. (See C. F. Neumann's Mémoire sur la Vie et les Oeuvres de Davit, in the Nouveau Journal Asiatique of 1829.)

Lazarus of Parm (Pabretsi), surmanned the Rhetorician, who flourished in the sixth century, wrote a history of Armenia during the years 662-692. (Printed at Venice in 1793.)

Thomas the Ardzunian, a contemporary of Lazarus, wrote a history of the life of Vartan, and subsequent events, down to the year 590. Joannes, bishop of the Mamigonians, lived in the seventh century. He wrote a history of Armenia from the commencement of the third century till the year 640. It was published in 1749.

Anais Shiragaz, in the seventh century, is the author of several biographical, astronomical, and chronological works.

Joannes Catholicus, in the ninth and tenth centuries, wrote a history of Armenia from Haig till the reign of the Bagratian kings, with additions by Cris. C. Pachuchic, and in the thirteenth from the Latin Vulgate.

The Armenian historians are valuable on account of the information which they supply on the history of the Byzantine empire, of the Sassanians, the Mohammedan Arabs, the Seljuks, the crusades, the Mogolas, and, in short, on the entire history of the East since the fourth century. They show, upon the whole, more judgment than the Arabian and Persian historians. Their conclusions are not always recorded, and display a better taste in their manner of relating them: some appear rather too fond of interrupting the narrative by long strains of pious meditations. The Armenian chronicles should, however, be used with caution, particularly as regards more remote periods of history. Saint Martin has pointed out an important anachronism, into which, he says, Gibbon has been led by Moses Chorenensis, regarding the history of Armenia contemporary with the reigns of the Bagratian kings of Constantinople. (Nouveau Journal Asiatique, t. iv. p. 402, &c.)

The most ancient Armenian historian probably was Agathangelus, the secretary of King Tiridates, early in the fourth century. The authenticity of his work, which is attributed to him seems, however, to be questionable. Zenob, a Syrian by birth, pupil and secretary to St. Gregory, lived early in the fourth century. To him is ascribed a chronicle of the province of Daron, which was printed at Constantinople, 1715-12mo.

Nerses Lampronetsi, the nephew of the former, was born in 3 A 2.
ARMIGER. [See ESQUIRE.]

ARMILLA, a bracelet, or large ring, for the wrist or arm. The wearing of the Armilla, or bracelet, as an ornament, is of very high antiquity. It occurs in Genesis, chap. xxiv. 17, and also in Ps. lxxiii. 23, where the Hebrew word "harpel," which is used for the bracelet worn by Isaac. The Amalekite who slew Saul (2 Sam. i. 10) took the crown that was upon his head, and the bracelet that was on his arm, and brought them to David.

The Armilla, or bracelet, as a decoration for both sexes, was perhaps the most universal of all ornaments—common to almost every nation, and far more general than the torque, or collar for the neck. It was sometimes worn upon the wrist, sometimes near the shoulder, and occasionally upon the arm down to the elbow, or even further. Peter the Great, in Peter's reign, arrays his courtiers in a most magnificent manner, and gives them not only chains, but beautifully wrought bracelets of silver, at their funerals. The bracelet worn by Peter, asserts, that it was of such general use as to be worn even by slaves, when they could obtain permission from their masters. This account for the great number of Armillas which have been found in different countries; for they were worn in a great variety of forms, as rings, and also in the form of a chain, and in bronze, in different countries once possessed by the Romans.

As an ornament of dress, the Armilla is frequently described, and is spoken of as one of the most magnificent works of art in the gallery of the Louvre. These bracelets of the Sabines were of great weight. Periurus Arbiter (c. 67) speaks of the Roman women as wearing bracelets of six pounds and a half, and even of ten pounds weight, though the fact seems incredible.

It is not, however, as a ornament of dress that we consider to the armilla; its most important use was as a gift of reward. Asia (Hist. lit. i. c. 22) says that the Persian kings rewarded all ambassadors, whether from Greece or other nations, with presents of a considerable value. Plutarch, Xenophon (Anabasis, i. 2. 27), and Herodian, all allude to them as military or royal gifts.

Livy, in his account of the Samnite war (i. x. 44), says that at Aquileia, Papirius, who had been engaged in various service, in the field, the camp, and the city, gave armillae and coronets of gold to Spurius Nautius, to Spurius Papirius his own nephew, to four centurions, and to a whole band of the hastati. To the horseman also, as a reward of valour, he gave armillae and little horns of silver.

The gift of the golden armillas, however, was reserved peculiarly for the Roman citizen. Pliny says, to auxiliaries they gave gold armillas; to their own citizens only silver. But, exclusive of these, the Roman citizens have armillae given them, which foreigners have not. (Hist. Nat. i. xxxiii. c. 10.)

Aulus Gellius, in the eleventh chapter of his second book, describing the exploits of Dentatus, says he was called the Roman Achilles; that he had been in more than a hundred and twenty actions; that he had never received a wound in the back, but that he had five and forty wounds in front; and that among his wounds he had achieved eight golden crowns, one oblong, and three mural crowns; that he had received eighty-three trophies, and more than a hundred and sixty armillas. (Nort. Att. i. c. c. 11.)

Gruter (Inscript. s. 1. 4) has preserved a monumental inscription in memory of Lucius Lepidius, who had served in different legions, and received various armillas, torque, and other ornaments, as rewards, from the Emperor Vespasian. Suetonius (fl. i. xxxii.) gives another, to a soldier of the Legio VI, upon whom both torques and armillas had been bestowed by Trajan. Numerous other such inscriptions will be found in the different collections. Brissius has given the formula of one of these donations: 'Imператор te Argentis Armillas dedit.'

The dracorani, or standard-bearers, wore armilla. See Ammianus Marcellinus (l. xx. c. 4), where the soldiers crown Julian with one of them.

There was a branch of the Germanic art which was rich the armilla or bracelet was applied from the very remotest ages of the world. It
was used as an offering. In the Book of Exodus bracelets are included among the free gifts for the tabernacle.

Offerings of serpentine armillae, or torques, were also made. The Scythians called the armillae aegis, "aegis of the image in the polo or part of an armillary sphere, was extensively used in astronomical observation. On this point we refer the reader to Astrolabiae.

ARMINIANS are the followers of James Arminius, or those who are considered to entertain his sentiments. It does not appear that the conference in which Arminius was engaged at the time of his death, was productive of any good effect upon the state of party feeling in Holland. The government, however, were evidently leaning towards his side; and in the following year (1610), on sending an embassy to France, Uitenbogaert was appointed chaplain. At Paris Uitenbogaert had frequent conferences with the celebrated J. Calvinist, the puritan, and the master of the Royal Library at Paris, although a Protestant. These conferences served to strengthen Uitenbogaert in the opinions which he had adopted, inasmuch as Casaubon, for the most part, agreed with them.

In the mean time, during the absence of Uitenbogaert in 1610, the debates went on in Holland with increasing violence. They had now spread so widely that nearly all the country were engaged in them, clergymen and laymen, the learned and unlearned. A large majority of the clergy and leading religious men adopted the sentiments of Gomar, and espoused his cause. The Arminian party, fearing that matters would come to extremities, and that their party might be crushed, drew up a representation of their sentiments, which was presented to the States-general, and was named by its authors Remonstratio, or Remonstrantia, that is, Remonstrance. This gave rise to the name Remonstrants, by which the party has been usually called on the continent of Europe, from that time to the present. The Wesleyan Methodists call themselves Arminians, and their magazine appeared formerly under the title of the Arminian Magazine. [See Remonstrants; Olden Barneveld; Grotius; Dort; Episcopius; Bogebrann; Hierius.]

ARMNIUS. James Arminius (called in Latin Jacobi Arminius, and in Dutch Jacob Hermans, or von Harmine, or Harmesen) was born in 1560, at Ouderwater near Utrecht, in Utrecht, Holland. He was the son of a poor clergyman. His father died while he was an infant. It happened, however, that there was at Ouderwater a priest called Theodore Emilius, distinguished for erudition and piety, who had forsaken the Roman church, and had emigrated from France to Holland, and had then, by compassion for the indigent condition of Arminius, Emilius took him under his care, instructed him in the learned languages, and inculcated frequent lessons of practical piety. He became so interested in the extraordinary talents and rapid improvement of his young pupil, that he continued his education until he was sufficiently advanced in his studies to be sent to a university. It appears that some time before his death Emilius had removed Arminius to nearby Amsterdam, that his father, leaving the young Arminius without any means of support. Soon after this event, however, the youth obtained a second patron in Rodeolph Snell, a native of Holland, who, on account of the incursion of the Spaniards had been obliged to quit his residence at Mazzburg in Hesse. Snell was himself distinguished for his knowledge of the mathematics. He soon returned to Hesse, accompanied by his young pupil, but he had scarcely arrived there when he was murdered. The King immediately avenged the whole journey on foot. Here, however, he did not stay long. News reached him that the University of Leyden had been founded by the prince of Orange, on which he set out once more for Holland, and at first repaired to Rot-
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Arminius, then an asylum for the surviving sufferers at Oude-water, and also for many refugees from Amsterdam. At Rotterdam, Peter Bertius, the father of P. Bertius who afterwards wrote the funeral oration of Arminius, was persuaded to receive him into his own family; and he afterwards sent him, with his son P. Bertius, to the University of Leyden. Here he made the acquaintance of Aegidius Accius, famous for his speeches in the college, and who was one of the companions of Arminius, to whom he describes as exceedingly devoted to literary pursuits.

Arminius cultivated the study of poetry, mathematics, and philosophy, and became the ornament and example of the whole class to which he belonged. His principal study was theological, and the principal figure in his college was Lambert Danesi, who had taught at Geneva, and was distinguished by his knowledge of the Christian fathers and the scholastic divines.

After remaining at Leyden about six years, the senate of Amsterdam appointed him, by the high estimation of brilliant talents and extraordinary application which Arminius had acquired, sent him in 1582, at their own expense, to Geneva, then the head-quarters of the reformed Calvinistic churches. He enjoyed the instruction of the celebrated Beza, the friend and successor of Calvin, in the famous theological school of Geneva. But he soon created a prejudice against himself among the leading men in this school on account of his enthusiastic attachment to the philosophy of Ramus, which he cultivated on the college-students' private, and which he boldly and zealously defended in public. The philosophy of Aristotle was at that time considered as the summit of perfection, not only at Geneva, but in all the schools and universities of Europe. The views of Ramus were opposed to this philosophy; and of course Arminius, who appeared as a zealous advocate for the opinions of Ramus, could not expect to meet with the approbation of the instructors at Geneva. He was soon reduced to quixotic place, and he immediately repaired to Basle, where Jacob Grynaeus was then a distinguished teacher.

Here he won so much applause and admiration by his attainments and devotedness to study, that he was speedily offered a doctorate in theology by the theological faculty of Basle, being at that time only twenty-two years of age. This, however, he declined, deeming himself too young to be made the subject of such an honour.

Arminius was excited at Geneva by his opposition to the philosophy of Aristotle, soon began to subside in his absence. In 1583 he returned to Geneva. His own feelings were now greatly moderated on the subject of Ramus's philosophy, and he appears to have lived in tranquillity during his second residence at Geneva. How long he remained there during his second residence is not well ascertained; but as he returned to Geneva in 1583, and went into Italy in 1586-7, it seems probable that his stay was about three years.

Arminius entered into close connection with the theologian James Zabarella of Padua, whither he went, attended by a young Hollander, his constant companion. After hearing a course of lectures, he travelled through Italy, visited Rome, and returned to Geneva for a short time, and soon after to Holland. While on his excursion in Italy, he carried with them a Greek Testament and a Hebrew Psalter, which they read daily, in their exercises of devotion. In 1587 Arminius returned to Holland, and on repairing to Amsterdam he found that reports had been circulating there greatly to his disadvantage, respecting his favourable views of the Roman Catholic religion. Among other things, it was said that he had kissed the Pope's feet; that he was intimate with Jesuits; that he was introduced to Cardinal Beza, who had the most enmity towards the Protestant religion. All this was entirely false.

Arminius found his patrons at Amsterdam cold and suspicious when he first returned. He succeeded, however, in satisfying the suspicions which had been entertained, and he was received an invitation as minister in one of the churches at Amsterdam, over which he was placed in 1588, being then twenty-eight years of age. On his return from Italy he had passed the winter in Geneva, where Beza gave him a letter to his patrons, in which he intimated his election to a benefice at the Facultates of the University of Basle. He was also recommended by the consuls of Lucca, who desired an ecclesiastic officer of good reputation, and who was recommended to him. He was then sent to Zurich, where he was received with great kindness, and was appointed a professor of theology. He soon became exceedingly popular as a preacher at Amsterdam. His sweet and sonorous voice, his manner, his ardour, his distinguished talents, and finished education, all combined to give him extensive popularity and influence. The rumours which had been set afloat concerning his inclination towards Catholicism gradually died away, and all
his indignation against sin. Arminius doubtless meant that God had respect in his decree to the belief of the one and the non-belief of the other. But the majority of Arminius, the paraphr. Arminius replied; and thus commenced a dispute which has not yet subsided. Gomar carried it on actively during the rest of his life. The students of the university soon divided into two parties, one parished with Gomar, but the majority with Arminius, whose lecture-room was always crowded.

This state of things very naturally took hold of the public sympathies. The ministers of the Gospel became divided, as well as the students of the universities. The majority, it appears, have taken the side of Gomar and to have blamed Arminius. As the contest went on, the teachers of religion began first to dispute, then to preach and write against such as was on the other side. The controversy was, at length, transferred to Holland. In 1641 some theses of Arminius on the divinity of Christ occasioned him new trouble. The matter related to the epithet aióniós as applied to Christ. Arminius explained it according to the Nicene Creed, in which the term occurs, every God of every God. His opponents gave it the contrary interpretation, that is, 'One who is God of himself, and has his essence from himself and not from the Father.'

In 1647 the ministers of Gouda published a catechism, which was read at the council held in the Hague in 1648, and was intended to be simple and brief. Arminius was accused of favouring this catechism, which, it was averred, would open the flood-gates to all manner of error.

During his residence in Holland, Arminius had the misfortune to see a stop to the disputes concerning religion, although well-meant, was entirely unsuccessful. Arminius and Gomar still carried on their theological warfare; the students of the university, of course, followed their example, and ministers through the country, and, finally, private individuals, became deeply engaged, on one side or the other, in this contest.

In the same year, 1648, Arminius was summoned by the States-general to appear before them at the Hague, and to answer for the controversy in his famous 'Declaratio,' published in his works. The States-general, as a body, were at this time inclined to favour Arminius. But the disputes continuing with increased violence, in the next year (1649) they summoned Arminius, on the appearance of the opposition, and appointed four of his own ministers, in order that they might hold another conference in their presence. This was soon interrupted by the sickness of Arminius. Gomar and his friends insisted on a general synod, knowing that they had a majority of the clergy on their side. Uittenboogart, the special friend of Arminius, who was present as one of his assistants, warned the States against being prejudiced by the violence and zeal of the members of Arminius. He expressed an entire willingness to have a general synod; he only remarked, as Beza once said, that he did not wish Satan to be the president of it.

In the mean time Arminius died, on the 19th of October, 1660. His last sickness was exceedingly severe. Exhausted by the fatigues of body and mind which he had undergone during the many years of his theological warfare, deeply wounded by the ill-reports which the heat of dispute had engendered and zeal against him had extensively circulated, he fell under a complication of diseases—fever, cough, atrophy, and arthritis. It is said, that notwithstanding all his sufferings he died with great calmness and resignation, and that the last will, made on his death-bed, he solemnly testifies that he had, with simplicity and sincerity of heart, endeavoured to discover the truth by searching the Scriptures, and that he had never professed or taught anything which he did not believe to be contained in them.

This article is abridged from the Biblical Repository, An- dover (New England), 1833, pp. 226-239. See also,

1. Jacobus Arminius, De Deo et Homine, 1629, small quarto. To this is prefixed Petrus Bertius, De Vita et Obitu J. Armini.

2. The works of James Arminius, D.D., formerly professor of divinity in the University of Leyden. viz., from the Latin, to which are added Brandt's life of the author with considerable augmentations; numerous extracts from his private letters; a curious and authentic account of the synod of Dort and its proceedings; several interesting notices of the progress of the Calvinistic opinions in Great Britain and on the Continent. By James Nichols, author of Calvinism and Arminianism compared in their Principles and Tendency. Volumes 1 and 2: London, 1825 and 1826.


4. Supplément au Dictionnaire de M. Bayle, par J. C. Chauffessie, tome 1, 1750.


7. Acta Synodi Nationalis Dordrechtii habitae, to which is appended the Judicia Theologorum Externorum, who were present at the synod of Dort, with the authentic minutes of the convocation of the synod. Also D. Heinsii Prefatio ad Eclesias, a narrative concerning Arminius and his party, prefixed to the Acta Synodi Synodali.


9. J. Halesi Epistolae, letters of John Hales, chaplain to the English embassy at the Hague, and published originally in English in the 'Golden Romains' of the memorable John Hales of Eton College, 1659, 4to. The Latin edition (Halesi Epistolae) was published by Mosheim at Hamburg in 1724, and is prefixed by about 200 pages concerning the synod of Dort and the life of Hales.

10. Calvinism and Arminianism compared in their principles and tendency, by James Nichols. London, 1824, in two volumes, 8vo. This important work gives the fullest information on the history of Arminius.

ARMINIUS. [See Herman.]

ARMLEY, a chapelry in the parish and borough of Leeds. [See Leeds.]

ARMORICA, ARMORICE CIVITATES, the name given, in the time of Caesar, to the maritime districts of Celtic Gaul, situated between the mouth of the Ligeris (Loire) and that of the Sequana (Seine); the word is derived from the Celtic, ar mor, which means 'near the sea'.

The Veneti, Oissmi, Curiosolites, Rhodones, Caletes, &c., who formed a sort of confederacy. Their towns and fortresses were built along the coast, and they had a considerable fleet, with which they carried on an intercourse with the island of Britain. The Veneti, the principal tribe, after repeated struggles, they formed part of the province called Lugudunensis Secunda, which was afterwards divided into Secunda and Tertia; the maritime districts of this province were styled Armoricae tractus, and nearly corresponded in extent to the modern French provinces of Brittany and Normandy. (D'Anville, Notice de l'ancienne Gaule.) Maximus, a Roman officer, having revolted with the legions of Britain against the Emperor Gratian, A.D. 383, passed into Gaul with two legions and a large number of islanders, among whom was one Conon Merideac, a chieftain from the south of Scotland, to whom Maximus assigned the government of Armorica, which appears to have included the modern provinces of Brittany and western Normandy. This is the first recorded emigration of Britons into that province, which was followed by others, as Meriade, having obtained the confirmation of his government from Theodosius, after the death of Maximus, induced many of his countrymen to come and settle under his protection.

In the middle of the fifth century, thousands of Britons, driven from their native country by the incursions of the Huns from the north, crossed the channel, and sought refuge among their countrymen in Armorica. That country, left unprotected by the Roman emperors, had erected itself into an independent state, under the government of Co- man's descendants, and, favoured by its situation, had repelled the attacks of the northern tribes, who demanded...
the rest of Gaul. The ships of Armorica carried on a con-
siderable trade in those times, and the country seems to
to have attained a remarkable degree of prosperity amidst
the general desolation of the west of Europe. The Christian
religion was early propagated in Armorica; Bishops of
Dol, Quimper, and other sees in Brittany, in the end of the
fourth century, and the old annals of the country have pre-
served the memory of numerous saints, whose Celtic names
are little known to the rest of the world.

Spanish emigrants, who had been driven to leave Armorica to
find a home in Britain, the British population seems in a great measure to have
displaced, near the coast at least, the original inhabitants, who
withdrew to the interior districts; and from this cir-
cumstance it is very easy to draw the conclusion that all the
cities and the people Bretons. The council of Tours,
held in 567, in one of its canons makes a distinction between
the Breton and the Roman inhabitants of Armorica. The
successors of Conon were styled Counts of Bretagne. The
French historians have said that they did homage to Clovis,
king of the Franks, as their sovereign; but this appears
dooubtful. At all events, their vassalage must have been
merely nominal, as we find them acting as independent
princes, and frequently at war with Clovis's successors, until
the country was finally subdued by Charlemagne.
The name of Armorica had long before this event been superseded
by that of Bretagne, under which name it again became a
separate duchy, with only a nominal dependence on the
crown of France. [See Bretagne; Dau, Histoire de
Bretagne.]

ARMOUR is a term generally applicable to any defen-
sive habit, used to protect the person of the warrior from the
attacks of his enemies. The English word armour, in the ancient
sense, in the fifteenth and sixteenth centuries, was harness.
Among the more civilized ancient nations, brass, iron,
and other metals, were preferred for its fabrication; and in
the time of Ancient magnificence, even gold was not spared.
Hercules (vii. 71) says that the Libyans who assisted
in the great army wore leather armour, or probably skins only
is meant; of which material, he adds (ib. 71),
the armour of the ancient Persians also was composed.

In the armorial bearings of the Norman barons, who
must look to the sacred writings, where we find the shield, the
helmet, and the breast-plate used by the Israelites. Goliath of Gath
(1 Sam. xviii. 6) wore greaves to defend the legs, which
were also worn by the warriors of other Asiatic nations; and,
at the siege of Troy, by the Grecians in general. Homer's
epithet of klympti A'xvmai (the well-greaved Achani) is fami-
lar to every classical reader. His description of the thorax or
breast-plate of Aegamemon, at the beginning of the eleventh
book of the Iliad, shows that decorated armour was used even
at this early period. The same conclusion follows as a matter
of course from the description of the shield of Achilles, and
it proves that occasionally great pains and skill were em-
ployed in the decoration of his shield. The great shield of Glau-
cus (Iliad, vi. 236) is stated to be worth a hundred oxen.

Among the Egyptians, armour of metal was confined to
kings and nobles; the helmet of Pammenechus was of brass,
while every warrior were girted linen for helmets, and
covered with large wooden shields. (Xenophon, Anab. i. 8.)
The breast-plate which Amasias sent to Athens (Minerva)
at Lindos was made of linen, on which figures of animals
were woven; the ornamental parts were of cotton-thread
and gold. (Herod. iii. 167.) As the Greek armour, several
specimens of the helmet and cuirass occur upon the frieze
of the Elgin marbles; in one instance (slab 51) we have a
scaled cuirass richly ornamented. In the bronze of Siris,
purchased in 1817 for the British Museum, the
warriors have helmets and shields only. One has a round,
or the other an oval shield: their bodies are unclothed.

The complete Roman armour consisted of the helmet,
shields, and greaves. The lorica was originally of
leather and protected the body from head to
Tullius, according to Livy, the whole of the Roman body
armour was of brass. The laminated lorica was heavy,
Tacitus (Hist. lib. i.) informs us, that its weight was
more complaint by the soldiers than the time of Galba;
and the emperor himself, in his old
age, found the weight of his cuirass too much for his feeble
frame. (Hist. lib. i. c. 35.) The Roman lorica was fre-
quently enriched upon the abdomen with embossed figures,
which were fastened by means of numerous small nails, on
the shoulder-plates with scroths of thunderbolts, and on
the leather border which covered the tops of the lambre
quis (or pendent flaps) with lions' heads; and these were
formed of the precious metals. Each Roman legion had its
own device marked upon its shields. In the time of Trajan,
the 383

From these facts a general notion may be gathered of the
kind of body-armour used among the ancient nations. But
as to the minute varieties of it, which are to be found in
the manuscripts, upon gowns, coins, vases, and other representa-
tions, exhibiting the differences of the arts which ex-
isted, according to the time, the country, or the people of
improvement among the people, the details would be
endless. Some of the most important facts will be mentioned
under the proper heads, such as SHIELD, HELMET, &c.

Upon the history of defensive armour, as it was worn
in England, we shall be more minute. The early Britons are
believed to have used none except the shield. Sir Samuel
Meyrick, on the authority of Aurein, the British bard,
says, that the Anglo-Saxons under Hengist and others,
were armed of them loricae of leather and four-cornered
armets. This armour, he thinks, was probably acquired
through the alliance of their fathers with the Romans.
Under Clovis and his successors Aurein says that
Hengist wore scale-armour. A very early illuminated ma-
uscript in the Harleian Collection, No. 663, represents a
warrior exactly answering this description. Drawings of the
eighteenth century represent the Anglo-Saxon soldier
without any other defensive armour than a round shield; the
armet, which latter, Sir Samuel Meyrick remarks, seems, in general,
to have been nothing more than leather, and is often
omitted even in representations of battles. His offensive
arms are the sword and the shield. The form of the shield
at this period is always oval; it is usually surrounded
by a broad rim on the outside, and has a sharp boss projecting
from the middle, both of metal; the materials were wood-
en, and the covering of the laws of Athelstan pro-
hibits the making of shields of metal. The penalty of
thirty shilling. The helmet, as it is commonly
represented in drawings of this era, appears to have been
nothing more than a cap of leather, with the fur turned
outwards; but personages of rank had one of a conical form
made of metal and gilt.

When the tunics supplanted the lorica, Sir Samuel Mey-
rick observes, the Roman pectoral was still retained, and
called balteus joricus, neck-guard; byssy-bebes,
'defence for the breast;' and byssy-bebes,
'defence for the breast.' It may be seen on a warrior in an illuminated in a manu-
script of the Cottonian Library, marked Tiberius, B. v., in
which the resemblance to the Roman pectoral is quite
manifest. The Saxons, however, he continues, 'in
January into Ant. Armour, Intro. p. lxxiii.,' are by no means
indicated with respect to the form or materials of the breast-guard;
but the epiphysis applied to such as were of metal is 'rigid.'
Others are mentioned which are said to have been 'rough
or shaggy,' so that we may suppose them to have been
formed of wool or hair, or perhaps of undressed hides.

Notwithstanding these remarks, the word lorica fre-
quently occurs in the writings of the most eminent Saxon
authors, and sometimes is mentioned in their poems; and it might
imply that it was made of metal. Aldhelm, who lived in
the latter part of the seventh century, in some anigmatical
lines (Post. nominat. 1. Tono. Mogunt. 1601. p. 51, De Lor-
iac recepto), speaks of a warrior's vestment which feared not darts
drawn from the long quivers:

--- En i vesilis voce loricum vocari
"Speica nos verbor longis exemplo peracta."}

Whether it be the scalled-armour, such as worn by
Hengist, or that made of flat-rings (as designated in Hope's Costume), is not quite clear. In
an illumination, however, of the eighth century, a king
habituated in a tunic covered with flat rings occurs; and in
another manuscript of that period (See the Cottonian MSS., Claud. B. iv., and Cleopatra, C.
viii.) The Saxons authors call this ephyesyteo p. p., or
"ringed byrne." Some illuminations seem to show that the
rings were not perfectly regular, and in one manuscript (compare the MS. Cleopatra, C.
viii.), in either case the name is equally applicable.

Towards the close of the ninth century, the corium,
or coriætum, was the armour generally used, and appears frequently in the drawings of that period. It was formed of hides cut out in the resemblance of leaves, and covering one another; sometimes all of one colour, as blue, &c., and always of a roundish form. The Norman and the Angevin monarch are depicted by them, in his court and in the field of battle, with the same kind of head-covering, even when every other part of his dress is marked with decisive variation:—but upon the figure of Edward the Confessor, in his golden and purple dress, which is drawn with great accuracy. The casque of the nobility is usually pointed in the form of a cone, and made of brass or some other metal. In the two succeeding centuries its shape is the same; but it is ornamented with gold and precious stones, and is improved by the addition of a small piece to protect the nose, called a nasal. (See an illumination in the Cottonian MS., Tiberius, B. v.)

Leg-guards are decidedly mentioned by the early Saxon writers; but they uniformly appear to have been made of twisted pieces of woolen cloth, coming from within the shoe, and wound round the legs to the top of the calves, in imitation of the hay-bands used by their rude ancestors. The shield still continued oval, and indeed until the Norman conquest; but it differed from time to time greatly in dimensions, especially in the tenth and eleventh centuries, in the drawings of which it appears of various sizes, from a magnitude sufficient to cover the head and body, to a diameter not greater than a foot and a half. This variation is further supported by historical testimony, for we find mention made of 'little shields,' and 'smaller shields.' In the will of Ethelred, dated in the year after his death, he bequeatheth to the king's treasurers and to the legates, and it is distinguished from the target. It was probably of the larger sort, and received its appellation from being usually slung upon the shoulder.

When the Danes made their first appearance in England, Saxon shields and English spears appear as large as ever, no diminution of the size of the head of the Norman, the lower part of their neck, or a small thong of flat rings, with greaves, or rather shin-pieces, of stout leather. About Canute's time, the Anglo-Danes adopted a new species of armour, which, he thinks, "they probably derived from their kinsmen, the Normans. This consisted of a tunic, with a hood for the head, and long sleeves, and what were afterwards called chausses, i.e. pantalons, covering also the foot. It consists of a tunic with a hood, or kerchief, of cloth, called, from their resemblance to the meshes of a net, masques, or masques. They wore, too, a helmet, or skullcap, in the shape of a curvilinear cone, having on its apex a round knob, under which were painted rays of a star. This helmet had a large broad nasal, to protect the nose, and the hood was drawn up over the mouth, and attached to it, so that the only exposed parts were the eyes. The shape of the plates, covering the arm, was the same as that of the British Museum commonly called Canute's Prayer-book. Spears, swords, and battle-axes, or bippennes, were the offensive arms, and the shield remained as before. Such had been the state of armour in Britain when William came, and the army of Normans and Flemings to the victory at Hastings.

From this period, the great seals of our kings, those of the greater barons, and monumental effigies, give the outline of the changes which took place in the fashions of armour. The great seal of William the Conqueror represents him on one side seated on a throne, upon the other he is in a hauberck apparently of rings set edgewise, which kind of armour had been used by the Anglo-Saxons. The Normans, in the Bayeux tapestry, are on horseback, and generally terminating with it. Aclin (De Offic. Divini) speaks of the Anglo-Saxon military tunics of linen in the following terms:—The soldiers are accustomed to wear linen tunics, which are cut differently, the one according to the utmost expedition, to direct the dart, pose the shield, wield the sword, &c. The weight of the ringed byrne seems to have been found a great impediment to activity. Hence, when Harold, in 1063, obtained immediate and decisive success over the Welsh, it was owing to the change of armour among his soldiers. He had observed that these mountaineers could not be pursued to their fastnesses by his troops when clad in ringed tunics, and he therefore commanded them to use their ancient leather suits, which would not impede their activity. (Ingulfus, fol. 68. Joh. Sariis. De Nugis Curialium, lib. vi. c. vi. p. 185.)

The Saxon artist, it appears, made no distinction between the Anglo-Saxons and the 'Bayeux' or 'Bayonne' tapestry; both were exhibited at the same time;—this, says Sir Samuel Meyrick, I take to be the hauberck, as there are some few specimens of the tunic, or hauberck, and both being mentioned in the Roman de Rou. This opinion, he adds, is further strengthened by a specimen of this kind of arm at the Armorial Monument in Ireland as late as the time of Edward III. It appears to have been put on by first drawing it on the tights, where it sits wide, and then putting the arms into the sleeves, which hang loosely, reaching not much below the elbow, as was the case with the Saxon flat-ringed tunic: the hood attached to it was then brought up over the head, and the opening on the chest covered by a square piece, through which were passed straps, that fastened behind, hanging down with tasselled terminations, as did also the strap which drew the hood, or capuchon, as it was called, tight round the forehead. This is evident in several figures of the 13th century. It is said that the head of the armour was put on and fastened is best shown where William is facing Harold. The Duke of Normandy is there represented as placing the helmet on the head of the Saxon earl with his left hand, while his right is busied making tight a strap, the tassels of which is drawn across the face of his son, a point which is not shown. No examples of such shaped armour in England occur previously or in any subsequent reign; but it appears to have been introduced into Ireland, and worn in that country, as we have above observed, to the ankles. Such, however, is the case on with the most distinguished characters, as William, Odo, Eustace, &c. This covering for the legs, according to William of Malmesbury, was called house or hose; whence Robert of Normandy, being rather short-legged, we are told by Ordericus Vitalis, his contemporary, was often called by his father Curt-hose. The shield, as depicted in the tapestry, and introduced by the Normans, was of a very peculiar form. It has been called hauberck from its supposed resemblance to those familiar objects; but by the Normans themselves it was merely termed escu, from the Latin, scutum. While in the tapestry most of the Saxon shields are represented round or oval, with a central boss, as in the Kentish and Norman shields, no other instance of a Norman with any other than the long kite-shaped shield.

The armour of the reign of William Rufus remained precisely the same as that of the Conqueror; and we have no new specimen of any part, except the chapel de fer. This appears on the seal of Rufus, and resembles a Tartar cap, being a cone which projects beyond the head. The great seal of Henry I. represents the king in a ringed-armour. Other seals of his time occur in the enamelled copper of Geoffrey Plantagenet, engraved by Stothard, and described by John of Marmouster, and in a representation of similar date, engraved by Strutt, in his Sceattas and Habitus, and his People of England, from a manuscript in the possession of the late Francis Douce, Esq.

In the reign of Stephen, what is called tegulated armour appears to have prevailed, which consisted of several little circular plates, covering the upper part of the body, over a hauberck, without sleeves or hood. The seal of Richard Fitzhugh, Earl of Chester, engraved in the Vetusta Monumenta of the Society of Antiquaries, affords a fine specimen of this kind of hauberck. The hauberck appears to have been disused toward the close of this reign; though, upon his great seal, Stephen is represented with it.

Henry II. is represented upon his great seal in a flat-ringed hauberck, bearing a comical helmet without a crest. The flat ring, however, gave way soon after the commence-
assumed a shape so cumbersome. From the Chronicle of Bertrand du Guesclin, composed about the time of Richard II., it is to be learned that he was intended to be the type of a knight, having been described as 'avoir chacun un jasque par-dessus son haubert,' - each had a jack above his hauberk. This small vest was called jacket, and in the Latin of the time, *jactatorius,* as was the *jacque,* *jacquemardus* and *jacobus.* The monument of Sir John de Nanteux, in the church of Seigneurie, at the village of Ezel, in the department of Loir-et-Cher, seems to represent him in the jacque. He is clad in mail, and wears this garment, which is made with sleeves, sits close to the body, is buttoned down the front, and has a pucked hood. In that same region, an old French writer, *sur les Droits nouveaux,* describes it as of chamois, extending to the knees, and stuffed with fowls, so as to be a kind of poyntour. During the latter part of this reign, the shape of the leggings on the sides of the saddle, over the pantaloons, is that of a truncated cone on the top of a cylinder: the apertures for the stirrups were horizontal, and pierced in the transverse part of a cross that ornamented the front. The crusade in this reign, says Sir Samuel Meyrick, as represented in the stained glass of a window in the church of St. Mary's, in the county of Kent, introduced a new and most ingenious species of armour, probably of Aesopian discovery, and still worn by those nations at the present day. This was the interlaced rings, which, as dependent on each other, did not require to be sewed to an outer garment. The difference is sufficiently evident in the monumental effigy of De l'Isle, in Rampton church, Cambridgeshire, which exhibits him in the flat coif worn during the greater part of this reign, but made, as well as the hauberk and hose, of interlaced rings. The coat of his shield, however, is that of the close of Henry III.'s reign, and, with his surcoat, is ornamented with his armorial bearings. The chapel de fer continued to be used in this reign. The chanfron, or armour for the horse's head and face, first occurs in the clause-roll of the fifty-fourth Henry III.

Considerable improvements were made in armour during the reigns of the first three Edwards. Alettes, or shoulder-pieces, appear to have been introduced in the close of Edward I. In Edward II.'s time, armour appears to have assumed a mixed character, being neither altogether mail nor wholly plate. *Armures de fer,* toward the close of this reign, became the distinctive term, among the French writers, for plate-armour. The Florentine annals, says Sir Samuel Meyrick, consider the year 1316 as remarkable for a new regulation in armour, by which every horseman who went to battle was to have his helmet, breastplate, gauntlets, cuisses, and jambes all of iron, a precaution which was taken on account of the disadvantages their cavalry had suffered from wearing light armour at the battle of Catano; but this usage did not find its way into general practice in Europe for some time. The modern English, in Wales, afterwards King Edward III., represents him with aletes on which are his arms, in the same manner as Edmund Crouchback is exhibited in Westminster Abbey, and in a missal belonging to the late Francis Durec, Esq. What is termed *poulains,* or *poulaines,* which appear to be a species of hauberk, or a long coat of mail, were either pieces of mail, or pieces put on the breast, from which depended chains, one of which was attached to the sword-hilt, and the other to the scabbard. The armour at the close of this reign may be seen in an initial letter of a grant from King Edward II., constituting his brother, Thomas de Berthomvet, Marshal of England. (See the MS. in the Cottonian Library, Nero, D.vi.) In the chancel of Ash church, in Kent, is the monumental effigy of a knight which exhibits still further the progress of the plate-armour.

The helmet on the seal of Edward II. is of a cylindrical form, with a grated or pierced aventail and visor attached: a clasp which fastens this on the right side is very visible, and it is seen that the knees are attached by a trumpet. It was very much the custom during this reign to wear over the armour the cointisse, or surcoat, ornamented with the warrior's arms.

The monumental effigy of John of Eltham, who died in 1329, exhibits the fashion in which armour was worn at the commencement of the reign of Edward III.; similar to which is the figure on the monument of a knight in Field church, in Sussex. The splendid manner, it is observed, in which some of the knights of this age were represented, the body and helmet and gauntlets of their armour made proved sometimes fatal to them. Froissart tells us, that 'Raymond, nephew to Pope Clement, was taken prisoner, but was afterwards put to death for his beautiful armour.' The monument of Sir Oliver Ingham,
one of the latest specimens of armour with raised figures upon it.

King Charles I. is continually represented in armour, and he took great pains to bring about a uniformity in the fashion of armour among his officers and soldiers. But the troubles of his reign, and the success of the levellers of that period, caused a material alteration, so that soon after the Restoration in 1660, we find the helmet and cuirass only worn; the latter consisting of a breast and back plate. The wearing of armour to the knees continued only to the time of Cromwell. The cuirass and a kind of helmet, however, were worn by the officers of the royal regiments of Life Guards; and have, likewise, been resumed in the armies both of the French and Germans.

For this account of armour, various works have been consulted—Grose’s Treatise; Gough’s Sepulchral Monuments, &c.; but the best known work has been Sir Samuel Meyrick’s Critical Inquiry into Antient Armour as it existed in Europe, but particularly in England, from the Norman Conquest to the Reign of Charles II. The collection of antient armour possessed by that gentleman’s son at Goodrich Court, in Herefordshire, and his own extensive researches, have supplied more information upon the subject than is probable could have been given by any other writer.

The reader who wishes for further information may consult Sir Samuel Meyrick’s Engraved Illustrations of Antient Armour from the Collection at Goodrich Court, 2 vols. fol. Oxford, 1830, where (pl. iv. to x.) a series of tournament armour of succeeding kings, from 1439 to 1566, is exhibited.

Bordeaux steel is frequently mentioned by Froissart as excellent for armour. Felippo Negroli, of Milan, was the eminent armourer who worked for Francis I. of France, and the Emperor Charles V.

Some remarks on the antient mode of putting on armour, communicated to the Society of Antiquaries by Sir Samuel Meyrick in 1821 (see the Archæologia, vol. xx.), unravel, by the help of an antient document found in the Turin museum, the knight began with his feet and clothed upwards: viz. 1. his sabatynes, or steel clogs; 2. the greaves, or shin-pieces; 3. the cuisses, or thigh pieces; 4. the breech of mail; 5. the tippets, or overlapping pieces below the waist; 6. the back plate, or cuisses; 7. the bracers, or for covers for the arms; 8. the rere-branches, or arre-bras, the covering for the remaining part of the arm to the shoulder; 9. the gauntlets; 10. then the dagger was hung; 11. the short sword; 12. the cloak, or mantle, which was worn over the armour; 13. the basinet; 14. the long sword; 15. the pennoncel, held in the left hand; 16. the shield.

A R M S, in a general sense, includes all kinds of weapons, whether of offensive or defensive force. Amongst these, the bow and arrow probably reckon the bow and arrow. It enabled man to kill wild animals for food before its use was required as a weapon of war. As a military weapon, it was probably succeeded by the slings. Lucretius says—

"Arma antiqua, marus, augeons, damasquinaeus, &c."

"Man’s earliest arms were firquets, darts, and nads, &c.
And stones, and fragments from the braching woods.
Then trees and stones they joined, detected soon;
Then copper next, and last, at last, tracent;
The tyrant iron, than the copper velo.
Less beezy found, and storied to enodose.

Homer and Hesiod tell us, that, in the early ages, the arms and instruments of the heroes were composed entirely of yew (copper), perhaps hardened with tin. The word is commonly translated brass, but it could hardly have been the compound metal which we understand by brass. Defensive arms have been already treated of under Armor.

The Jews appear to have had swords, daggers, spears, javelins, bows, arrows, and slings: axes or maces were also used by them as weapons of war.

Heraldotius (vol. vi. 61—69) gives a minute description of the weapons used by most of the different nations which formed the great army of Xerxes. Amongst these, the Medes and Persians had short spears, bows, arrows made of reeds and baskets: and, besides spears and daggers, the Assyrians, besides spears and daggers, had bow, made of reeds, and short spears: the Persians had bow, large, flexible, and curved at the ends; the Ethiopians, bows made from the spath (edaph) of the palm, four cubits, or six to eight; their arms and short spears, with sharp stone instead of iron; they had spears headed

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with the sharpened horns of the dorcas [See Antelope, p. 70], and knobbed clubs. The Libyans had their spears hardened at the end by fire. The Paphliognomis, Phrygians, and Thracians carried spears. In the Persian army at the battle of Cunaxa, we find chariots armed with scythes mentioned. [Xenophon, Anab. I. 8.]

The Grecian armies were composed of various sorts of soldiers. In the earliest ages, as we have seen, the men of the Persian army were divided into archers, thePersian archers, and the Persion archers, as the case might be. But this practice seems not to have existed in the historical ages. The cavalry of the Thessalians and that of Macedon obtained the highest reputation among the Greeks. It was with this cavalry that Alexander defeated both the army of the Persians and those of the Persians in the famous battle of the Granicus.

Our military weapons were probably but little altered till the time of Edward I., when the English longbow seems to have been adopted, or rather arrived at its proper use. Gunpowder was invented in the thirteenth, and the larger sort of fire-arms in the fourteenth century; these will be separately treated of under the head of artillery.

Portable or hand fire-arms, to which we shall confine ourselves at present, were not invented till a century later. Sir Samuel Meyrick, in a Memoir in the Archaeologia of the Society of Antiquaries, has collected most of the scattered notices to be found in military writers relating to their introduction. He has, indeed, given the very year of their invention, upon the authority of an eye-witness. 'It was in 1430,' says Bilius, 'that they were contrived by the Lucquesi when besieged by the Florentines; and we shall find that not only is the credit of the first conception of these weapons due to the Italians, but most of the subsequent improvements.

A French translation of Quintus Curtius, written in 1468, preserved among the Burney MSS. in the British Museum, exhibits two warriors in one of its illuminations, who bear the earliest representation of hand fire-arms with which we are acquainted: they appear to be hand-guns.

The following is the enumeration of the different pieces of portable fire-arms and their accompaniments, almost all of which have been engraved by Skelton, in his Specimens of Arms and Armour.

Hand-cannon, hand-gun, arquebus, arquebus à croce, haubits, demi-haubits, musquet, wheel-lock, currier, snap quarantine, caliver, carbine, escolette, fusil, musquetoon, howling-piece, petronel, blunderbuss, dragun, hand-mortar, dag, pistol, tricker-lock, fire-lock, self-loading gun, fancy-gun, musket-arrons, match-box, powder-horn and flint, touch-box, handeliers, cartidges, patron, swenyes-feathers, and bayonet. The re-collection of the fact, that phylae (small pots) had sometimes been used for casting the Greek fire, was likely to lead to some more dexterous invention. The Emperor Leo, in his Tactica, ch. xix. § 6, says upvaygxg, on secu, describing the use made of artificial fires in vessels employed in pursuit after a naval battle, says, 'on the prows of such vessels were placed upvayxg (ephones), large tubes; they were of copper, through which these fires were blown into the enemies' ships.' Anna Comnena (Alex. I. xiii.) says, 'that soldiers were supplied with copper tubes, and blew artificial fire, in the same way, upon their enemies in battles on land.' Here we have, undoubtedly, the origin of fire-arms.

The hand-cannon was a simple tube fixed on a straight stock of wood, about three feet in length. It was furnished with touch-holes, trunnions, and casseable, like a large cannon. The touch-hole was, in the first instance, at top; but the liability of the priming to be blown away led to the improvement of placing a small pan under the right side to hold the powder. This pan was the first step to the invention of the wheel-lock.

The hand-gun was an improvement on the hand-cannon. It was cast in brass, and, as a tube, was of greater length; a flat piece of brass, made to turn upon a pin, covered the pan which contained the powder: it had also the addition
of a piece of brass fixed on the breech, and perforated to ensure the aim. The hand-gun appears to have been in use in England at least as early as 1453, where it was known as a "musketeer". The invention of the arquebus is credited to Capt. John Forrester in 1537, and its use of it to great advantage in their last defense of Constantiopolin 1453.

As soon as the hand-gun had received a contrivance suggested by the form of the cross-bow, to convey a certain and instantaneous motion the burning match to the pan, it acquired the appellation of arquebus, corrupted into harquebus. Previous to this invention, the match had been held in the hand, and then smelted on the face of the gun, after which, rapidly and with much noise, as the match was lighted, the fire. Wheel-locks were for a long time chiefly manufactured in Germany. They were certain brought to England in the time of Henry VIII., in whose reign we find an importation in "the king's wheel locks." Venenuto Cellini (Memores, vol. i. p. 182, Roscoe's transl.) mentions his mounting a brown Turkish horse, and placing a wheel-lock arquebus at the pummel of the saddle, in the year 1530.

The Curritor or currier of war, is another species of fire- arm first noticed in a letter from Lord Wentworth to Queen Mary (see the Hardwick State Papers), while writing respecting the siege of Calais. It is again noticed in the Earl of Essex's operations in Ireland in the time of Queen Elizabeth. (Birch's Memoirs.) The earliest account of it is given in a work entitled The Knowledge and Conduct of the seas, printed in 1578. Sir John Smith, in his Animadversions on the Writings of Captain Burckharn, describes it of as the same calibre and strength as the arquebus, but with a longer barrel.

Grose observes, that the Snapshane derived its name from the troops in which it was used of it, which the Dutch termed musphane or 'poultry-staelers.' The use of the match-lock exposed them to this inconvenience, that the light from the burning match point out their position, and they were unable to purchase any cover. He says, the use of the wheel-lock to this end formed the snapshane from a study of the wheel-lock. A flat piece of steel, furrowed in imitation of the wheel, was placed on a steel post, which, being screwed beyond the pan, was made movable. Then the furrowed piece being brought to stand over it, on pulling the trigger, the flint, which they substituted for the pyrites in the cock, struck against it, and the spark was produced. This was an invention of the time of Elizabeth, and it is the most compact and stately of all, fashionable in France, Holland, and England. The snapshane was a near approach to the fire-lock.

The Culver differed from the musket in being lighter and shorter. It was a fire-arm of a regulated calibre as to the diameter of its bore, which was larger than that of the arquebus. It was made to fire with a match-lock. A match-lock caliver is preserved at Brancepeth Castle, Durham, which bears the date of 1611.

Of the Carabine, Sir Samuel Meyrick says, 'In the extraordinary for the war in Pirardie, in 1559, we first meet with the troops called carabins, who were light cavalry in the service of Henry II., King of France.' M. de Montcornet, in his works, says that the carabiniers formed a circle near the shoulder, that they might the more readily touch their cheeks to take aim; that they had a cabasset on their heads, and their breef-armes protected by an elbow-gauntlet. Their offensive weapons were a carabine, a sabre, a foot and a half in length, so named from themselves, and a pistol. Their manner of fighting was, to form a little squadron, deeper than wide, to discharge their pieces rank after rank, wheeling off, and forming immediately and successively in such a rear of the rest, and to give a second discharge.' Now, although the origin of the word is involved in much obscurity, it is more consistent with analogy to suppose that the carabineers were so named from the gun, rather than derived from the term carabier, which derived its name from some application, acquired the name of pyrites or fire-stone. The spring which turned the wheel was attached to it by a chain, formed like those in watches, and was wound upon the axle, or, as the term was, 'up the wheel,' by a smaller wheel called a spanner. This instrument had at one end a hole made square to correspond with the projecting axle of the wheel, and being adjusted, was moved in the direction of a screw, which made the wheel revolve, and a little slider that covered the pan retire from over it. The hammer was an iron trunnion, made of steel, and was used as it to great advantage in their last defense of Constantiopolin 1543.

The Escopette. The peculiar characteristics of this fire-arm, says Sir Samuel Meyrick, 'I have not been able to discover. It was called in Latin scopetta, a diminutive of scopium; and occurs in the Chronicle of Fleetwood, 1534, as well as in the decree of the Council of Tarragona in 1591, who forbade the clergy to make use of it. Probably it was only the foreign name of the demihache.'
The name of the *Puisil* as a fire-arm, in England, says the same authority, 'does not appear to be older than the time of Francis I. and that his successor till the time of Henry IV., introduces to our notice a piece called a *Petronel* or *pistralin*, because it was rested on a point or stile, after the manner of a blunderbuss, and thence fired. It was the medium between the arquebus and the pistol, and differed from the long dag merely in having its butt made broader, so as to rest in its position with perfect firmness. Fauchet says, it was believed 'that this arm was the invention of the bandouliers of the Pyrenean mountains.' Mention is made of it in 1592, at the siege of Rouen by Henry IV., and in the History of 1603 we have mention of it by Nicole. In his dictionary, he asserts that 'it was of large calibre, and, on account of its weight, carried in a broad baudrier over the shoulder.

The *Blunderbuss*. This is a fire-arm shorter than the carbine and with a wide barrel. Sir James Turner, in his *Pallas armata*, p. 137, thus describes it: 'The carabiniers carry their carbines in bandoleers of leather about their neck, a far easier way than long ago, when they hung them at their saddles: some, instead of carbines, carry blunderbusses, which are short hand-guns of a great bore, wherein they may put several pistol or carbine balls, or small slugs of iron. I do believe the word is corrupted, for I guess it is a German term, and should be donderbucks, and that is, thundering guns, dondersignifying thunder, and bucks a gun.' Sir Samuel Meyrick remarks that Sir James Turner is right in his etymology, except that 'bus' and not 'bucks' is the term for a gun, a name that became general after its introduction in the word arquebus: the modern German word is *büchse*. Blunderbuss being called in the Dutch language *donderbus*, in all probability it was from Holland that the English derived it: it does not appear to have been much known here at the time of Charles II.

**The Dragon.** The troops called dragons have been most absurdly said to have been so denominated from the Draconarii of the Romans. They were raised about the year 1600 by the Mareschal de Brissac, in order to super- sede the 'Puisils' or *Petronels*, who used the pistol to so much advantage. On this account they had a more formidable weapon like a small blunderbuss, the muzzle of which being ornamented with the head of a dragon, gave it its denomination, and from this weapon those who used it were called dragoners and dragons. Other, but less satisfactory, ex-

**The Pistole,** according to Sir James Turner, was invented at Pistoia, in Tuscany, by Camillo Vitelli, and in the reign of Henry VIII. M. de la Noue says, the 'reiters first thought of shooting with it, and then it was carried by the common soldiers.' The use of this weapon was two tacks, after the fashion of a dagger, with five locks, instead of three. The tacks were fastened with a piece of red cloth, 'shetish covered with black velvet garnished with silver and curl, with purses, flasques, and touch boxes of black velvet garnished with iron curl; besides tacks fastened like a talon, but far less dangerous when properly managed.' These reiters, or more properly ritters, were the German cavalry, who gave such ascendency to the pistol as to occasion in France, and subsequently in England, the disuse of lances. We learn this interesting fact from Davila, who, speaking of the battle of Ivry, in 1590, takes occasion to extol the use of lances, and express his regret that the French cavalry, composed of gentlemen volunteers, had, in the revolutions of 1592-3, used this advantage to their ill fortune in the field, and that the English had adopted pistols as more ready, in imitation of the German reiters, the king was obliged to oppose the lances of the enemy's cavalry by dividing his own into small bodies, that each man might offer less resistance and be more easily get out of the way. Père Daniel informs us, that the horsemen who were armed with pistols, in the time of Henry II., were thence called pistoliers, a term subsequently introduced into England. John Bingham, in his *Notes on the Tactics of Alien*, published in 1616, gives us an engraving of the arms and armour of this species of troops at that time, from which a correct knowledge may be gained of their form. The first ordinance of Henry II., King of France, respecting the pistol, is directed to the men at arms, and dated 1549; the regulations of Mary Queen of England were of a similar character; both implying that the adoption of the pistol, in the first instance, was by permission. The use of this arme d'un feu is detailed and exhibited in several plates in Captain Cruso's *Military Instructions for Cavalry*, published in 1632. Sir James Turner, in his *Pallas armata*, published in 1670, says, the French used locks with half-wads (bouchons), and for the most part the English and Scots; the Germans rose or wheel-locks; the Hollander used both.

**The Trick Lock.** 'A match trick-lock complect' occurs in a schedule of the year 1629. This was the adoption of what is now termed a hair-trigger, which was added to the former one, and gives a more instantaneous discharge. A trickier wheel-lock of the reign of Charles I., a trickier wheel lock of the reign of Charles II., and a trickier wheel lock of the reign of James II., upon this principle, are preserved in Mr.
Meyrick's collection of arms and armour at Goodrich Court, is Herefordshire.

The Self-Loading Gun originated in Italy about the close of the English Protectorate. The butt was made to answer the purpose of a flintlock, and a small touch-box was attached to the gun. At the breech was a cylinder, with a hole to receive the bullet. When the shoulder rested against this cylinder, the weight on the shoulder would press down a lever, on turning which the bullet was conveyed to its proper place; sufficient portions of charge and priming were cut off, and the piece cocked at the same time. This, therefore, answered the purposes of a long firearm, in the line of the long bow; but the contumacy was attended with great danger, and occasioned the subsequent inventions of a moveable breeching containing several charges, or a small bandoleer extending to the breech when requisite to load, &c.; but none of these contrivances were ever adopted by infantry regiments.

In 1712, a brass fire-arm called the Fancy gun was invented. It was in the shape of a walking-cane, and might be used as a gun or pistol; but it was never used for military or any general purposes.

Muskets and Arrows, sometimes called fire-arrows, are at least as old as the time of Queen Elizabeth. They occur in the inventories of the armament, in the accounts of the voyage to the South Seas in the year 1591, speaks of using them with great success. In Elizabeth's time, these arrows, which carried combustibles, were of wood; at a subsequent period they were made of iron. Arrows of this latter kind were used in the Civil Wars; at the siege of Lyme. Lord Bacon says the arrows shot by muskets were called sprights.

The Match-box. One great inconvenience, says Sir Samuel Meyrick; a是一件, among other things, was that it discovered the soldier on guard, and counteracted the necessary secrecy for enterprises by night. To remedy this defect, small tubes of tin or copper, pierced full of holoes, were invented, and passed in the Match-box, patented in 1615. They are thus described by Walsuyen, a captain of the town of Danzig, in his Art Militaire pour Infanterie, printed in 1615. It is necessary that every musketeer should know how to carry his match dry in moist or rainy weather, that is, in his pocket or in his hat, by putting the lighted match between his head and hat, or by some other means to guard it from the weather. The musketeer should also have a little tin tube, of about a foot long, big enough to admit a match, and pierced full of little holes, that he may not be discovered by his match, when he stands sentinel, or goes on any expedition. This was the origin of the match-box, &c. lately worn by our grenadiers on one of the cross belts in front of their chaps.

The Powder-horn and Flask. The convenient form of the horn to hold gunpowder, one end being broad, into which it might be conveyed with ease, and the other with a small aperture by which it might be discharged into the barrels of fire-arms, naturally suggested it as best adapted for the purpose. But it was not long before the narrow end was entirely closed, and the broader one furnished with a tube that might contain just sufficient powder for one charge. In 1685, anxious to keep powder in the hands of the arquebusiers in the triumph of Maximilian I. This modification of the powder-horn suggested the more capacious flask, which, with its name, in reference to its resemblance to the horn of a stag, known in England as the stag of Henry VIII., and appears on a hackbut of that date in one of Sturt's engravings, taken from an original drawing in the British Museum, suspended like the horn, but at the hip, instead of on the breast. In the inventories of the English, we have four "one horn for gonnar powder, garnished with silver. Three gröne flaskes covered with velvet, and three lytie touch boxes." And in that at Hengrave, "xxixij fluteks, and many touch boxxes." M. Montgomery Corbosan, in his Treatise on the French arms and arms, informs us that the captain of a company, mounting guard, ought to carry an arquebuse and a powder-flask, and wear on his head a great plume of feathers. Varieties of powder-horns and flasks will be found in Sketton's engravings.

The Touch-box. Gunpowder was at first not corned: when, however, it had been manufactured into granules, some of them suspended on the sides of the boules, and covered with leather, were suspended to a belt or band, put either over the shoulders or on the outside of the arm, and were to have been first introduced in the reign of Henry III. of France. The earliest instance is the bandolier in Montfaucon's Monarches Françoiso, pl.-xxxv, in his History in 1691, which would induce the belief that the English received them from the Wallons in the neighbourhood of Liege. Sometimes six were placed before, and six behind the person, when the rest were suspended to a waist-belt in Mr. Meyrick's collection. Innumerable numbers still remain at Hampton Court. Sir James Turner, who published his work in 1670, says they were first laid aside about thirty years before the Germans. Soldiers who were without cloaks could not support the snow and rain which soon spoiled them, and made the powder useless; and in surprisals, the noise which they made betrayed those who carried them.

The Cartridge-box. James Turner, speaking of the pistol, says, "all horsemen should always have the charges of their pistols ready in patrons, the powder made up compactly in paper, and the ball tied to it with a piece of thread. In this description we have evidently the cartridge, though not expressed by name. It is written, "and for this reason that these were first confined to the cavalry, and that the general adoption of the cartridge was not earlier than the common use of the modern firelock. Lord Orrery, in his Treatise on the Art of War, published in 1702, on loading a carbine or musket, says that the Anciennes did not load their arms in the same manner as barbares, and he gives the advantage of the box of carabineers, for then, by biting off the bottom of the cartridge, you charge your musket for service with one ramming. I would make the said carbineers and carabineers adopt the use of these patron, and the carabineers use them, because they are not so apt to break as the wooden ones are, and do not in wet weather, or lying in the tents, relax. Besides, I have often seen much prejudice in the use of bandoleers, which, being worn in the belts for them above the soldiers' coats, are often apt to take fire, especially if the matchlock musket be used; and when they take fire, they commonly wound and kill him that wears them, and those near him; for likely, if one bandolier take fire, all the rest do in that column; they often tangle those which use them on service, when they have fired, and are falling off by the flanks of the files of the intervals to get into the rear to charge again."

The Patrois was an upright semi-cylindrical box of steel, with a cover moving on a hinge, filled with a block of wood with five perforations to hold as many pistol cartridges. Skelton has engraved some of Elizabeth's time, and in the Ducreuxens Denimmi Armature, 1567, the German cavalry are represented with a brace of pistols in the same holster at the saddle-bow, and patrons at their hips. The Sweanes feather, and Muskete-rest. To remedy the inconvenience of the musketeer's having his arm filled, Henry VIII. says, "one sword, and defend himself after the discharge of his piece, and to render him more competent to act against the pikemen, a long thin rapiet blade, fixed into a handle, and carried in a sheath called a sweanes feather, l.e. bow's bristle, the inversion of which is a swan; this weapon, which was also called an arrow, was sold but to the Swedes, was given him instead. This, after a discharge, he drew out of his scabbard, and fixed into the
muzzle of his gun, which gave him a weapon of great length; but as the soldier had then more to carry in his band than previously, an armlet was added to unite the two arms together. This latter, instead of having a wooden shaft simply, was made of a thin tube of iron, covered with leather, which held within it the feather. Thus it was preserved from rain, and when wanted, it could be drawn out. The bayonet was very effective in the reign of James I. During the civil wars, its name was sometimes corrupted into swan’s feather. One of the musket-rests, armed with a projecting spike from one of the prongs of the rammer, is represented in the American Armour, pl. xi. fig. 5. The Duke of Albermarle, in his Observations upon Military and Political Affairs, written in 1646, and printed in 1675, recommends arming musketeers and dragoons with muskets and short swords, with bayonets on the sides. The rests themselves were apparently disused about the middle, or toward the latter end of the civil wars, the weight and incumbrance of the musket and its apparatus being probably found too great for the active service inseparable from campaigns carried on by small detachments.

The Bayonet. Sir Samuel Meyrick observes, that as the swyneyes-feather was laid aside when the rest which contained it was reigned out, the same inaccuracy as they experienced before it had been invented. To resume the simple swyneyes-feather was not deemed expedient, as from its length it was extremely awkward to manage, and pikemen were a species of troops that could not allow of such. The head of the musketeer was armed with daggers to stick them into the muzzles of their pieces after having fired. In this practice we have the origin of the bayonet, which was so termed from having been used by the musketeers at Bayonne. The first mention of the bayonet is found in the military history of the British Army in the Different Periods, Strutt’s Manners and Customs, and the various authors quoted by them, may be referred to.

ARMS. COATS OF. [See HERALDRY.]

ARMSTRONG, JOHN, a poet and physician, born at Castleton, in Liddesdale, about the year 1709. He qualified himself for his profession at the University of Edinburgh; and came to pursue his fortune in London, where he resided for many years. He contributed to Thomson’s Castle of Indolence the stanzas at the end of the first canto, descriptive of the diseases produced by indolence. His society seems to have been courted by men of talent, for besides this evidence of intimacy with Thomson, Wilkes, Smollett, and others, he is named among his friends. (Alkin, Gen. Biog.; Life in Chalmers’s British Poets.)

ARMY. THE ENGLISH. The word army, like many other military terms, has come to us from the French. They wrote to us by the word armée, but even then the meaning was not precisely what the English word army means. An army is defined by Locke to be a collection of armed men obliged to obey one man. There are various definitions given by writers on military matters.

The word army is not used to designate a single regiment or battalion, or any small body of armed men. An army is a large body of troops distributed in divisions and regiments under its own special commander, and having officers of various descriptions to attend to all that is necessary to make the troops effective when in action; the whole body being under the direction of some one commander, and moving in a regular formation according to the recorded orders of the commander-in-chief, the general, and sometimes the generalsimmo, that is, the chief among the generals.

We may briefly explain why we limit this article to a sketch only of the English army, as sometimes is done in similar works, an historical sketch of the army is the history of the armies of anient nations. The armies of Greece, Rome, and the ancient Oriental nations, were, owing to various causes, different from those of modern Europe, and the consideration of a character belonging to these nations. From the impossibility of saying anything satisfactory within reasonable limits, and also from a desire to avoid the errors which we observe in all short sketches of history, we are desirous to confine ourselves to the Greeks, Romans, Egyptians, &c., notice their military system, as far as it possesses a distinct character.

The history of the armies of continental Europe, as, for instance, that of Prussia, is inseparably connected with the political history of each state, and will be treated under the names of those states. For other particulars connected with the formation of an army, see Recruiting, Soldiers, and also Militia.

The whole military force of a nation constitutes its army, and it is usual to estimate the comparative strength of nations by the number of well-appointed men which they are able to bring into the field. In another sense, an army is a detachment from the whole territorial force; a number of regiments sent forth on a particular service; in this case the command of some one person who is the general for that special purpose. Instances of this latter sense of the word occur in the expressions ‘Army of Italy,’ ‘The Army of Spain,’ &c. But the term army may be a large or a small army; and should it return with its ranks greatly thinned and without many of its officers, it would still be an army, if the distribution into regiments and regiments reunited, though actually consisting of not more than a single battalion, is the complement of men and officers. In this state it is sometimes not unaptly called the skeleton of an army.

An army is the great instrument in the hands of a government, by which, in the last extremity, it enforces obedience to the laws at home, and respect from other powers who show a disposition to encroach upon any rights belonging to the nation. When the efforts of the ministers of peace and justice at home are inadequate to enforce submission to the laws; when the correspondence of cabinets and the conferences of ambassadors fail in composing disputes which arise among nations, the army is the last resort of power which is put forth to maintain order at home and rights in the world.

The legitimate purposes for which an army is maintained are manifestly so important to the well-being of a state, that attention must have been directed to this subject in the most careful manner. The doctrine of the ‘Art of Preserving Health,’ published in 1744. Didactic poems find few readers now; and the poem of Armstrong is probably very seldom read. Yet the work is well spoken of by critics of the last century, as containing vigorous sentiments poetically expressed, and much valuable instruction respecting diet, regimen, and locality in reference to health; it has obtained a place in many collections of the works of British poets. Armstrong’s other pieces are numerous, and now nearly forgotten. He contributed to Thomson’s Castle of Indolence the stanzas at the end of the first canto, descriptive of the diseases produced by indolence. His society seems to have been courted by men of talent, for besides this evidence of intimacy with Thomson, Wilkes, Smollett, and others, he is named among his friends. (Alkin, Gen. Biog.; Life in Chalmers’s British Poets.)

The armies of the Greeks, especially in the post-Alexandrine period, those of Carthage under the command of Hannibal, and the armies of Rome in the best days of the Republic and the Empire, were not inferior to any of modern times in numbers, discipline, or the military skill of their commanders. It is not, however, to them that we are to trace the origin or the history of our modern armies.

An army, in the modern sense by which a term of body of men distinct from the rest of the nation, constantly armed and disciplined, was unknown to the remote fathers of the English and the other modern European nations. The whole male population of the British army; that is, the use of arms, was ready to defend himself, his family, and his property; and in time of common danger, to go out to more lasting warfare under the command of some one chief chosen from amongst the heads of the tribes. Such was the nature of the vast armies which presented themselves from
time to time on the Roman frontier, or contended against Caesar when he made his conquest of Gaul; and such was also the case of those whom Augustus appointed to defend him on the British coast under the command of Cassius Balbus, when he made that descent from which neither honour accrued to the Roman arms, nor benefit to the Roman state. In the annals of Britain and the history of Europe, we see the warlike character of those nations, and the principles on which their military affairs were conducted. A whole male population trained to arms; cordial love and regard for one another, under the chief; with little defensive armour, and none offensive but darts, spears, and arrows; throwing up occasionally earthworks to strengthen a position—this is the outline of their military proceedings. (Tacit. Annals, ii. 14.) There is little peculiar in the military system of the ancient Britons; yet it must have been by long practice and perseverance that the warriors attained that skill which attracted the attention of Cassar. His description of one of their battles, driven by a character whose action was solely directed to the advancement of the state, while in it stood the painted warrior dealing his darts around him, or running along the beam while the chariot was in its swiftest motion, presents a distinct idea of the horrid and terrible war of this singular people.

When Britain was reduced to the form of a Roman province, a regular army was introduced and permanently settled in the island, for the purpose of enforcing submission, and for the protection of fields of tillage and the remains of Roman authority in Britain, as roads, walls, encampments, and inscriptions, are military. In that curious relic of Roman times, the Notitia, which is referred to by the name of the Roman emperors, Arcadius and Honorius, we have a particular account of the distribution of the whole Roman army, and we see, in particular, how Britain was then divided for military purposes, and what were the fixed stations of particular portions of the Roman legions.

It was the policy of Rome to make war upon the barbarous nations, and to employ such soldiers in countries to which they did not belong. Thus, in the inscriptions relating to military affairs which have been found in England, many tribes of Gaul, of Spain, and Portugal, are named as those to which particular soldiers or particular bodies of troops belonged. And so in foreign inscriptions the names of British tribes are sometimes found. The gradual decline of the power of the military in these nations was thus drawn away. There remained only the quiet and the peaceable, or the females, the young, the infirm, and the aged. As long as the Roman army was sufficient for their protection, it was well. But when the army was removed, as, for instance, of Britain, that a people so weakened would easily fall a prey to nations which had never been subdued by the Roman arms, and we see also what was probably the true reason of the difference between the spirited resistance which was made to Caesar on his two landings in Britain, and the clamorous complaint and feeble resistance with which the people of Britain met the Picts and the Saxons.

From this time we lose sight of any entire British population of the part of the island called England. The conquests made by the Saxons appear to have been complete, and their maxims of war and policy became the principles of England. The Saxons were changed by the procedure of Britain, and the different sovereignties which they established were the occasion of innumerable contests. We have, however, but little information on this subject; and even the supposed policy of Alfred in the separation of a portion of the people for military affairs, in the form of a national militia, is a part of his history on which we have not any very satisfactory information.

It is, however, that the Saxon sovereigns had powerful armies at their command; and the most probable account of the mode in which they were got together seems to be this—the male population were exercised in military duties upon their estates—except the serfs or vicecomites, in the management of the armies and muster of the soldiers; being drawn out occasionally for the purpose, and being thus ready to form, at any time when their services were required, an efficient and powerful force. We see from that curious record of those times, a piece of needle-work representing the wars and death of Harold, that the Saxon soldiers were not those half-clothed and painted figures which had presented themselves on the field of the Roman legion. When that warlike descent. We see them clothed from head to foot in a close-fitting dress of mail. They have cavalry, but no chariots. The archers are all infantry. Both infantry and cavalry are armed with spears, to some of which little pennons were attached. Sometimes they are seen with battle-axes. They have shields, the bosses on which are surrounded with flourishes and other ornaments; and there are sometimes other devices, but nothing which can be termed the very rudest and most naked of devices which were afterwards formed into a kind of system by the heralds who attended the armies, and by which the chiefs were distinguished from each other, when their persons were concealed by the armour. The piece of needle-work representing the wars of Harold is supposed to be the work of Matilda, the queen of William the Conqueror, and the ladies of her court. It is preserved in the cathedral of Bayeux, whence it is commonly called the Bayeux tapestry. One of the many valuable services rendered to historical literature by the Society of Antiquaries has been the publication of a series of coloured prints, in which we have, on a reduced scale, a perfectly accurate representation of this singular monument of art and Norman manners.

A great change took place in the military affairs of England at the Conquest. It is to that period that the introduction of the crossbow is referred, a weapon which was as well adapted to use among other things, for an army ever ready at the call of the sovereign. It may suffice in this place to say, that the king, reserving certain tracts as his own demesne, distributed the greater portion of England among his followers to hold by military service; that is, for every knight's fee, as they were called, the tenant was bound to find the king one soldier ready for the field, to serve him for forty days in the course of the year. The system of the knights' fees was adopted with the varying qualities and the value of the soil. In the reign of Edward I., the annual value in money was 20l. The number of 'knights' fees is said by old writers to have been 60,000. The king had thus provision made for an army of 60,000 men, whom he could call at short notice into the field, subject them when there to all the regulations of military discipline, and keep them for forty days without pay, which was usually as long as their service would be required in the field. By this arrangement the king was enabled to move as he pleased. When their services were required for any longer time, they might continue on receiving pay.

Write of military summons are found in great abundance in what are called the Rolls of justices. Otherwise, we have such letters as the king issues under seal. But this system, it is evident, had many inconveniences; and the kings of England had a better security for the protection of the realm against invasion and for the maintenance of internal tranquillity, in that which seems to be a relic of Saxon policy. We allude to the liability of all persons to be called upon for military service within the realm; to the power which the constitution gave to the sheriff to call them thereunto to exercise, in order that they might be in a condition to perform the duty when called upon; and to the obligation which a statute of Edward I. imposed on all persons to provide themselves with certain pieces of armour, which were specified by statutes. It was by the means of this system, in this system at once the practice of our remoter ancestors, and the beginning of that drafting of men to form the county militia which is a part of the military policy of the country at present.

The sheriffs were the persons to whom the care of these affairs was committed; but it was the practice of the early kings to send down into the several shires, or to select from the gentry residing in them, persons whose duty it was to attend and the musters there, and which were a species of review of these domestic troops, and who were intended, as it seems, to be a check upon the sheriffs in the discharge of this part of their duty. The persons thus employed were usually men experienced in military affairs, and who knew the worth of such soldiers. In most cases, there was a permanent officer appointed in each county, who had the superintendence of these operations, and was called the lieutenant: this is the origin of the
The present lord-lieutenant of counties, an officer who cannot be traced to a period earlier than the reign of Henry VII.

Foreigners were also sometimes engaged to serve the king in his wars, and in proportion to the severity of his measures, and were paid out of the king's own revenues.

We see, then, that the early kings of England of the Norman and Plantagenet races had three distinct means to which they could have recourse when it was necessary for them to arm for the preservation of the realm: the quota of men which the holders of the knights' fees were bound to furnish; the posse-comitatus, or whole population, from sixteen to sixty, of each shire, under the guidance of the sheriffs; and such hired troops as they might think it proper to engage. But as the institution of the posse-comitatus could not be compelled to leave the kingdom, and only in particular cases the shire in which they belonged, the king had only his feudal and mercenary troops at command. To furnish a continental state with the necessary troops during the continuance of a war, when he had to wage war against even the Scotch or Welsh.

We are not to suppose that troops so levied, especially when there were but contracted pecuniary resources for the hiring of disciplined troops of our neighbours, we have been sufficient to make head against the power of such a sovereign as the king of France, and once to gain possession of that throne. And this leads us to another important part of our subject.

The mutual inconveniences attendant on the nature of the military services due from those who held the feudal tenures of the crown naturally disposed both parties to consent to frequent commutations. Money was rendered instead of the feudal service, a revenue which was applicable to military purposes, and which was expended in the hire of native-born subjects to perform service in the king's armies in particular places and for particular terms. The king covenanted by indenture with various persons, chiefly those of most importance in the country, to serve him on certain money-terms with a certain number of followers, and in certain determinate expeditions. There appears little essential difference between this and the modern practice of recruiting armies. It was chiefly in such a method that the victories of Creci, Poictiers, and Agincourt were gained.

In the office of the Clerk of the Pells in the Exchequer, Dugdale perused numerous indents of this kind, and has made great use of them in the history which he published of the Barony of England. A few extracts from that work will show something of the nature of these engagements.

Michael Peynings, who was at the battle of Creci, entered into a contract with King Edward III. to serve him with fifteen men at arms, four knights, ten esquires, and twelve archers, having an allowance of twenty-one sacks of the king's hire for the time and their wages. Three years after the battle of Creci, King Edward engaged Sir Thomas Ughtred to serve him in his wars beyond sea, with twenty men at arms and twenty archers on horseback, taking after the triumphant return for 2000 marks, among his hire, and the continnum of the war. In the second year of King Henry IV., Sir William Willoughby was retained to attend the king in his expedition into Scotland, with three knights besides himself, twenty-seven men at arms, and one hundred and sixty-nine archers, and to continue with him from June 9th to the 13th of September. When Henry V. had determined to lead an army into France, John Holland was retained to serve the king in his 'voyage royal' into France for one whole year, with forty men at arms and one hundred archers, whereof the third part were to be footmen, and to take shipping at Southampton on the 10th of May next following. In the 12th of Henry VII. John Grey was retained to serve the king in his wars in Scotland, under the command of Giles Lord Daunbery, captain-general of the king's army for that expedition; with one lance, four demi-lances, and fifty bows and bills, for two hundred and ninety miles; with one lance, four demi-lances, and fifty bows and bills, for two hundred and thirty-five miles; and one lance, demi-lances, and two hundred bows and bills, for two hundred miles. These were nearly half what is now the usual complement of a regiment.

Troops thus levied, together with foreign mercenaries, made the nearest approach that can be discovered in the early affairs of the English monarchy to a permanent, or, as it is technically called, a standing army. The king might, to the extent of his revenue, form an army of this description; but as to the other means of military defence or offence put into his hands, the persons engaged were only called into military service on occasional occasions, and soon fell back again into the condition of the citizen or agriculturist, yet the king's power was necessarily dependent on his revenues, and the maintenance of a permanent force appears to have been little regarded by our early sovereigns, since, before the reign of King Henry VII. it does not appear that the states had any idea of raising any considerable number of troops accoutred and ready for immediate service at the call of the king. In modern times, Charles VII. of France (1423-1461) first introduced standing armies in Europe: this policy was gradually imitated by the other European continental states, and is now a matter of course deemed of self-defence. In England, probably in a great degree owing to her insular situation, this took place later than in most continental countries. Still the example, however, of continental states, a sense of the great convenience of having always a body of troops at command, and the change in the mode of warfare effected by the introduction of artillery, which brought military operations within the range of science, and made them more than before matters which required much time and cost in those who had to undertake the direction of any large body of men, disposed the king and the nation generally to adopt the practice of having a permanent army, varying in numbers with the dangers and necessities of the time.

The few troops who formed the royal guard were the only permanent soldiers in England before the civil wars. The dispute between Charles I. and his parliament was about the command of the militia. Charles II. kept up about 5000 regular troops as guards and garrisons which were later established in England. These were paid out of the king's own revenue. James II. increased them to 50,000; but the measure was looked on with great jealousy, and the objection was supposed to be the destruction of the public liberties of Englishmen. In the Bill of Rights (1689) it was declared that the raising or keeping a standing army within the kingdom, in time of peace, unless it be with consent of parliament, is illegal. An army varying in its numbers has ever since been maintained, and is now looked on without apprehension. It is raised by the authority of the king and paid by him: but there is an important constitutional check on this part of the royal prerogative in the necessity for acts of parliament to be passed yearly, in order to provide the pay and to maintain the discipline.

The following tabular view of the military force of the various civilized nations is from the most recent authorities.

**Military Establishments on Foot and in Reserve, 1833, 1834.**

<table>
<thead>
<tr>
<th>Country</th>
<th>ArmyFoot</th>
<th>ArmyReserve</th>
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<tbody>
<tr>
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<tr>
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<tr>
<td>District of Columbia (Yeomanry)</td>
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<td>900</td>
</tr>
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<td>Church States, States of</td>
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<tr>
<td>Portugal</td>
<td>2,500</td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>Scotland</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>5,000</td>
<td>15,000</td>
</tr>
<tr>
<td>United States</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Virginia</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td>Western Europe</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>World</td>
<td>5,000</td>
<td></td>
</tr>
</tbody>
</table>

**Millions or Thousands.**

**In the late 19th century, the United States and the United Kingdom were the two leading military powers. The American Civil War (1861-1865) demonstrated the potential for large-scale military operations. The Royal Navy and the British Army were key components of the British Empire's military establishment.**

**For a historical perspective, military strength often reflected economic and political power, and the arms race was a significant factor in 19th-century international relations.**

**In terms of the military establishment, the United States and the United Kingdom were the dominant powers, with the United States having a large and rapidly growing military, particularly after the Civil War.**
It may be added that, according to Schnabel's calculations in 1836, the standing armies maintained by the principal European States relatively to their respective populations were as follows:

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>1</td>
<td>50 inhabitants</td>
</tr>
<tr>
<td>Sweden</td>
<td>1</td>
<td>53</td>
</tr>
<tr>
<td>Wurttemberg</td>
<td>1</td>
<td>60</td>
</tr>
<tr>
<td>Poland</td>
<td>1</td>
<td>68</td>
</tr>
<tr>
<td>Bavaria</td>
<td>1</td>
<td>69</td>
</tr>
<tr>
<td>Russia</td>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>Austria</td>
<td>1</td>
<td>108</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1</td>
<td>110</td>
</tr>
<tr>
<td>England</td>
<td>1</td>
<td>140</td>
</tr>
<tr>
<td>Two Sicilies</td>
<td>1</td>
<td>190</td>
</tr>
<tr>
<td>Tuscany</td>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>States of the Church</td>
<td>1</td>
<td>500</td>
</tr>
</tbody>
</table>

We should observe, however, that the data which be assigned as the ground-work of his calculations do not in general agree with our own, which, in most cases, are derived, if not from official, at least from competent authorities.

The following is a more complete subdivision of the British Navy:

<table>
<thead>
<tr>
<th>Rank and Date</th>
<th>Great Britain</th>
<th>India</th>
<th>Non-commissioned officers</th>
<th>Great Britain</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officers</td>
<td>Great Britain</td>
<td>4404</td>
<td>5612</td>
<td>Great Britain</td>
<td>6265</td>
</tr>
<tr>
<td>N.C.</td>
<td>Great Britain</td>
<td>8547</td>
<td>7719</td>
<td>Indian</td>
<td>1468</td>
</tr>
<tr>
<td>Rank and Date</td>
<td>Great Britain</td>
<td>77,847</td>
<td>95,327</td>
<td>Indian</td>
<td>17,450</td>
</tr>
<tr>
<td>Great Britain</td>
<td>88,516</td>
<td>105,672</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>20,156</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| ARNAOUTS, the name given to the inhabitants of Albania. [See ALBANIA.] ARNALDO DA BRESCIA was born in the town of Brescia about the beginning of the twelfth century. He studied in France under the eminent Abelard. Having returned to Italy, he became a monk. The corruption of the clergy was very great at this time, and Arnaldo, endowed with an impassioned mind and a great flow of oratory, began to hold forth in public against the ambition, the temporal power, and the luxurious life of abbeys and abbotates, and cardinals, not sparing the Pope himself. The scandalous contest between the church and the empire carried on by the haughty pretensions of Gregory VII. was then fresh in the memory of men. Arnaldo maintained that ecclesiastics as well as laymen ought to be subordinate to the civil power; that the disposal of kingdoms and principalities did not belong to the church of Christ; and that the clergy ought to be ruled with their tithes and the voluntary oblations of the faithful, and not to hold, as they then did, sovereign lordships and feudal estates. To these doctrines he added others of a mystical character about the Trinity and the nature of the soul, which were eagerly laid hold of and perhaps distorted by his enemies. His declarations against the clergy disposed the Papal court towards him. By preaching against the temporalities of the church, Arnaldo had excited the passions of the people; Brescia revolted against its bishop, the fermentation spread to other towns, and complaints against the author of all this poured in at Rome. Innocent II., upon this, had Arnaldo condemned, together with other heretics, in the council of Lateran, in 1139. Such at least is the positive statement of Otto of Freisingen and other historians. But at the same time that Arnaldo was thus condemned, he was mentioned in the canons of the council. He was not excommunicated at that time, but was banished from Italy, and forbidden to return without the Pope's permission. (See Mosheim's Ecclesiastical History, translated by Dr. Burnard, and a prior note on the subject.) He then proceeded to France, where he seems to have found favour with the papal legate Guido, afterwards Pope Celestius II.; but he met with an unremitting adversity in St. Bernard, with whose views and veneration for the Church, vaux, who denounced Arnaldo, wrote against him, and forced him to seek refuge at Zürich, where he remained five years. He there resumed his preaching against the abuses of the clergy, and found many favourable listeners. But St. Bernard traced him there also, and caused the Bishop of Constance to banish him from his diocese. Arnaldo upon this returned to Italy, and hearing that the people of Rome had revolted against the Pope, he repaired there, and put himself at the head of the insurrection. Lucius II. had died of the wounds received in a popular affray, and Eugenius III., a disciple of St. Bernard, succeeded him in the papal chair, but was driven away from the city by the people and the Papal legate. Arnaldo exhorted the Romans to re-establish the Roman republic with its consuls, to reinstate the equestrian order, and to emulate the deeds of their glorious ancestors. The multitude, thus excited, hurried on to excesses. Arnaldo probably had never contemplated them. They attacked and demolished the houses of the cardinals and nobles of the papal party, killed or ill-treated the inmates, and shared the plunder among themselves in the name of Brutus and Cato, Fabius and Paulus. Arnaldo, however, still remained poor; he truly despised wealth, his morals were irreproachable, and it seems that he judged of others by himself, a common delusion among honest popular leaders. The Roman army wrote to the Emperor Conrad III., professing allegiance, and inviting him to come and be crowned at Rome; but the Emperor paid no attention to the invitation. Rome continued for ten years in a state of agitation little differing from anarchy, at war with the Pope and the people of Tiber, and at variance within itself. St. Bernard, in his epistles, draws a fearful picture of the state of the city at that time. Eugenius III. died in 1153, and his successor Anastasius IV. having followed him to the grave shortly after, Adrian IV. was elected Pope in 1154. He was a man of a more determined spirit than his predecessors. A cardinal having been attacked and seriously wounded in the streets of Rome, Adrian resorted to the bold measure of excommunicating the first city in Christendom, a thing without a precedent. The Romans, who had set at nought the temporal power of the Pope, quailed before his spiritual authority. In order to reconcile to the pontiff, they exiled Arnaldo, who took refuge among some friendly nuns in Campania. When the Emperor Frederic I. came to Rome to be crowned, the Pope applied to him to have Arnaldo arrested. Frederic accordingly gave his orders to the Margrave or Vassal of Campania, and Arnaldo being delivered into the hands of the Prefect of Rome, was strangled, his body burnt, and the ashes thrown into the Tiber, in the year 1155. [See ADRIAN IV.] ARNAULD, ANTOINE, a French theologian and philosophical writer of the seventeenth century, was born at Paris in 1612. His father, named also Antoine Arnauld, was a distinguished advocate, and a great antagonist of the Jesuits, against whom he both pleaded and wrote; and indeed he mainly contributed to their expulsion from France under Henry IV. The Jesuits were afterwards re-admitted into the kingdom, but they met with an opponent in the younger Arnauld as determined as his father had been. Arnauld, after several years at Paris, went to the Sorbonne in 1641. He exhibited an early disposition for theological controversy, by writing the Théologie Morales des Jésuites, in which he exposed the dangerous casuistry adopted by some of the Jesuits. He left no doubt that he had not forgotten the hostility of the elder Arnauld, reported against the son, by violently attacking his work De la Freqvent Commination, which was published in 1643. Soon after, the disputes which broke out among the French theologians about Jansenius, bishop of Ypres, and his book Augustinus, 3 C 2.
several propositions of which concerning the intricate questions of grace and free-will had been condemned by the Pope, gave Arnauld a fresh opportunity of exercising his polemical talent. [See Jansenius.] Arnauld took the part of the leisured, who were condemned by the Sorbonne, and the writer, on his refusing to retract his opinions, was expelled from that learned body. He then withdrew to Port Royal des Champs, a convent of nuns, not far from Paris, of which the same Cardinals Arnauld, in 1645; but instead of using the name of Port Royal. Arnauld wrote parts of several of these works, such as the Grammaire Générale Ranconne; Éléments de Géométrie; and L'Art de Penser. He also had a share in the fame of letters written by Pascal against the Jusuits, which are known by the name of Lettres Provinciales. The disputes about Jansenius and his five propositions, after agitating all France for many years, and drawing bulls of censure from several Popes, to which a part of the French clergy refused to submit, notwithstanding the imperious orders of Louis XIV., were at last appealed for a time by the conciliatory spirit of Pope Clement IX., who accepted a compromise. This was called the Peace of Camerino. Clement IX., after this trying at the pontiff through the Abbé Rospigliosi, the Pope's nephew. After this peace, Arnauld was presented to the Pope's nephew at Louis XIV. graciously, and invited him "to employ his golden pen in defence of religion." His next work, in which he was associated with his friend Nicolle, De la Perplexité de la Foi L'Eglise Catholique touchant l'Enchâssée, was dedicated to the Pope. This occasioned a warm controversy between Arnauld and the reformed minister Claude, in the course of which Arnauld wrote Du Renvoiement de la Morale de J. C. Jansen à la Doctrine des Calvairens touchant la Justification, Paris, 1672. In shape of a treatise, Arnauld led his war against the Jesuits, and wrote the greater part of the style Moral Pratique des Jésuites, 6 vols., 12mo., in which many authentic facts and documents are mixed up with party bitterness and exaggeration. That powerful and ambitious society did not bear this patientiy; they represented Arnauld as a dangerous man, and the leader of a sect, whose house was the resort of many restless and turbulent spirits, the old adherents to the errors of Jansenius. Harlay, the Archbishop of Paris, assisted in prejudicing the king against Arnauld and Louis XIV. issued an order for his arrest, which, however, does not seem to have been earnestly executed. Arnauld ceased for some time at the house of the Duchess of Longueville, who esteemed him and appreciated his talents; but afterwards considering it prudent to leave France, he repaired to Brussels in 1679, where the Marquis of Bourbon was governor, and it was during this period that he enjoyed the protection of that great nobleman. There he published, in 1681, his Apologie pour les Catholiques, which is a defence of the English Catholics against the charges of Titus Oates' conspiracy. In this work, laying aside all party animosities, he undertook the defence of his old antagonist the Jesuits, whom he considered as having been calumniated in those transactions. This apology was, at the same time, a refutation of a book of Jurançon, the well-known reformed minister in Holland, who had accused the French clergy of being implicated in the English conspiracy. Jurançon, in reply, published a book entitled L'Esprit de M. Arnauld, written in a style of coarse personal invective, to which Arnauld did not condescend to reply. Another work, not so creditable to Arnauld's judgment, is one against the Prince of Orange, William III. of England, whom he styled a new Absalom, a new Herod, and a new Cromwell. (8vo. 1689.) It was published in the same year of Arnauld's death, and many persons did not believe it to be his; but it seems now ascertained that he was the author. It is said that Louis XIV., whose political views it suited, had this book printed at his own expense.

From his retirement at Brussels Arnauld made several excursions into Holland. His reputation had spread everywhere, and he was kindly received. About this time he entered into a controversy with his old friend Father Mallebranche, who, in his metaphysical works, had announced some peculiar doctrines on the subject of grace, predestination, and other theological problems. Arnauld began by attacking Mallebranche's definition of the nature of our ideas, and his famous proposition that "we see all objects in relations," in his Précis des raisons de l'Avilissement de nos Vraies et de nos Fausses Idées, Cologne, 1683; and afterwards, Réflexions Philosophiques et Théologiques sur le Nouveau Système de la Nature et de la Grâce du Père Mallebranche, printed at Paris, 1686. The controversy was carried on by Arnauld with his usual vehemence, and it had the effect of souring Mallebranche's naturally pacific temper. The Father wished for a truce; but Arnauld reproached him as the creator of all the strife and disorder in the world, and of filling the Journal des Sacres, with their mutual wranglings. But controversy was Arnauld's element; without any feeling of malignity in his disposition, his zeal for truth, or what he considered as truth, joined to a great fluency of expression, made him restless and fond of disputation. His friend Nicole, whose temper was milder, told him one day he was weary of disputes, and wished to rest himself. "Rest!" exclaimed Arnauld, "will you not have enough of rest hereafter during all eternity?" He continued to the last, although past eighty years of age, to carry on his various controversies, with the Jesuits, with Mallebranche, with the Calvinists, and with all who disagreed with his opinions, being Bayle. He also wrote several pamphlets defending the Gallican church. His last work was Réflexions sur l'Éloquence des Précisateurs, 1694. He died in his exile at Brussels, on the 8th of August of that year, after receiving the last Sacraments, and in perfect tranquility and happiness. There is an interesting account of his last moments by Father Quesselle, who was his companion in the latter years of his life. He was buried in the church of St. Catherine at Brussels, but his heart was embalmed and taken to Port Royal des Champs, where it was deposited with the remains of his mother and six sisters, who had all been inmates of that convent. Boileau and Racine wrote epitaphs in honour of Arnauld. His works, which filled more than 150 volumes of various sizes, were printed at Lausanne, and at Paris, in 50 volumes, 4to., 1773-83. The last volume contains the author's biography. Arnauld was one of the most learned men of his age, a sincere and enlightened Catholic, pious without superstition or hypocrisy, exemplary in his conduct, and disinterested and simple in his habits and manners. Although frequently at variance with Rome, he was esteemed there, and had friends among the cardinals. While he was persecuted in France, Pope Innocent XI. offered him an asylum at Rome. He had, likewise, many friends among the Protestants, in Holland and elsewhere. Arnauld was one of the first to extricate theology from scholastic subtleties; he adopted in his experimental and logical method; he supported himself by frequent references to the fathers and to the early councils, in the history of which he was deeply versed, as well as in the study of the Scriptures. He contributed to the French version of the Bible, and was the author of several religious works. His son, Simon Arnauld, Marquis of Pompeone, was employed in several diplomatic missions under Louis XIV., and was made Secretary of State for Foreign Affairs in 1672. He died in 1699. [See Port Royal.]

ARNIT, JOHN, was born in 1561, at Ballenstadt, in the duchy of Anhalt. He first studied medicine, but afterwards applied himself to theology, and became a clergyman of the Lutheran church. Being grieved at the relaxed state of the learned and religious atmosphere of his time, he wrote a book, "on true Christianity," with the object of giving the study of religion a practical influence on the moral conduct of its followers. "Divinity," says he, "is not a mere matter of speculative philosophy; it is the branch of the Christian's knowledge, and a practical exercise of the mind. We must not content ourselves with a dead and barren faith; true faith ought to be preceded by repentance, accompanied by love, and followed by a renewal of the soul." This work, first published in German, has been translated into Latin,
French, Danish, Flemish, Bohemian, and English, and has been highly praised by Moscheim, Professor Frank of Hallé, Dr. Spener, and other distinguished vivases. John Wesley, in his travels through France, found it, "too much to the strength and ability of man in the work of conversion. Osianider of Tübingen wrote against him his Judicium theologica. Yet Arndt's book is still considered one of the best in the treatment of Christian literature. An English translation was published in 1715 by William Jacques—True Christianity, or the Whole Economy of God towards Man, and the whole Duty of Man towards God. 2 vols. 8vo. London. Arndt was minister at Quedlinburg, and afterwards recommended as a minister to Wittenberg, where he was engaged as a preacher made him enemies, and he was obliged to leave the town and to withdraw to the village of Isleb, where he remained for some years. In 1611 George Duke of Luneburg presented him to the church of Zell, and afterwards appointed him general superintendent of all the churches of the duchy. Arndt died at Zell in 1621. He had preached a sermon the day before, and on returning home, he found his son lying dead in his bed. He bore the attacks and persecutions of his enemies with the greatest meekness; his charity to the poor was very extraordinary for his limited means, and it led to the remark, "He was as a son to his father." Arndt's favourite authors were St. Thomas, Bernardus, Thomas of Kempis, and Tauber. He must not be confounded with Josia Arndt, a Lutheran clergyman, born in 1625, who was professor at Rostock, and who published several works on philosophy, divinity, and history; among others, Lexicon antiquitatis Ecclesiasticarum, 4to. Greifswald, 1669. He died in 1685. ARNE, THOMAS AUGUSTINE, Doctor in Music, born in 1719, was the son of an usherer in King Street, Covent Garden, and educated at Eton, having been intended for the profession of the law; but his bias towards music was too strong to allow him to pursue his legal studies seriously, and he was dismissed from his usual ascetic duty and inclination, the latter, as commonly happens, prevailed. He secretly practised on the spinet, and took lessons of Michael Festing, an eminent person in his day, on the violin, and the first intimation his father bad of his musical progress was at an amateur party, in which young Arne was discovered playing the first fiddle most skilfully. Resistance was now worse than useless, and the resigned parent supplied his son with the means of continuing his further education. At a very early age, he imbued his sister with a love of the vocal art, and qualified her to appear in Lampe's opera, Amelia, in which her debut was of so promising a kind, that her brother, though on the usual ascetic course of conversation, in which she represented the heroine, and shortly after became the celebrated Mrs. Cibber. The success of this opera led of course to the composition of others, and in 1736 Arne produced his Comus, in which he evinced powers of the higher kind, and his reputation was at once established. In 1740 Arne married Miss Cecilia Young, a pupil of Gemmiani, and a performer of the harp. In 1742 he went with her into Ireland, where both were engaged by the Dublin manager, the one to sing, the other to compose. There he produced his masques, Britannia, and The Judgment of Paris; Thomas and Sally, an afterpiece; and Eliza, an opera. In 1745 he acceded to the request of the proprietor of Vauxhall, who then married Mrs. Arne to the ill at the same time becoming his principal composer. Subsequently, he wrote his two oratorios, Abel and Judith, after which the University of Oxford conferred on him the degree of Doctor in Music. His greatest work, or what has most done honor to his name, Artaxerxes, was composed in 1762, in imitation of the Italian opera, and to prove the English language not so repugnant to recitative as many had imagined. The attempt was bold, but triumphant; the work appeared in which crowned the composer's labours, and the judgment pronounced on it by posterity, prove beyond dispute the importance and great merits. The drama is a translation, by Arne himself, of Metastasio's Artaxerxes. Arndt is often commended whether of his contemporaries or of professors of authors of a later period, is entitled to the praise which cannot justly be bestowed on mediocrity. Dr. Arne also produced, in 1765, an entire opera at the King's Theatre, Metastasio's Olimpiade, of which no notice is taken by any of his biographers. He died in 1762, and was buried in the parish church to Mason's Elysia and Carcassus, additions to Purcell's King Arthur, the dramatic songs of Shakespeare, the airs for the Stratford Jubilee, &c. Love in a Village is a pastime piece for voices and organ, or a concertante for voices, but the number of numbers is so large that any Astoried and among these 'Gentle youth, ah! tell me why?' can never become antiquated. In other departments of music he proved eminently successful. Warren's collection of canons, glee, &c., contains several of his compositions. He is written 'Come, shepherds, we'll follow the herds; in Cunningham's elegy on the death of Shenstone, must charm as long as vocal harmony retains the power to please. His song and chorus, 'Where with the Roman', his 'Farewell to Britannia,' need hardly be mentioned as the offspring of his genius; it may be said to have waffed his name over the greater half of the habitable world. Dr. Arne died in March, 1778, and was buried in St. Paul's church, Covent Garden, leaving an only son, who died, we believe, without issue. ARNHEIM, ARNHEM, or AERNEM, the Roman Arannacus (though this is sometimes disputed), a fortified town on the right bank of the old Rhine, now the capital of Guelderland, and formerly one of the Hanseatic cities, about 50 Eng. miles S.E. of Amsterdam: 52° 57' N. lat. 5° 52' E. long. Arnheim is first mentioned under this name in a charter, or grant of privileges, from the emperor Otto III. A.D. 996. About two miles below the town, the river branches off from the main river, and carries part of the waters of the Rhine to Doesburg, where this cut joins the Yssel, which flows into the Zuider Zee. This junction between the Rhine and Yssel was made by Drusus, the brother of the emperor Tiberius. Arnheim stands at the foot of a small range of hills, which are not of common occurrence in Holland, called the Beluwé, or Veluwe, running irregularly northward towards the Zuider Zee, and forming a bridge of boats across the Rhine. The fortifications, which were improved and enlarged by Coehorn in 1702, defend the town on the land side. Arnheim was once the residence of the Counts and Dukes of Guelderland, whose monuments are to be seen in the principal church. Arnheim has four gates, a reformed Dutch church with a high tower, which contains the tomb of Duke Charles of Guelderland, a Roman Catholic church, a small Lutheran church, a land- some governor's residence, and a very old-fashioned statehouse. It is the market for the district of the Veluwe and part of the Betuwé; the latter of which is the name of the insulated fertile district between the Rhine, Waal, and Lek. See Betuwe. The town is noted for its high clay, or red earth, quantity to Arnhem. The trade is mostly a transit trade along the Rhine, and by land between Amsterdam and Germany. The neighbourhood of Arnheim contains many quarries of the most beautiful and costly stone, which generally spend their winter in Arnheim. The town was taken from the Spaniards in 1565: in 1672 it was taken by the French, on the invasion of Holland in the reign of Louis XIV., from whose extortion and tyranny the inhabitants suffered severely: in 1674 the French left it, after destroying the fortifications. In 1813 the Prussians took it from the French, which contributed materially to the change of affairs in Holland at that time. The population on Jan. 1, 1830, was 7,194 males, and 7,143 females. (See Kempen, Beschrijving van het K. der Nederlanden, 1827: Haïma's Toonen, &c.) ARNI, the native Indian name of the wild buffalo. [See BUFFALO.] ARNO, called by the Romans Arno, the principal river of Tuscany, rises on the southern slope of Mount Falterona, which is a high western projection from the central ridge of the Apennines, about twenty miles N.E. of Florence, in 1° 39' 10" E. long. and 43° 52' N. lat. On the opposite or north-eastern side of the same ridge are the sources of the Ronco and of the Montone, two rivers which enter the Adriatic below Ravenna. The sources of the Tiber, which several alludes to as proceeding from out of the same mountain, are more than twenty miles farther east, and separated from those of the Arno by the moun- tains of Camaldoli and La Vernia. The Arno descends by a long and deep valley, the Casentino, one of the highest, remaining Tuscany, in a S.S.E. direction between the great central ridge and an
offset from the same, which, detaching itself from the Falterona, divides the Casentino from the Mugello or valley of the Sieve, and from the Valdarino, forming the mountains of Crolla, Gestin, Gemmone, Vallombrosa, and the Sieve. The Arno receives in its course numerous torrents from both ridges—the cool streams flowing down the verdant slopes of Casentino’s hills, which Dante mentions in Canto 30 of his Inferno.

The village of Poppi and the town of Bibbiena, the direction of the valley, and consequently the course of the Arno, change to a more southern course, being confined to the eastward by another offset from the central ridge, which separates itself from the Catanina, one of the last of the Larina, runs southwards by Chiusi and Monteacuto towards Arezzo, and divides the waters of the Arno from those of the upper Tiber. Issuing from the lower Casentino, the Arno enters the plain of Arezzo, and running in a south direction by Quarata, receives the waters of the northern Chiana, and then suddenly turns to the westward, entering a deep mountain gorge, appropriately called Imbuto, or ‘funnel’. Passing through the small valley of Laterina, it issues out of it by another narrow and wild pass called Valle dell’Inferno, which is three miles in length.

The Arno next enters the beautiful region called the Upper Valdarno, one of the most delightful rural spots in Tuscany, and perhaps in the whole world. It is a region of ten thousand groves, as large and from three to five in breadth, bounded by two ranges of hills, and sheltered on the north-east by the lofty and rugged Apennines, among which the wooded summit is distinguished that overhangs the con
cervatory. The valley is continued by the succession of gardens and orchards, and the hills are covered with vineyards or verdant pastures. Several neat towns and villages are scattered about, besides numerous hamlets and cottages on the hill slopes. Through the valley the Arno runs in a N.N.W. direction, its course being nearly parallel to that which it followed higher up in the Casentino. At Incisa the mountains close again on both sides, and the Arno runs through a deep channel excavated in a ridge of limestone. This valley has a constant succession of gardens and orchards, and extends far to the south towards Siena. The river runs here in a direction nearly due north, until it passes Rignano, beyond which, in the moun
tains on the right bank, a valley opens, through which the Sieve, a large stream, coming from the district of Mugello north of Florence, flows into the Arno. Here the Arno, after a circuitous course of more than sixty miles, is only thirteen or fourteen miles direct distance from its source. It now turns westwards by Varlungo, and enters the plain of Florence, dividing that city into two unequal parts. About ten miles below Florence, and beyond the bridge and village of Signa, the Arno runs in a deep channel, and the banks of the river, which are said to have been cut by the old Etruscans. A wider passage being thus opened for the river, the plain of Flo
tence, which was a marsh before, was drained. The course of the river is obstructed on the right by the mountains of Vallombrosa, and extends far to the south. Ten miles farther the hills on the left bank recede, and leave a plain between them and the river, in which are the towns of Empoli and San Miniato. Here the Arno receives the Elsa, a considerable stream running from the south, which has its source in the high lands near Siena, that divide the basin of the Arno from that of the Ombrone. On its right bank the Arno receives several streams which come from the northern Apennines above Pistoja, and from the late on, and from that of Bientina. About ten miles below San Miniato the Arno, after receiving the Era, a large stream from the south, enters the plain of Pisa, through which it makes several considerable windings, passes through the town of Pisa, and enters the sea about five miles westward of it: 43° 41’ N. lat., 10° 15’ E. long. Formerly the mouth of the Arno was some miles more to the south, but it has been considerably detached, partly by the cutting of the channel giving rise to Pisa, and partly by sand thrown up by the sea during the frequent storms from the S.W., a new cut in a N.W. direction was excavated at S. Pietro in Grado about three miles below Pisa, through which the Arno flows. The length of the old mouth of Pisa was not at the mouth of the Arno; it was a natural bay formed by the sea, to the southward of the old mouth of the river, at the place where the stream called Calambrone runs into the sea, and between that and Leghorn. It is now filled up, and hardly any traces remain of it; but Targioni Tozzetti, in his Relazione di Viaggi in Toscana, gives a plan of the harbour as it was, and even as late as the sixteenth century, or barges, connects Leghorn and Pisa, and runs directly through the site of the former Porto Pisano. From Pisa barges ascend the Arno to Florence; but the navigation is often interrupted in summer owing to the shallowness of the river. In the latter part of the fifteenth century, when Siena had become the powerful State of the Medici, and even as late as the fifth century of our era, the Serchio, or river of Lucca, then called the Ausar, instead of discharging itself into the sea, as it now does, entered the Arno below Pisa, and that city wasOutOfBounds and internally changed between the river and the sea. The Ausar altered its course is not known, but in the twelfth century it had already assumed its present channel. Still it approaches very near Pisa, to the northward of that city, and in times of inundations its waters mix with those of the Arno. [See Map.]

The Arno, like all the rivers which descend from the Apen
nines, is subject to sudden overflows. The quantity of earth and stones which it then carries down from the moun
tains has raised its bed in many places nearly as high as the adjacent fields. Embankments have been made along the greater part of its course, and are kept up at a considerable expense. But in cases of extraordinary rains and storms, and when the river has overflowed its banks, its source, the Arno rushes down with such fury as to overwhelm lakes and inundate a great part of the country. Among the more disastrous inundations, that of September, 1537, is recorded, when the Valdarino and the whole plain of Flo
tence were inundated. The inundation continued for a month, and houses were carried away. Two-thirds of the city of Florence were inundated, the water being in some places eight feet above the pavement; and two of the bridges of Florence were carried away. It took several months to clear the mud from the streets and houses. In November, 1740, another great inundation occurred, owing to the prevailing scirocco wind, which melted the snows that had fallen on the Apen
nnines. The confluence of the Sieve, just above Florence, a river which swells in the mountains generally and as the same time as the Arno, greatly contributes to these inundations.

It appears that in remote times the waters of the Arno divided near Arezzo, and part of them flowed southwards by the valley of the Chiana into the Tiber. (Fossmonti, Memorie Idraulico-Storiche sopra la Val di Chiana.) A communication by water existed between Arretium and Rome. But the bed of the Chiana becoming raised by deposits of earth, the declivity towards the west, which was already slight, was destroyed, and the whole waters of the Arno turned towards Florence. The northern part of the Val di Chiana then became a marsh, the streams that formerly entered the river Arno, and the town of Arezzo, were now carried away. The bed of the river Arno, which carried part of the waters of the northern Chiana into the Arno. This canal has been since repeatedly enlarged and lengthened by the Tuscan government, and has been the subject of many interesting hydraulic works and experiments. [See CHIANA, VAL DI.]

The whole course of the Arno, with its numerous windings, cannot be less than 140 miles, although in Male Bruns’ geography it is stated at 185. Its breadth varies considerably, but in Florence it is about 120 feet only. The waters are very low in summer, and the river is then fordable. Within the city of Florence the bed of the Arno is consid
erably narrower, being confined by the walls of the quays. At Pisa, however, it retains almost the same appearance of a considerable river. The tract of country watered by the Arno, especially between Florence and Pisa, constitutes the most populous, most productive, and most thriving part of that vast country. In the district between Florence and Pisa, a vast quantity of bones and whole skeletons of the largest quadrupeds of other climates, the mastodon, elephant, rhinoceros, and hippopotamus, are found, as well as beds of lignite. [See APENNINES, GYROLOGY OF.]

[See ARNO, HISTORICAL RECORDS OF; ARNO, HYDRAULICS OF; ARNO, ILLUSTRIES, c. 79], was a rhetorician and afterwards a presby

ter of Sikka in Numidia, in the reign of the Emperor Diocletian. His work de Rhetorica Institutions is not ex

tant. Lastantius, the Cicero of the fathers, was the most...
distinguished disciple of Arnobius, the Varro of the ecclesiastical writers. Arnobius was as much superior in genius to this pupil as he was surpassed by Lactantius in elegance of diction. Arnobius was in the habit of attacking Christianity, until he had some remarkably impressive dreams, which induced him to wait upon the bishop of Sikka, who, however, did not trust him, knowing his former enmity to the gospel. Arnobius went to Rome from Cirta in Africa, in order to convince the bishop that he was really converted. 

But the statement of Hieronymus, who refers it to the twelfth year of Constantine, A.D. 326, contains a manifest falsehood. Arnobius appears, in his 'Disputations', not like a man recently changed by dreams, nor as a novice; but rather as a man of a ripe conviction, although without ecclesiastical orthodoxy. It may be that the dreams gave the reader something such as New. I know what all those things are, since I am led by a great teacher into the ways of truth.' It appears that Arnobius came to a knowledge of the truth by carefully reading the New Testament, especially the Gospels, and that he was not biased by the ecclesiastical influence of his times. 

In this work Arnobius shows a thorough acquaintance with Greek and Latin literature that authorizes the description of him as a man of letters. He lived in a time when the spirit of the age was characterized by a desire for knowledge and refinement, and his work reflects this spirit. His work contains allusions to the persecutions by Diocletian, which commenced A.D. 303. This observation applies also to Arnobius, when he was close to the time of the emperor Constantine. The works of Arnobius still exist, and they have been translated and published in several languages. The works of Arnobius are valuable for their historical and religious content, and they continue to be studied and appreciated by scholars and laymen alike. Arnobius was a great thinker and a great writer, and his works continue to influence the course of human thought.
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been covered with infamy. He resolved to make an offer to the British General, Sir Henry Clinton, of his services in betraying his country and the cause for which he had hitherto fight:; his proposal was accepted, and it was agreed that he should employ all his art and interest in order to obtain the command of the important fort of West Point on the Hudson, with the view of delivering it up to the enemy. He did not succeed, as he was not long in accomplishing this object. Washington, generously forgetting his former delinquencies, was prevailed upon to appoint him to the station in question. This was in July, for the purpose of the manner in which this treasurous scheme miscarried. Major André was the person intrusted with Clinton's active management of the negotiation with Arnold; and the British officers and gentlemen engaged in a similar business in New York, the head-quarters of the army, had an interview with the American General on the bank of the river, near West Point, on the morning of Friday the 22d of September. The next day, on his return to New York by land, he was taken by two Americans when he had nearly reached the British lines, and the plot was detected by the discovery in his bolts of the plans and other papers which he had received from Arnold. By the terms of the articles of capitulation, the officer to whom André was carried, he found means to convey an intimation of his capture to Arnold, by which he was informed on the morning of the 23d, just in time to permit him to make his escape. Ilike a father and mother child, he instantly rushed to the river, and leaping on board a barge which he had in readiness, he ordered himself to be rowed to the English shore, which he reached in safety. A minute and interesting account of all the circumstances of this affair may be found in the notice of Arnold in the *Encyclopædia Americana.* He was allowed to retain in the British army the rank of brigadier-general, which he had held in that of the United States; but it is asserted by the writer to whom we have just referred, that he did not receive the whole of the sum (30,000l.) which was promised him as the reward of his treachery. He attempted to do something to deserve what he got by publishing certain addresses and proclama-

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The surrender of Calais; the Children in the Wood; The Mountainers, &c.; each containing beauties that never can be equalled. There was also an attempt, in this species, to compose Dr. Browne's sacred ode, The Cure of Sotul, which was allowed to be the best work of the kind since the time of Handel. This was followed by the oratorios of *Ahriman, The Reformation, The Resurrection, and TheProdigal Son.* They were performed at Covent-garden and the Haymarketh theatres for several years, during Lent. The latter was chosen for performance at the installation of Lord North, as chancellor of the University of Oxford, when the composer was honoured with the degree of Master of Arts. Dr. Handel, in his eagerness to gratify his patron, employed his wealth to buy rooms for his most fashionable resort, for which he wrote many songs, &c.; but, confiding too much in the honesty of those whom he employed, he was abandoned by his artist, and his richest compositions were sold for ten thousand pounds. In 1783 he was appointed organist and composer to the King. In 1789 he succeeded Dr. Cooke as conductor of the Academy of Antient Music; and in 1793 became organist of Westminster Abbey, on the presentation of his friend, Dr. Horsey, Bishop of Rochester. In 1786 Dr. Arnold commenced publishing an edition in score of Handel's works, encouraged by George III., who liberally supported him in his arduous undertaking, which was completed in 1799. The plates are engravings, printed, in four large volumes, a collection of sacred music, as a continuation of Dr. Boyce's admirable work, to which it has proved a most valuable addition. During many years the success of this work carried him on. He had others of these in his hands, he produced The Redemption, a compilation from Handel's works, which met with the greatest success; and The Triumph of Truth, selected from various composers, but which has not kept its ground so well as the former, though by no means inferior in effect. Dr. Arnold died in 1802, and was interred in Westminster Abbey, with more than usual marks of respect. A simple tablet, near Purcell's monument, marks the place where he lies in the churchyard. Having been the descendant of the illustrious Baron of Merchiston, and left a son (who has distinguished himself by his dramatic productions, and by his able management of the English Opera House), he was succeeded in this pursuit by his daughter, Miss Anne Arnold. Miss Arnotto, or Arnatto, the inquisitively extract from the fruit of the *Bixa Orellana* [see Bixa.], is used by dyers principally to give a bright orange colour to silk goods. It is also employed as an auxiliary to give a deeper shade to simple yellow colours. It is more used in many of our dairies to give a reddish colour to cheese, which it does without adding any disagreeable flavour or unwholesome quality.

The trade of commerce is brought to us from South America. It is moderately hard, brown on the outside, and of a dull red within. It comes in cakes of about two or three pounds weight each, and is generally enveloped in large flageolets previous to being packed in cases. In this state it is inky black, and the natural colour is acquired by it from another preparation which is a harder and more concentrated extract from the fruit pods of the same plant, and which contains a larger proportion of colouring matter than the pod. This superior description, of which but little is imported, is known as roll arnatto.

Arnatto is with difficulty dissolved in pure water; it is usual, therefore, to add some alkaline substance, usually potash, which not only facilitates the solution of the extract, but improves the quality of the colour. The liquid sold under the name of Nankin dye is a solution of arnatto in potass and water. A solution is also sometimes made in alcohol, which is used for lacquering and by varnishers.

It is believed that the method employed for making this extract in the country of its production, which is by the application of a high degree of heat in combination with a process of fermentation, is injurious to its colouring properties, an opinion which is confirmed by the fact of the superiority of the colouring matter when procured from the fresh pods. There is reason to suppose that means might be used for precipitating the colouring matter without subjecting it to such a process. Some experiments made with this view by Vaquelin seem to confirm this supposition.

The consumption of arnatto has been much increased in this country of late years. In 1820 the quantity brought to use but little exceeded 50,000 pounds. We now use more
than three times that quantity. It pays a duty on importation of 2d. per pound, and sells, including the duty, at from 1d. to 2d. per pound, according to its quality. (An. de Com. tom. ii. p. 47; Berthelot. Elémens de l'art de la Peinture, tome ii.; Library of Entertaining Knowledge (Vegetable Substances, Materials of Manufacture); Government Statistical Tables.)

ARNBERSG (or Arnsberg), the largest of the three cities of that name, which form the Prussian province of Westphalia. In 1683, subsequently to the dissolution of the electorate of Cologne, it was united with the territory of Hesse Darmstadt, from which it was transferred to Prussia in 1797. It is about 14 miles west by the circle of Münster, and on the north-east by that of Minden; on the east, by the princiipseality of Waldeck, and Hesse Darmstadt; on the south-east and south, by the duchy of North Westphalia; on the south-west and west, by the palatinate; on the west, by those of Cologne and Düsseldorf. According to the latest measurement, its superficial extent is 2932 square miles; and its population, which the census of 1818 stated to be 383,405, amounted at the close of 1821 to 406,065 souls, of whom the majority are of the Protestant faith; the number of Catholics being in the proportion of 17 in 39 individuals. It contained, at that period, 38,147 horses and colts, 171,566 oxen and cows, and 169,933 sheep and goats, comprehends the mediatized sovereignties of Witgenstein-Berleburg, Witgenstein-Witgenstein, and Hohen-Limburg; and, according to Schleieren's statement, 55 towns, 3420 villages and hamlets, 66,420 houses, 13,000 cellars, and synagogues, and 5129 manufactories, mills, &c.

ARNBERG, a minor circle in the government of Aa, 252 square miles in superficial extent, which had a population of 27,297 souls, at the close of 1831, and contains 2 towns and 122 market-towns, villages, &c. The northern part of the circle, a considerable portion of which is occupied by the great forest of Arnsberg, consists of valleys hemmed in by high hills and mountains; but the valleys are destitute of water. The soil is stony, and produces a sufficiency of grain, flax, and potatoes, for the consumption of the inhabitants; its more lucrative growth is the timber, which is felled in the forest of Arnsberg, and exported in considerable quantities to the adjacent provinces, particularly the circle of the Mark, which has little wood of its own. The principal river in the circle of Aa, is the Ruhr, which rises at Winterberg, within its borders, and flows into the Rhine between Duisburg and Ruhrort. Its mineral resources consist of iron, marble, salt, and brick-earth; but its manufacturing industry is limited to the production of inconstantable quantities of linens and woollens, together with utensils and articles of wood.

ARNBERG, the capital both of the larger and lesser circle, is situated on a hill, surrounded on almost every side by the Ruhr; it commands a delightful prospect of the mountainous and picturesque scenery around it, in which the ruins of the ancient castle in the old town, where the Westphalian barons used to meet in secret tribunal, form a striking feature. Arnsberg is ill provided with water, its whole supply being derived from an hydraulic work which forces it up to the town from the river. It was a more thriving place in former times, when it was associated with the Hanseatic League; at the present day its chief dependence is on the production of potashes, and the manufacturing of brandy, beer, and a few linens and woollens. The principal buildings in the town are the government offices, two Catholic churches, a Protestant seminary for teachers, and a Catholic gymnasium; it has also an agricultural society. At the close of 1831, the number of inhabitants was 3805: which gives an increase of 1172 since the year 1817. 5° 22' N. lat. and 6° 30' E. long. of Greenwich; about forty miles in a direct line S.W. of Paderborn.

ARNSTADT, a seigniory in Thuringia, forming part of the principality of Schwarzburg-Sondershausen. It contains 216 square miles, two towns (Arnstadt and Plauen), forty-two villages, and 23,600 inhabitants. Arnstadt (in 50° 49' N. lat. and 10° 57' E. long.) is the chief town and seat of government of the seigniory, and is situated on both banks of the Gera, in the heart of a highly picturesque country, eleven miles south of Erfurt. It was formerly the residence of the earls, afterwards princes of Schwarzburg-Sondershausen, and is situated on the site of that line in 1716 it fell into the hands of its present possessors. It is embellished with a palace, in which are a valuable cabinet of porcelain and a small picture-gallery. There are four churches in the town, the oldest of which goes by the name of the 'Early Church' (Früh-kirche), the service being performed in it at an earlier hour in the morning than in any other place of worship in the neighbourhood. The other public buildings consist of the ruins of a palace built in 1557, the government offices, a cemetery chapel, an orphan and a lunatic asylum, a gymnasium or grammar school, a seminary for the townsmen's sons, a house of correction, and several woollen and brass-ware manufactories. Its inhabitants, who are Lutherans, and in number nearly 5000, are actively engaged in trade: beer, leather, and linen are its staple. It is one of the most considerable markets for fruit, grain, and timber, in this quarter of Germany, and abounds in oil and flour mills, one of which, the 'Gunther mill,' has thirty sets of grindstones. A profusion of gardens and orchards lie scattered round the town, and the remains of two antient burgs, the Käfernburg and Altenburg, are striking features in its environs. The latter, which stands upon a hill commanding the delightful valley that spreads from its base, is said to have been the spot on which a Thuringian nobleman erected a house for the residence of our fellow-countryman, St. Boniface, the 'Apostle of the Germans,' in the seventh century. Plauen is a small town lying on the Gera, in the bosom of a beautiful valley. Its population is under 200.

ARNSWALDE, in the New-Mark, one of the eighteen circles of the Prussian government of Frankfurt, in the province of Brandenburg. Its area is 487 square miles, and its population at the close of the year 1831 was 28,180 souls. At that period it possessed 3,515 horses, 10,044 horned cattle, and 78,930 sheep and goats. It is bounded on the north and north-west by Pomerania, is watered by the Drage and some smaller rivers, and contains several small lakes. It has an abundance of forests, and a sandy soil, the poverty of which has been overcome by the industry of its possessors, and yields much grain and timber, besides feeding numerous herds and flocks.

ARNSWALDE, the capital of this circle, lies about 120 miles N.E. of Berlin, contains 3,550 inhabitants, a parochial church and two hospitals; it manufactures linens and woollens. It stands between three lakes, which are well-stocked with fish.

ARO/DEE, an order of monocotyledonous plants, which approach dicotyledons in the form and veining of their

Arum maculatum.

1. A spadix with the point of the spadix seen within it; 2. the spadix separated; 3. the spikelet on the above, &c. the same cut perpendicularly; 6. one of the little fruit cut perpendicularly; 7. a seed.
leaves, but agree with the former in everything else of importance. They are readily known by their flowers being placed very closely upon a cylindrical, or lengthened, axis, called technically a spadix (fig. 2), which is itself enclosed in a leaf of a peculiar figure, the edges of which are notched. The whole is covered with a sort of hollow sheath, which botanists name spatha (see fig. 1 in the accompanying cut).

The fruit is generally a cluster of little berries, each of which contains a single seed. The flowers them-

selves are extremely variable in structure; sometimes having neither calyx nor corolla, and sometimes possessing both parts; sometimes furnished with anthers opening in a singular manner by little lobes, or having anthers of a sort with the filaments united under the pollens upon the trunks of trees, clinging to them, in tropical countries, like ivy; a very few are found in Europe, and these are always little sterile herbs; a small number are small erect shrubs. They are all acrid in a high degree, some of them so much so as to be dangerous poisons, as, for example, the dumb-cane of the West Indies, which paralyses the mouth if only chewed. Nevertheless this acrid principle is so far removed in some cases, as when used as food. The colocasia of the tropics, and some other species, are common articles of food among the negroes; but they are said not to agree very well with Europeans. In this country of late years this plant has been introduced, which is represented in the wood-cut, is found wild. The root of that species, which is vulgarly named the cucuo flower, is edible when properly prepared, just as those which have already been mentioned; but it is never used except by the poor in times of famine.

Aro tomen are also remarkable for the heat which some of the species give out when flowering (see Lindley’s Introduction to Botany, p. 259), and for the exceedingly offensive odour of others at that time.

Arolsen, on the Aar, twenty-three miles S. of Cassel, is the residence of the princes of Waldeck, who are among the oldest constitutional sovereigns in Germany. The town is celebrated for its manufactures, a grammar-school, three churches, and about 2000 inhabitants. The palace is a handsome structure of spacious dimensions; it contains a gallery of choice paintings (amongst which is West’s Death of General Wolfe), a magnificent cabinet, which is richer in the series of Greek coins than any other in Europe, a valuable museum of antiquities from Herculaneum and Pompeii, collected in Italy by the uncle of the present prince, and a library of 32,000 volumes, of which very rare MSS. The surrounding country is well-wooded, and there is a handsome avenue of six rows of ancient oaks, 2000 paces in length, close upon the town. Stein states the latitude to be 51° 23’ N.

AROMA is the supposed principle of odour in plants, formerly called by Boerhavae Spiritus Rector. This quality generally resides in the essential oil; but there are some vegetables that yield no odor but a very faint and weak one, or no essential oil, as the jasmine and the violet; or when an oil in small quantity is procured from them, it has not the powerful smell which, considering the smallness of its proportion compared with the fragrance of the plants, it might be expected to possess. As plants exhale their odor when exposed to the air, and communicate it to water at a lower temperature than that at which it could be distilled, it has been imagined that some principle of a more subtle nature is conveyed in the aromatic principle in everything which imparts smell to the oil. In fact, however, the property of odor belongs to proximate vegetable principles of different kinds, in which there is no reason to suppose the existence of any common principle; essential oil is unquestionably the most usual cause of its production, and it is capable of being volatilized in small quantity at a low temperature, and thus diffused through the atmosphere or communicated to water.

Aromatics.
The power of medicines is frequently judged by their sensible qualities, that is, by the impression which they make on the organs of smell and taste; aromatics affect both of these senses in a very perceptible and sometimes extraordinary manner. Scarcely any one is insensible to the odorous perfume of any of our common drugs. The approach to Ceylon may be determined by the fragrance of the air, at the distance of many miles; the *magnolia glauca* (beaver-tree or swamp magnolia) is so powerful that it could be distinguished at the distance of three miles, among the swampy districts, and consequently moist atmosphere, in which it grows. This powerfully affects many persons while travelling or hunting; and sometimes introduces sickness, becoming an aggravation of fevers or rheumatism, among those near it who are labouring under these complaints. The odour of the jujubes and other fragrant plants raised in Holland is so great, that when brought into a room or close apartment, as to be quite overpowering. In such countries or places as have a very humid atmosphere, the odour of plants is most readily diffused as well as most potent; of this we may satisfy ourselves by calling to mind the greater fragrance of flowers early in the morning, in the evening, or after a shower. This accounts for the violent action of the plants in the countries just mentioned; but even many plants of Britain affect some individuals, endowed with a peculiar and exceedingly strong degree, the senses. Thus, black elder has such an effect on certain persons as to occasion headache, convulsions, and apoplexy. (See Triller, *Dissertatio de Morte Subita ex nimio Violuram Odore.*)

Aromatics are seldom applied to the organ of smell for the purpose of influencing the system in a remedial manner, except in the form of aromatic vinegar, in threatened or actual fainting; we shall therefore proceed to consider their action upon the palate and stomach. As all conjugated plants contain volatile oil, their action is generally referred to this principle; but there cannot be a doubt that the more fixed principles which they contain contribute greatly to their effect. Volatile oils are commonly the cause of the vomiting; but aromatics influence more particularly the digestive organs, the function of assimilation, and the generation of animal heat. They are themselves digested, but previous to this process commencing, or going any length, they produce, by direct contact with the internal surfaces, a peculiar effect, which we perceive beginning at the lips and palate, and accompanying them in their progress to the stomach. They scarcely excite any general action of the system; but a slight salivation is produced, and there is sometimes a degree, upon the intestinal canal; increasing the vital force of the former, and quickening the muscular action of the latter. They also communicate to the stomach a greater power of resisting acids; on account of this property there are many articles which would otherwise be rejected; and this happens equally with regard to food and medicines.

The mixture of aromatics renders them more agreeable than when given singly; and this is exemplified both in their medical and culinary employment, as no good cook will use only one spice if she can procure more. The *aromatic powder* and *aromatic confection* are compounded on this principle for medical use, and Dr. Kirchen's *Zusa* for culinary purposes.

The necessity for the employment of aromatics is greater in warm climates and weather than in cold; and we find the plants with which we are most abundant, and best employed in hot countries. The pepper tribe (piperaceae), for example, is confined to the hottest parts of the world; such as tropical America and the Indian Archipelago; forty species of pepper are met with in the island of Java alone. Throughout the East Indies the natives restore the powers of the stomach by chewing betel, which consists of slices of the areca nut, sprinkled with fresh lime, wrapped up along with some other aromatic in a leaf of the *piper betel*. The Indians of America by the same means exercise the same influence. The *Tabebius Physiogae de la Nouvelle Espagne*. On the same principle, the Europeans who visit tropical countries use curry and other hot dishes. But in every quarter of the globe we find condiments used along with all articles difficult of digestion, especially vegetables, fish, and young meats, such as veal. Aromatics are therefore employed to prevent and cure diseased states of the stomach, and to assist the action of other remedies.

In simple loss of appetite, without any other evident disease, or in cases of mere debility, they may be employed in the form of the warmer pickles during dinner, or preserved ginger after dinner.

In many cases of fever in warm climates, the stomach is often the seat of very violent and dangerous symptoms; feverish from encephala bark, or other febrifuge medicines, the principles of which are expected to cure the disease, unless aided by aromatics. Hence Cayenne pepper is added to them; and indeed Cayenne pepper will often preserve the patient from the fever without any bark. Lately piperrin (the active principle of Cayenne pepper) has been proposed as a means of curing fevers in Europe; and certain it is that some lingering fevers, of the intermittent character, occurring in old or feeble persons, cannot be cured without the assistance of aromatics. (See Ac. v.) It may be stated, however, that piperrin when pure has no aromatic property.

The preparation of iron (carbonate) which is found to be so useful in curing tic-douloureux, can rarely be borne by the stomach for such a length of time, or in such large doses, as are necessary, without adding aromatics to it. They are also very beneficially added to albicite purgatives, for the treatment of indigestion and constipation, occurring in delicate and senile persons. Aromatics are frequently used to disguise unpleasant taste of many medicines. The disagreeable taste of aloes is concealed by adding the aromatic or compound spirit of lavender, and the intensely bitter taste of the sulphate of quina is nearly covered by mixing one ounce with ten or fifteen parts of powdered valerian, fennel, aniseed, or orange-peel.

Aromatics are most suited to persons of a phlegmatic constitution, or those advanced in life; less so to the young, as those of very quick constitution are apt to be altogether prohibited in certain states of the stomach, or system generally. When there exists any inflammatory condition of the stomach, they would be very improper. Cullen indicates that it is necessary in such cases, that in all degrees and stages of inflammation of the stomach, that only medicines be given by the patient, which might seem to indicate their use; but under such circumstances they are extremely hurtful. The same observations apply to the aromatic teas, such as althea, and common use among the people.

In certain affections of the brain, such as when there is a tendency to apoplexy, they are improper. Cullen mentions the case of a gentleman, who having taken by mistake two grains of mus isomus, in about an hour became drowsy, and fell from his chair. Being laid in bed, he dropped asleep, but awoke from time to time, and was quite delirious. He thus continued alternately sleeping and delirious; but was not attended with any bad effects. He was still complained of headache and drowsiness. In the East such cases are of frequent occurrence. Persons predisposed to affections of the brain should abstain from such articles, especially mulled wine at bedtime.

ARO'NA, a town of Piedmont, in the division of Novara, on the western shore of the Lago Maggiore, and near its southern extremity. It stands on the Simpion road from Switzerland to Milan, from which another post-road branches out at Arona, leading to Novara, Vercelli, and Turin. Disabilities and mails are established on both roads. Arona is seven miles from Sesto Calende, which is the frontier town of Austrian Lombardy, on that side. The river Ticino forms the boundary between Austria and the Swiss. Arona is a neat and bustling little town, with a small harbour on the lake; it carries on a considerable transit trade between Piedmont and Switzerland. Goods coming from Genoa and other parts are embarked at Arona, and sent across the lake to the Swiss frontier, at Orta, from whence they pass by the new road over Mount Bernardino into the Grisons, and thence into Germany. The population of Arona is between two and three thousand inhabitants, consisting of all classes of society, from the nobility to the peasantry. The castle adjoining Arona, which is now in ruins. An enormous colossal statue was raised to him, on a hill above the town, in 1697. It is sixty-six feet high, and stands on a granite pedestal, forty-six feet in height, and is a conspi-
cuous object for miles around. The head, hands, and feet, are cast, the body is made of large stones, and is covered with sheets of hammered copper. (Bertolotti, Viaggio nella Cisalpina della Lombardia, Vol. III.) The proportions of the mountain are exceedingly fine, and the sleepy character it assumes in the flat country nearer to its mouth, has formed some curious little islands, and a number of cascades, the soothing noise of which is constantly heard in the town of Arpino. The Fibrenus, a deep, rapid, peluous stream, and the waters of the still-cold mountain stream, which issue from a source in the Apennine chain that separates the vale of the Liris from the Fucine lake (now the lake of Celano), join the Liris by a gentle water-fall, about three miles above the city, and are adorned with poplar trees of exceedingly fine growth. Near its mouth the Fibrenus forks into two branches, between which and the Liris, whose waters wash its base, there is a beautiful little lake, called 'L Isola di San Paolo,' or, more frequently, simply 'L Isola,' is supposed to be the 'Amalthea' of Cicero, which was one of the orator's favourite retreats. (Cicero to Atticus, i. 16, ii. 1.) Opposite to the island, and in an angle formed by one of the branches of the Fibrenus and by the main stream of the Liris, there stands a building called La Villa di San Domenico, which was built for the accommodation of some monks of the Dominican order in the middle ages, on the spot once outside of the city, and surrounded by the ruins of an Arpino villa, and which, in its turn, is deserted, and almost a ruin.

The monks seem to have also occupied the site of the habitations of the Sabines. At the distance of seven miles from the town of Arpino, on the right bank of the Liris, there is a religious house occupied by Trappists (the only monks of that severe order in Italy), which has always borne the name of 'Casamari.'

The ancient remains, in addition to those already mentioned, existing in and about Arpino, are neither numerous nor very important. The most interesting are those of the cloaca, or common sewer of the city, which, like those of ancient Rome, are numerous, and of which one arch, and the ruins of a Roman bridge across the Liris, between Arpino and Sora. This bridge, which the people, who fondly assign almost every vestige of antiquity to their great countryleman, have always called 'Il Ponte di Cicero,' was thrown over the Liris, not in a straight but in a very oblique line. This was evidently done in order to take advantage of several small islets, on which the piers of the bridge were built, and which lie across the bed of the river in that direction. Only one arch of the ancient Roman construction, remains entire, but, as well as can be judged, there were three other arches.

Within the town there are some fragments of old Roman vaults, or paved streets, and of some inscriptions and broken statues. Two rude and evidently modern busts of Marius and Cicero stand in the piazza, or market-place, where a town-hall has been built of late years, with niches for the statues of those two great ornaments of Arpino. The public school is called 'Il Liceo,' and is situated in the Tullian Theatre. The initials (M. T. C.) of the orator's name are seen in all directions, and they alone form the insignia or arms of the city. The cloth manufacturers of the place, more especially, boast that Arpino was famous in the time of the Roman republic for its woolen goods and the art of dyeing them, and that the father of the immortal Cicero was a fuller.

On each bank of the Liris, or Garigliano, there are numerous sources of mineral waters. Iron abound in some and fine marble in all of the neighbouring Appennines. Breccia, white marble, schiuzeto rosso, or spotted red, and marble of a beautiful warm yellow hue, are found in inexhaustible quantities, but are very rarely quarried.

In modern times Arpino has given birth to a painter, who, though scarcely to be ranked in the third class of Italian artists, may deserve to be mentioned, because he enjoyed much celebrity in his day, filled many churches both in the Neapolitan and Roman states with his frescoes and pictures, and took his name from the place of his birth. This was Giuseppe di Cesare, always called 'Il Cavalier d'Arpino, where he was born in 1573, and died in 1648.

ARQUEBUS. See ARMS (WAPONS).

ARQUES, a small town in France, about four miles S.E. of Dieppe, in the department of Seine Inférieure. It is upon the little river Arques, which falls into the sea at Arques. The town is of little importance. It has a handsome parish church, and a castle now in ruins,
This spot was signalized by the battle fought here on St. Matthew's day, September 21, 1589, between the army of Henry IV. of France and that of the League under the Duke of Mayenne. The engagement was not remarkable either for its fierceness or for the heavy loss sustained by the defeated party; but Henry's success at so critical a period was of the greatest importance to him, and perhaps he might ascribe his subsequent settlement on the throne in no small degree to the victory at Argos.

Arracacia is a genus of umbeliferous plants which comprehends a species of as much importance in the tropical parts of America as the parsnip and carrot are in Europe. This plant, the Arracacia escucentia of botanists, is cultivated in great quantities in the neighbourhood of Santa Fé de Bogota, in the cooler districts among the mountains, and in other parts of the state of Colombia, where it is called Arracacha. It resembles the common hemlock in appearance, but the leaves are much broader, the stems are not spotted, and the flowers are of a dingy purple colour; it is also of smaller stature.

The root is of the same nature as the tuber of a potato, only it is forked, or divided into several lobes, each of which is about the size of a large carrot. These, when fit for eating, are boiled like the potato, and become of a firm but tender consistence, not at all mealy, and have a flavour intermediate between a chestnut and a parsnip. It appears that an immense produce of arracacha is obtained in the South American provinces, where it has long been as much the staple nutriment of the population as the potato or the yam in other places; and as it will only thrive in the colder districts, it was once expected to form an important agricultural plant in Europe. It has, however, been found upon trial unable to accommodate itself to our uncertain climate, and to perish as soon as the cold nights and damp weather of autumn approach, without having been able during the summer to perfect its tubers. It is therefore only cultivated now in botanical collections. For an excellent account of this plant, see Hooker, in Botanical Magazine tab. 3902.

Arrack. [See Arrack.]

Arragon. [See Aragon.]

Arragonite, called by Mohs the prismatic lime-haloide, is a mineral substance, admitting of cleavage in planes parallel to the faces of a right rhombic prism of 116° 5′ and 63° 5′, which may therefore be considered as its fundamental form (fig. 1). The most general modifications which occur, consist either in the removal of the four acute angles at A by planes a intersecting each other in the short diagonal B B, and inclined to each other at an angle of 168° 18′, by which the face P being entirely removed, the form of fig. 2 is produced; or the change may be effected by the truncation of the acute lateral edges of the prism by planes parallel to the axis of the crystal, and therefore inclined to the faces, L, at 121° 5′, giving rise to the form seen in fig. 3. These modified forms usually present themselves in twin crystals, in which the short diagonals of the prism B B are placed at right angles to one another, when only two crystals are present, thus producing a very simple cross. It is usual, however, that three of the crystals of fig. 3 cross each other, producing a crystal of the appearance of fig. 4, which, at first sight, may be mistaken for an hexagonal prism, but on a closer inspection it will be found that what appeared to be a single face, is really composed of two planes, making a re-entrant angle.

The intersections of the individual crystals with each other are visible both in the lateral and terminal faces, and are indicated in italics. In the Mohs scale of Hardness, calcite, consisting of numerous fibrous crystals, of a satin-like lustre, radiating from a centre, and to these the name of flos ferris has been applied.

In a chemical and crystallographical point of view, Arragonite is peculiarly interesting, as presenting to us carbonate of lime differing in its system of crystallization from that of the common Calc-spar, and thus affording us an instance of the influence of any difference in the aggregation of matter in changing its physical properties. The substitution of varying this substance with the rhombohedral Calc-spar, with which it agrees in chemical constitution. In the scale of Mohs, its hardness (see Hardness) varies from 3° 5′ to 4, while that of Calc-spar is 3. The specific gravity of

Arracacha.

1. A barren flower; 2. a fertile flower; 3. a stamen; 4. a petal; 5. a ripe fruit; 6. the same cut across.

In an old coal-mine six miles south-west of Cockfield, Durham, it is remarkable as occurring depending from a roof of clay slate and accompanied by tubular calcareous stalactites. (Phillips.) Varieties of this mineral are also common in beds of iron-ore in the mines of Eisenerz in Styria, and in several other iron-mines of Hungary, of Transylvania, &c., consisting of numerous fibrous crystals, of a satin-like lustre, radiating from a centre, and to these the name of flos ferris has been applied.

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![Image of Arracacha](image-url)
A R R

300
A R R

Aragonite is... 2'931
Calc-spar... 2'721
They act also differently on light, the index of ordinary refraction of... 1'693
Aragonite being... 1'519
Attempts have been made to account for these differences by considering them the effects of small quantities of carbonate of stronitza, which Professor Stromeeyer first discovered to be a constituent of certain kinds of calc-spar; but the conclusion is unfounded, as will be seen by the results of two analyses given by Stromeeyer.

First. Second.
Carbonate of lime... 0'2965 9'2922
Carbonate of stronitza... 0'5006 4'1843
Water... 0'1544 0'5992
where the carbonate of stronitza is small and varying proportion, and must therefore be considered as an accidental impurity.

ARRAIGNMENT. This word is derived by Sir Matthew Haly from arracion, ad rationem ponere, to call to account or answer, which, in antient law French, would be ad resoner, or, abbreviated, a-reuner. Conformably to this etymology, arraignment means nothing more than calling a person accused to answer in a court of justice. He is liable to be answer formally called or charged against him. The whole proceeding at present consists in calling upon the prisoner by his name, reading over to him the indictment upon which he is charged, and demanding of him whether he is guilty or not guilty. Until very lately, if the person accused pleaded that he was not guilty, he was asked how they would he be tried; to which question the usual answer was, 'By God and my country.' But by a late statute (7 and 8 Geo. IV. c. 28, sec. 1) this useless form was abolished; and it was enacted, that 'if any person, not having privilege of peerage, being arraigned upon an indictment for treason, felony, or piracy, shall plead 'Not guilty,' he shall, without any further form, be deemed to have put himself upon the country for trial, and the court shall, in the usual manner, order a jury for the trial of such person accordingly.'

The arraignment of a prisoner is founded upon the plain principle of justice, that an accused person should be called upon for his answer to a charge before he is tried or punished for it. That this was a necessary form in English criminal law at a very early period appears from the reversal in parliament of the judgment given against the Mortimers in the reign of Edward II., which Sir Matthew Hale calls an 'excellent record.' One of the errors assigned in that judgment, and upon which its reversal was founded, was as follows: 'that if in this realm any subject of the crown hath offended in treason, felony or piracy, by reason of which offence he may lose life or limb, and be thereupon brought before the justices for judgment, he ought to be called to account (poni rationem, and his answers to the charge, and the manner of proceeding respecting him; whereas in this record and proceeding it is contained that the prisoners were adjudged to be drawn and hanged, without having been arraigned (arratentem) thereupon, or having an opportunity of answering to the charges made against them, contrary to the law and custom of this realm. (Hale's Pisan of the Crown, book ii. c. 28.)

The ceremony of the prisoner holding up his hand upon arraignment is merely adopted for the purpose of pointing out to the court who is called upon to plead. As it is usual to place several prisoners at the bar at the same time, it is obviously a convenient mode of directing the eyes of the court to the individual who is addressed by the officer. In the case of Lord Stafford, who was tried for high treason in 1680, on the charge of being concerned in the Popish plot, the prisoner objected, in arrest of judgment, that he had not been called on to hold up his hand on his arraignment but the judges declared the omission of this form to be no objection to the validity of the trial. (Howell's State Trials, vol. vii. p. 1555.)

ARRAN, an island of Scotland, forming part of the shire of Bute. It lies in the bay formed by the peninsula of Cow (see Arrochar) and the Arranshire coast; and is separated from the former by the sound of Kilbrannan, and from the latter by the Firth of Clyde. The distance between the nearest points of Arran and of the island of Bute is above five miles; and the distance of the point in Arran to Skipnish Point in Caintre is about four. From the Ayrshire coast the least distance of the island is about eleven miles. (Map of Scotland, published by the Society for the Diffusion of Useful Knowledge.) The highest summit, measured from near Loch Ranza in the N.W. to Kilbrannan in the S.S.E., is more than twenty miles, and the greatest breadth from Drumdoun Point to the headland between Brodick and Lamlash bays, about twelve. The coast is less broken by creeks than that of mainland Arran; the west end of Ranza on the north side, and on the east the bays of Brodick and Lamlash, are the chief inlets. Lamlash Bay is sheltered by Lamlash or Holy Island, which lies across the entrance, some two miles from the foot of Arran, and has an average breadth of half a mile. The cliffs of Lamlash Island are chiefly basalt, in rude columns, resting on sandstone, and some parts of the island rise to the height of above 1000 feet. The harbour thus enclosed has good holding-ground within, and a depth for large vessels, and room enough for the largest navy to ride at anchor. Brodick Bay is a little to the north of Lamlash Bay (from which it is separated by a headland), and is of an irregular shape, having on the north side an old dangerous Channel (called Kastan Castle) inhabited occasionally by the duke of Hamilton. Behind this castle rises Goatfell, the highest eminence in the island. The bay affords good anchorage-ground and has about five fathoms water; but it is only in moderate weather that vessels can venture into it, and perhaps a mile inland, and has three fathoms water even at the lowest ebb. The approach to the island at this point is striking; at the extremity of a small point of land jutting out into the loch, where a cairn is said to have been inhabited by the kings of Scotland when they came to hunt in Arran; beyond is a little plain, or glen, embosomed in hills, watered by a stream, and inhabited by the people of a small village. Besides the island of Lamlash already mentioned, another small island, called Pladda, lies off the south coast of Arran, about a mile distant; it is low and flat, about a mile long, with ten acres of excellent pasture. There is a lighthouse upon it.

The surface of Arran is in general high, particularly towards the north end, where the scenery is terrific and sublime. The mountains here present peaked summits, and are arranged in groups. Goatfell, the highest, is estimated by Professor Playfair to be 2945 feet high; but in the Society's Map of Scotland it is marked at 2532 yards or 2865 feet; which is also Dr. Macculloch's statement. The lower part of the mountain is composed of red sandstone, but after an ascent of several hundred feet, mica-slate, separated from it by a bed of breccia, rises from under it, and continues till it reaches a kind of irregular plain, from which arises a mass of granite, different from that of the central highlands, in the form of an obtuse pyramid. The side of this pyramid is covered with large blocks of granite, and towards the summit by large blocks of granite, which materially impede the ascent, and the rude appearance of which is increased by the absence of all vegetation, excepting in a few sheltered clefts. The mountain comprehends the south part of Arran, the island of Bute and the Cumbray islands, backed by the mainland of Scotland; the peninsula of Caintre; the mountains of the far-distant Isla, Jura, and Mull; and the coast of Ireland from Fairhead to Belfast Lough. The name of this mountain in Gaelic is Goath Bhein, 'Mountain of Winds.' The name of Goatfell has been given by the strangers who have visited the island. It is sometimes incorrectly called Goatefield.

The geology of Arran, as it is an interesting high, has attracted much attention. The prevailing line of the coast is low, although it occasionally rises into precipitous cliffs. Red sandstone is the predominant rock, extending with little interruption from near Loch Ranza on the north side of the island, along the eastern and southern shore, to Slidery water, near the S.W. extremity of the rock. From hence it occurs alternating with claystone and porphyry to a distance of 20 or 30 miles, in the west, and to Drumdoun on the river Yrsa, where it finally disappears. Schistose rocks, mica-slate on the west and clay-slate on the north coast, occupy the remainder of the circuit to the point where the sandstone commences.

* * *

*It is surprising how different all the statements given by differ- ent writers of the dimensions of this island, an integral part of Great Britain, and a place, which, from its geological features, has attracted much notice. The measurements on the above map are from the best ascertainments. In Heacock's View of the Mineralogy, 3d. ed. of Arrochar, the length is given at 18 miles; or 20 miles; and in Aikman, 'Archaeologia Scotiae, vol. viii. p. 153, it is given at 25 miles. In the Memoir of the Skelde Islands, and of the Island of Arran, given 20 miles and 10."
The interior of the island may be mineralogically divided into two parts, separated from each other by an irregular line drawn from Brodick Bay to the mouth of the river Lugar. The eastern is rich in sandstone, the western in granite.

The schistose rocks rise from beneath the sandstone on the eastern coast, and form, as already noticed, the western coast north of the Firth. The centre is occupied by the granite. A great amount of Geaftell and Kidvoe towards the east; of Cairn-na-Caillich, Ben Hush, and Ben Breech, in the centre; and Ben Veareau on the west. The granite approaches the sea so nearly on each side as to reduce the space occupied by the one only to a narrow belt. The outcrop of the granite on the west, to narrow belts. The granite rises into spiny forms, frequently bare of vegetation, and is intersected by deep and rugged hollows, through which mountain-torrents almost perennial, take their course to the sea.

The districts occupied by the different kinds of rock in the southern division of the interior are not so easily determined, owing to the nature of the rocks themselves, and the accumulation of soil on the surface, which renders it difficult to ascertain or lay down their position with any accuracy. All those which are not sandstone are varieties of trap, syenite, porphyry, and other unstratified rocks of the same family, overlying the sandstone. Vents of claystone, colts, and of the sandstone, occur in the districts we have placed some granite. (M'Culloch's Description of the Western Islands of Scotland.)

The island, from its small dimensions, cannot be supposed to support so many animals, as the small number of the inhabitants of the island, and the slight cultivation of the land, that we have not been able to ascertain the whole number of them. The island is inhabited by the Ospreys, and many different species of birds, and is the home of the otter and wild cat. The birds are black-oaks, grouse, partridges, plovers, &c. The red deer and wild goat, formerly abundant, are now nearly if not quite extinct. The eagle and other birds of prey have been nearly exterminated, and the sandstone has been passed through the Orkneys and Shetlands, and the Isle of Arran, are the home of the tawny owl, which the natives engage. Some of these fish often frequent the coast, or the fishermen repair to Loch fyne [see Argyllshire], or other places. The basking shark or sailfish is occasionally taken; they are sometimes near forty feet in length, and are sometimes found near the coast of the island owe their origin to Ann, goddess of Hamilton, in the seventeenth century, and little seems to have been done from her time till about twenty years since, when roads were made, people were encouraged to settle there, and in the late tides of Brodick Bay, and from the last to Blackwater on the south-west coast.

The population of Arran, which contains two parishes, Kilmore and Kilbride, was, in 1831, 6427. It had rather declined during the preceding ten years. Most of the people understand English, though the spoken language is Gaelic. Arran, the island of Bute, and the Cumberry islands, make up the shire of Bute. It is in the presbytery of Cintra and synod of Argyll, and the name of James V. in the sixteenth century it was the seat of the Hamilton, and it was not till the reign of James V. in the sixteenth century that it was really reduced to obedience to the Scottish crown. It afforded a temporary asylum to Robert Bruce, afterwards to Robert Bruce, afterwards to Robert Bruce, and was the home of the Ospreys, and many different species of birds, and is the home of the otter and wild cat. The birds are black-oaks, grouse, partridges, plovers, &c. The red deer and wild goat, formerly abundant, are now nearly if not quite extinct. The eagle and other birds of prey have been nearly exterminated, and the sandstone has been passed through the Orkneys and Shetlands, and the Isle of Arran, are the home of the tawny owl, which the natives engage. Some of these fish often frequent the coast, or the fishermen repair to Loch fyne [see Argyllshire], or other places. The basking shark or sailfish is occasionally taken; they are sometimes near forty feet in length, and are sometimes found near the coast of the island owe their origin to Ann, goddess of Hamilton, in the seventeenth century, and little seems to have been done from her time till about twenty years since, when roads were made, people were encouraged to settle there, and is a cave on the west side of the island in which he sought refuge.

Immense cairns, rough obelisks, monumental stones, and other antiquities, supposed to be Druidical, are found in different parts. There are two or three Danish forts, and the remains of others, and the remains of a few ancient tombs are to be seen near the mouth of Loch fyne. On Lamlash island are some vestiges of a religious house. Besides Arran Castle and Loch Ranza Castle, there are the ruins of an old castle and of a castle on the south coast. A garrison of eighty men, which had been placed in Arran Castle by Oliver Cromwell, having provoked the indignation of the islanders, was massacred by them. (Headrick's View of the Mineralogy, &c, of Arran ; Jameson's Outline of the Mineralogy, &c, of Arran ; Macculloch's Highlands and Islands of Scotland.)

ARRAN, ISLES OF OF, a cluster at the entrance of Galway Bay on the west coast of Ireland, sometimes called the South Isles of Arran, to distinguish them from the island of Arranmore off the coast of Donegal, which is sometimes called North Arran.

These islands are three in number, lying in a line N.W. and S.E.; Arranmore, the largest, being to the N.W., that of Inismain next to it, and then that of Inishere. Arranmore is between six and seven English miles long, and about two miles across in the broadest part. The N.E. coast of these islands presents a sloping shingly beach; the opposite side has fine romantic cliffs, abounding with puffins, on whose eggs, in time of scarcity, the inhabitants subsist. They contain about twenty small, fertile, verdant, and humid, a small kind of oat without any husk. The stoutest coves in the county of Galway (in which these islands are included) are reared here.

Each island is an ecclesiastical parish, and forms part of the extensive union of Ballislaw in the archdeaconry of Tuan. The population, in the year 1821, was 3079. Many, or indeed most, of the inhabitants are engaged in fishing, and use a corragh, or boat made of a framework of willow covered with tarred linen, and provided with a rudder. In these rude vessels three or four hardy sailors embark, and trust themselves out far from the shore. A pier, nearly 245 feet long, and a landing quay, 39 feet in extent, have been erected by the commissioners for the Irish fisheries, at Killeeney, in Arranmore, the largest village in this group of islands, which, has a population of 974 persons. This has caused an extension of the number of the fishermen, and an increase in the fishing vessels. A number of vessels rendezvous here during...
ARR

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the herring season. The number of pupils at school in the year 1821 in these islands was 214, viz. 161 boys and 53 girls.

Arranmore was also called Arran a Naibh or Arran Naomh, i.e. 'Arran of the Saints,' a number of churches having been erected in it, in which the bodies of many Irish saints repose. It is said that they were antiently on this island, but were removed there by the convent of St. Criost, which had its seat on a high cliff in Arranmore, over the sea, is Dun-Angus, a large circle of huge stones, formed without cement, and capable of holding two hundred cows. A Franciscan friary was founded on one of these islands in 1465.

The inhabitants long remained, and perhaps still retain, the persuasion, that, on a clear day, they can see from this coast Hy Breasail or the Enchanted Island, the paradise of the fairies.

In 1334, these islands, with the neighbouring island of Boffin, were plundered by Sir John D'Arcy, Lord Justice of Ireland. They give the title of earl to the family of Gore. (Stewart's Topographica Hibernica; Letters from the Irish Highlands, &c.)

ARRAS, a strong and important town in France; the capital formerly of the province of Artois, and now of the department of Pas-de-Calais. It is on the south bank of the river Scarpe, 108 miles N. by E. of Paris through Senlis and Peronne, or 113 miles through Beauvais and Amiens. 50° 17' N. lat., 2° 45' E. long.

Arras may be regarded as consisting of three parts. The City, or the柊 (Ville), which forms the heart of the new town; and the Citadel, which was erected by Vauban, and is one of the strongest in this part of France. Modern authorities separate the town into upper and lower, but it is rather the divisions correspond, respectively to the City and Ville of older writers, though it is probable they do. The City and Ville were formerly separated by a ditch and wall; there was also between them a narrow valley, through which the Line stream flows. The houses, stone houses and large places (squares) of Arras entitle it to rank among the finest cities in France, as far as at least as regards the lower town, which is comparatively of modern erection. The cathedral, a Gothic edifice in a bold style of architecture; the town-hall, another Gothic building; and extensive barrackes, contribute to adorn the city. The Petite Place, of which the town hall forms one side, is surrounded with a colonnade, as well as the Grande Place. In some of the highest spots in the city, chalk-pits have been excavated, some of the hollows of which serve as wine-cellar. Part of the surrounding country can be laid under water in case of need.

Arras appears in the Roman writers under the name of Nemetaucum, but it afterwards took that of Atrebates, from the people who possessed the town with the surrounding territory. The Atrebates, and the country (Artois) receive their designation. It appears from the writings of St. Jerome, who lived during the close of the fourth century and the beginning of the fifth, that in his time it was a manufacturing town, and had been pillaged by the barbarians.

When the Franks first established themselves in the N.E. part of France, Arras formed part of their dominions; and, by the earlier kings of France, the lordship of the town was placed in the hands of the bishops of Artois, who retained it till the time of the Emperor Charles V., notwithstanding the power of the dukes of Burgundy, who were counts of Artois. Charles V., having compelled the kings of France to accept the crown of Artois as a part of the Burgundian dominions which had come to him by inheritance, made them yield at the same time the city of Arras, which he then subjected to the temporal power. It came again under the lordship of the town of the Pyrenees, in 1659; and the bishops seem to have been re-established in their seignorial rights. The magistrates of the Cité were still nominated by them in the early part of the eighteenth century.

Arras was the seat of a bishop, whose diocese comprehends the department of Pas-de-Calais. The population, in 1826, was about 27,000. The Scarpe is navigable from this town; the trade consists both in the agricultural produce of the rich district of Artois, and manufactures of Artois itself, which are cottons and woollens, lace, soap, and beet-root sugar. There are also many oil-mills.

Among the literary and scientific institutions are the High School, the Royal School of Fortification and Military Engineering (Ecole Royale du Génie), the Drawing School, and the Deaf and Dumb School, the Secondary School of Medicine, the Societies of Agriculture, Commerce, Sciences, and Arts, a public library of 34,000 volumes, a collection of paintings and antiquities, and a botanical garden.

Arras was the birth-place of Francis Baudouin, a writer who acquired the title of Grand Seigneur, and who was created a peer in 1573; and of the two Robespierres and Joseph Lebon, of revolutionary notoriety. (Balbi; Maître-Brun; Martinière, Dict. Universel de la France.)

Two treaties were concluded at Arras in the fifteenth century: one in 1435, between France and Burgundy, by which several towns were annexed to the latter; and one in 1482, between Maximilian of Austria and Louis XI. of France, where Margaret, daughter of Maximilian, was to have been given to the dauphin with Artois and Burgundy, as a dowry.

The arrangement of Arras contains 218 communes, and 143,615 inhabitants.

ARROY, a remarkable institution, which formerly subsisted in Otahite, and the other islands of the Society group. The first notice of the existence of this institution was brought to Europe by Cook, on his return from his first voyage in 1774. The account given in the narrative of the voyage published the following year was however generally supposed to have received a colouring from the florid pen of Hawkesworth, by whom the book was written. In the narrative of the voyage these facts were omitted, and the reader appears inclined to soften down certain of the features of the former representation. Subsequent statements were given by Dr. Forster and others, for the most part differing from each other. In the next account, we believe, that has appeared, and at the same time the latest, is that given in Ellis's Polymetan Researches, vol. i. pp. 311-344.

Hawkesworth's account would lead us to suppose that the distinguishing characteristic of the Arroy societies was a community of women among the members. Upon this point it appears clearly that he was mistaken. Forster thinks that a rigid celibacy was the original law of the society; and this notion receives considerable countenance from the mythological tradition of its origin which is given by Mr. Ellis. To the last, according to Ellis, each member continued to have his own wife, who was watched with extreme jealousy. It is certain, however, that these societies sanctioned and encouraged the greatest licentiousness of manners.

It is now understood that the fundamental law of the Arroy institution was that no child born of the members should be suffered to live. Even upon this head, however, there is a great deal of contradiction in the various accounts, and the information we have is upon the whole very unsatisfactory. Forster states that it was a rare thing for a child ever to be born of the Arroy, and that consequently infanticide was very seldom resorted to. They chose their wives, he intimates, from among a class of females whose habits rendered it unlikely that they should have families. This however does not appear to be very consistent with the statements of other authorities as to the jealousy with which they were accustomed to preserve the honour of their wives. It appears also that infanticide used to be commonly practised in these islands by all classes of the people, and quite as much by those who were not, as by those who were, members of the Arroy. Mr. Ellis gives it as his opinion, founded upon all he had heard, that two-thirds of all the children born used to be thus sacrificed; and, according to his account, the murder was almost always committed by the parents themselves, neither of whom, as a rule, was aware of the act when afterwards informed of it, or the least shame in acknowledging it. Forster, again, was told by Omai that the mother generally endeavoured to save her offspring, and that the deed was always perpetrated in such a manner as to show the general feeling to be, that it was one which ought to be kept from the light of day. Without attempting to reconcile these contradictions, we may here merely remark that it seems at any rate difficult to understand how a practice, which thus appears to have been common, could have been at the same time, as we are told it was, the chief bond of the particular association we are now considering.
The persons who formed this society are described as having been held in the greatest honour by their countrymen, and as having been accustomed to spend their time in the company of all who had been numbered among its general admirers. They travelled about in companies consisting of many hundreds; and wherever they made their appearance, gaiety and dissipation became the order of the day. From some of the accounts, it appears that some of the Arreoy members were the body of the national soldiers, and that the privileges they enjoyed, and the high estimation in which they were held, were the inducements offered by the state to engage than the several of these apostate libertines certainly appear to have been among the most eminent warriors of the nation.

Some accounts make these societies to have consisted exclusively of members of the chief families in the country; but, according to Mr. Ellis, they comprehended persons of all classes. If so, there must have existed some barrier against indiscriminate intrusion, the nature of which has not been stated. For if we are to believe the description given above, the persons who composed the Arreoy were enjoyed by the members of the society. In the present life, their religion, we are informed, promised them the continuance of the same superiority over their fellow-countrymen in the next. There is no reason to suppose that the persons in the society would not have destroyed their children would alone have operated with any material effect to deter persons from seeking the high and tempting privileges which the association conferred; for, as we have said, such a society was an instrument of general prevalence among the inhabitants of those islands. It is probable either that the number of the members and the description of the individuals eligible were regulated by some law of the state, or at least that there was something of certainty in the keeping of the persons of admission and rejection to the society itself. A circumstance which favours this last supposition is, that there have been different classes of the initiated, rising above each other in rank, from one to another of which an individual could only raise himself by his meritorious conduct, and after having belonged for a certain time to the inferior class. Mr. Ellis enumerates seven of these classes. It is not likely that, while each subsequent step was thus marked, the great number of persons admitted into the society would have been capable of destroying the first degree should have been a matter of course and open to all. It is stated that the more fatiguing work of the public exhibitions was usually left to the novices, or at least to the younger members.

Women as well as men were members of the Arreoy. When it happened, as it sometimes did, that a child born to any of the members was spared by the pity of its parents, both were expelled from the society, and the mother received the reproachful name of tskwanu swo, signifying ' bearer of children.' The children are said to have been commonly destroyed by suffocation; but various other methods were used.

One of the happy consequences of the introduction of Christianity into the island of Otaheite has been the entire abolition of those profligate associations, as well as of the practice of infanticide generally. What effect this change on the account of the great numbers of inhabitants remains in great part still to be ascertained. Mr. Ellis states, that when the missionaries arrived at the islands, the natural proportion of the sexes had been so altered, that there were four or five males to every hundred females; and that as his opinion that the Arreoy was in all probability originally instituted with the view of preventing the inconvenient increase of population; and he seems to think that, from the uninformed, that it is evident, that the proscription of the infanticide appears to have been observed, it probably had that effect. But this opinion is in opposition to the general fact which, as he notices, had been before remarked by Mr. Hume. Mr. Mathew, in his account of the trade for permitting infanticide had usually, from its tendency to promote manias, by diminishing the fear of their consequences, been attended with the opposite result.

ARREST is the apprehending or restraining a man's person by authority of law. In criminal matters the object of an arrest is to secure the person of one who has been proved to have committed an offence, in order that he may be brought before a magistrate; and then, if there appears sufficient ground of suspicion against the party to justify his being put upon his trial, the magistrate takes measures for securing his presence before the proper court, either by committing him to prison, or by taking bail for his appearance.

An arrest may be made either by virtue of a warrant, or, where the law authorizes it, without a warrant. A warrant may be made out by the judge, or by one of the secretaries of state, and some other public officers; but the only warrants which occur in the ordinary administration of the law are such as are issued by justices of the peace.

When a charge is made before a magistrate, it is his duty to examine the witnesses upon oath, and to take down their statement in writing; and then, if he see any probable ground of suspicion against the party charged, he issues a warrant for his apprehension. The person to whom the warrant is directed, generally some constable or other peace-officer, is bound to execute it as far as the magistrate's jurisdiction extends, but if the party to be arrested escapes into another county, the warrant cannot be executed without being backed, that is, signed by a justice of the peace for that county. [See Warrant.]

But in many cases an arrest may be made without a warrant; particularly by persons in cases of the immediate preserves of justice. A constable, for instance, may arrest, in case of felony, if there is reasonable ground of suspicion; and for any breach of the peace actually committed in his view.

An officer may, upon a criminal charge, break open doors, if, upon demand of admittance, it cannot be otherwise obtained; he may likewise, in apprehending a person charged with felony, use any degree of force, or in using force, as much as the person charged attempt to save himself by flight or resistance, and is killed by the officer (there being no other means of preventing an escape), the homicide is justified.

Private persons also are not only authorized, but required, to apprehend any person who commits a felony in their presence; and in pursuing such felon, they will be justified in breaking open doors, as in using force, as much as an officer. A private person may likewise arrest upon reasonable suspicion of felony; but inasmuch as this is not a duty enjoined by the law, he is not armed with the same privilege and exemption, and it cannot be required that he cannot justify breaking open doors, or using the same degree of force; if he kill the supposed offender, he will be guilty of manslaughter, if he die; and if he be killed, the offender will be the more certainly not murdered, if he is at his own peril, and is liable to an action unless he can show that a felony had been actually committed, and that there was reasonable ground to suspect the person whom he arrested.

There are also several cases where private persons have the power of arresting given them by act of parliament. Any person whatever is authorized to apprehend for any offence against the Vagrancy Act, 4 and 5 Geo. IV. c. 83. And where persons are found committing any offence against the Larceny Act, or the Malicious Injuries Act, 7 and 8 Geo. IV. c. 29 and 30, they may be apprehended, without warrant, by any peace-officer, or by the owner of the property, or by his servant, or any person authorised by him.

When an officer has arrested any one, he ought to take him before a magistrate to be examined as soon as possible. It is a great defect in practice where a person is not immediately before a justice of the peace, or general be justified either in taking the party arrested before a justice of the peace, or delivering him over to a constable of the place, and this alternative is expressly given him by the Vagrancy Act, 4 and 5 Geo. IV. c. 83, and by the Malicious Injuries Act require that the person arrested should be forthwith taken before a justice of the peace. But if a person be apprehended in an attempt to commit a felony at night, he may lawfully be detained, even by a private person, till he be formally before a justice of the peace.

There is likewise another mode of arrest for felony, and that is upon hue and cry raised; but though this was once

Arrest in civil cases is of two kinds: 1. that which takes place before trial, and is called arrest on mesne process; 2. that which takes place after trial and judgment, and is called arrest on final process, or arrest in execution. [See P. 394.]

The primary object of arrest on mesne process is to secure the defendant's appearance in court, so as to enable the plaintiff to proceed with his action against him. This compulsory mode of proceeding, being penal in its nature, was originally allowed by our law in such injuries only as are accompanied by force: its use, however, was gradually extended, partly by Acts of Parliament, partly by the fiction of law. In the courts, to arrest every species of complaint; and by local regulation, it has nearly been confined to cases of debt.

When it is intended to proceed by arrest, the plaintiff, after making an affidavit that the cause of action amounts to 20L., which by stat. 7 and 8 Geo. IV. c. 71, is now the lowest sum for which a party can be held to bail, commences the action by serving a writ, called a *capias*, directed to the sheriff, who, on its being delivered to him, grants a warrant for his arrest, and provides the means of bringing the defendant. Upon making the arrest, the officer is required forthwith to deliver to the defendant a copy of the writ, and is not allowed to take him to gaol within twenty-four hours without a writ of habeas corpus to go to any place of safe custody. He is in general taken to the house of the officer (vulgarily called a 'spunging-house'), where (if sooner lawfully discharged) he may be confined until the expiration of the eight days limited for the purpose in special bail.

When arrested, the defendant is in custody of the sheriff; but by stat. 43 Geo. III. c. 46, s. 2, he may obtain his discharge by depositing with the sheriff or his officer the sum sworn to in the warrant for his arrest, or by giving bail for his appearance to defend the action; this being what most commonly occurs, the process upon which an arrest is founded is called *bailable* process. For further information on this subject, see Bail.

Arrest on final process, or arrest in execution, is one of the means by which a party who has succeeded in an action may compel performance of the judgment.

Arrest in execution may in general be resorted to in any case where, before trial, bailable process might issue; when execution has been taken out against the property, and there is not enough to satisfy the judgment, execution against the person may afterwards be resorted to; but if the personal estate is sufficient to discharge the process, it is in his lifetime issue afterwards against the property. [See Execution.]

An arrest is made by seizing or touching the defendant's property, or entering the house of the defendant with the open the defendant's house in order to arrest him; but, when once the arrest is made, he may break into any house in pursuit of him.

In France, imprisonment seems to have existed from the earliest ages as a means of execution to compel the payment of a debt, though its application was originally restricted to cases where the property of the debtor had been previously seized and found insufficient. In the reign of Louis the Eleventh, as is shown in his diploma, for the first time a silver day constitutes one of the characteristics of French jurisprudence; debts of a commercial nature being distinguished from debts purely civil, and arrest being allowed as of course in the former, but, in the latter, only in a few specified cases.

An arrest, by the law of France, cannot take place without being authorized by the sentence of a court. The cases in which this authority is exercised in matters not of a criminal nature may be classed under four heads: 1. on account of the amount of 200 francs (sl. sterling), arrest forms part of the sentence as a matter of course. The object of imprisonment is to compel the debtor to give up any property which he may be supposed to have concealed: after a certain length of confinement, it may be presumed that, if he has given nothing up, it was because he had nothing to give; and thus the reason for detaining him ceases to operate. The debtor is, therefore, in all cases discharged from prison, after a certain length of time, varying according to the amount of the debt.

In commercial cases, the length of imprisonment varies from one year to five.

II. In actions of a purely civil nature, arrest takes place only in those cases specified by the laws. The civil code (Arts. 2059, 2060) contains an enumeration of the cases in which it is pronounced as a matter of course. They are chiefly such as imply either gross fraud, or a breach of official duty. The length of imprisonment varies from one year to ten.

There are other cases in which the court have a discretion to power to pronounce sentence of imprisonment if they think fit; the length of confinement varies in this instance from one year to five years, and amounts to 150 francs (sl. sterling), which is the lowest sum for which a person can be arrested.

III. All public servants are liable to arrest in respect of any sum of money to the amount of 300 francs, 12L. sterling, or, by virtue of any law, to imprisonment or fine. The duration of imprisonment varies from one year to ten.

IV. With respect to foreigners not domiciled in France the law is peculiarly severe. As their property is presumed to be in their own country, the imprisonment of their persons is considered to be the only means by which they can be compelled to satisfy their creditors; they are, therefore, liable to arrest for all debts, whether civil or commercial, in France, the amount of which amounts to 150 francs (sl. sterling). And for this sum a foreigner may be arrested, not only after final judgment, but as soon as the cause of action has arisen. In the latter case, however, he may obtain his discharge by paying his creditor the sum of 150 francs (sl. sterling) or by giving bail, or by being seised of sufficient property in France to pay the debt: when arrested on final judgment, the duration of his imprisonment varies from two years to ten.

A debtor who has entered his 70th year cannot be arrested on final process, except in the case of *stellicatum*, the *stellicatum* of the Roman law, a fraud committed by a party in falsely representing property as being his own or as being free from incumbrance. And with the same words, the debtor who is in his 70th year, entitled to be discharged. The debtor likewise obtains his discharge in the following cases: 1. If the creditor give his consent thereto; or 2. if he be discharged by the sheriff. In such cases, the court can advance the sum which the law requires him to pay for the support of the debtor. This sum is now fixed at 25 francs, 12L. sterling per month, except in Paris, where it is 30 francs; 3. By payment of the debt, costs and expenses; or, in cases not commercial, by payment of one-third thereof, and finding sureties for the remainder; or 4. By being allowed the benefit of cession, answering to a discharge under the Insolvent Act in English Law. [See Cassio Bonorum.]

The Code Civil, Arts. 2659-2670; *Codé de Procédure Civile*, Arts. 780-805; law of 17th of April, 1832; Fouix, *Commentaire sur la Contrainte par Corps*.

ARRHID, a bastard son of Philip III of Macedon, who, on the death of his half-brother, Demetrius (33) was made king in succession to Alexander, who had been taken from the guidance of his tutor, Philotas, and was left in the hands of Aristotimus and Ptolemaus, with the assistance of Cassander; but falling into the hands of Olympias, was, with her husband Aristhæus, put to death, b. c. 317. [See Antigonus, p. 102. Antipater, Perdiccas.]

ARRIANUS, FLAVIUS, a native of Nysa in Bithynia, and one of the most prolific Greek writers of the second century. The date of his birth is unknown, though it was probably during the reign of Domitian, or of Nerva, but we can only infer it generally from the following fact. In the twelfth year after the death of Trajan, Arrian was governor of Cappadocia, and in this capacity he addressed a letter to the emperor, containing an account of his voyage from Tripolis (Trebiunol) on the coast of Black Sea, and from that place to Scythopolis. The chief object of the voyage was to inspect the garrisons on this coast. The letter of Arrian to Hadrian is written in Greek, and contains, besides an account of the governor's own voyage, a complete Periplus of the chief places all round the coast of the Black Sea.
(See Hudson’s Minor Geographers, vol. i.) We cannot well suppose Arrian to have been under forty years of age at this time. Dodwell is inclined, for various reasons, to suppose that he might have been more than fifty when he was governor of Cappadocia. (See his Dissertation.) This is the only date in his life that can be fixed with any probability, and such as it is, must be used for his previous and subsequent life. In his youth Arrian was a pupil of Epictetus, who then resided at Neapolis in Epirus, having been deprived of authority over his pupils by Hadrian, together with the whole body of philosophers. Epictetus died probably in the earlier part of Hadrian’s reign, and Arrian commenced his career as a writer by publishing the Encheiridion (2nd ed., 1767), a work on the moral doctrines of his master. [See Epictetus.] He wrote also eight books, of which four are extant, entitled ‘The Philosophical Disquisitions of Epictetus,’ which, as he tells us in his preface, addressed to L. Gellius, contain the very words of his master. In addition to these he wrote a work entitled ‘Dialogues of Epictetus,’ and another, ‘On the Life and Death of Epictetus,’ both now lost. Hadrian, who aspire to the character of a philosopher, was on terms of intimacy with Epictetus and probably saw him during his stay at Athens a.d. 123 and 124; and it is not an unlikely conjecture that Arrian, the favourite pupil of Epictetus, was introduced by him to the emperor. Arrian, in fact, from his earlier days onward, entered the world to his literary reputation. After the death of Epictetus and the publication of his philosophical works, Arrian acquired the privileges of a Roman citizen and the Roman name, and in addition of some sort, as he was the governor of so important a province as Cappadocia: whether he ever enjoyed the consular dignity does not appear quite certain. Suidas (Abh. 651) says, on the authority of Helienatus, that he attained the consulship. The rivalry of Arrian with Pliny, so evident from the Periplus of the Euxine Sea and other authorities. Honours and emoluments in his native city of Nicomedia were also conferred upon him, for we learn from Pliny and Pausanias that he occupied the Portico of Agrippa, a function to which, no doubt, considerable profits were attached, as we may see from other similar examples.

In a.d. 137 a disturbance broke out in the neighbourhood of Trapeza, and Arrian’s head-quarters, located by a chief called Pharamses. (Dion. Cassius, lib. 69, cap. 16.) The activity of the emperor appears to have checked this rising without any further measures than a vigorous display of force; and the reason why it was, is, of course, the name of him people headed by Pharamses. They are called Alani, possibly a mistake for Albanii. (See Dion.) We still possess a fragment by Arrian, entitled ‘The Order of Battle against the Alani,’ probably a part of a larger work on military tactics, written in the 20th year of Hadrian. (See the conclusion of the Tactite.) Gibbon’s remark (note, ch. i.), ‘that with the true partiality of a Greek, Arrian rather chose to describe the phalanx of which he had heard, than the legions which he had commanded. If not correct, if the fragment on the Alani war was written by him.

After the death of Hadrian (a.d. 138), Arrian probably retired from public life, but he was by no means idle. He wrote a history of ‘Trajan’s Parthian wars,’ in seventeen books; the ‘History of Dion of Syracusa;’ the ‘History of Bithynia, his native province, in eight books; and, to give a key to his work, he wrote a book on the geography of the robbers Tithiborios, a fellow who for some time annoyed the neighbourhood of Mount Ida. (Lucian, Alexander.) A work on comets and meteors, known to us under the title of Arrianus: but whether the author was Arrian of Nicomedia cannot be determined. The work by which he is now best known to us is the ‘History of Alexander’s Campaigns in Asia, in seven books, founded principally on the historians of the day, Diodorus, Strabo, and Aratus; and the works of Aratus, the poet of Aristotle the son of Aristocles, both of them the companions of Alexander in his wars. This is almost the only source for the history of Alexander’s conquests that we possess, and with the facts contained in it, we should be utterly unable to form any judgment at all on the military operations of the Macedonian king. Arrian’s narrative, however, is often incomplete, and occasionally obscure; the obscurity sometimes, though rarely, arises from the language of the writer, but mainly from the difficulties which he must have experienced in reconnaissing conflicting authorities (see Arrian’s Preface). Arrian’s history, however, is often the best source that we can appeal to for illustration of the comparative geography of Asia. A general tone of good sense is found all through, but, as was usual with those who undertook to write the Life of Alex- ander, the faults and vices of his hero are touched with a lenient hand. There is no absolute proof to show at what period Arrian wrote this work. St. Ivo charges, it is true, and Arrian makes allusion to his honours; but he praises himself still more on his literary labours, which had procured from his youth upwards. He concludes by telling us, that as Alexander was the best captain, so he himself was the best master of the Greek language, and the fittest person to write about him.—All this savours more of an old than a young author.

As a continuation to his History of Alexander, he wrote ‘A little work, still extant, entitled ‘On India, which contains a great deal of curious matter on the natural productions of that country, and the manners of its inhabitants. It contains also an extract from the ‘voyage of Nearchus, who sailed up the Great River of India and down the Delta of the Indus to the Euphrates.’ Arrian’s work on the History of Alexander’s successors, in ten books, would have formed a valuable commentary on that busy but obscure period of history.

Another valuable little treatise, which bears the name of Arrian, is entitled ‘The Periplus of the Erythraean Sea, that is, the coast description of part of eastern Africa, Arabia, Persia and India; it is by some critics assigned to a period somewhat later than that of Arrian. But the work is written with reasonable probability be extended. This interesting monument of the early commerce of the Indian Ocean has been illustrated by Dr. Vincent. (Periplus of the Erythraean Sea.)’ Arrian in general is affected to imitate the Attic Greek of Xenophon, but the little treatise on India is written in a kind of Ionic dialect.

Arrian, as we see from his letter to Hadrian, was no unskilful courtesan, and from the rest of his works we may judge him to have possessed a large share of vanity. The model that he proposed to himself was Xenophon the Athenian, and certainly the pains which he took to anticipate to his prototype are not a little curious and amusing. Xenophon was an Athenian by birth; Arrian contrived to get himself made one. Xenophon wrote on the philosophical theories of the Ionian, and Arrian’s ‘History of Epictetus. Xenophon wrote an account of the Expeditions of the latter part, and gave it the appropriate name of the Anabasis or Ascent; Arrian also gave to his History of Alexander, the less appropriate name of the Anabasis of Alexander. Arrian was a great admirer of Greek Affairs, a kind of supplement to the Peloponnesian War; Arrian wrote a History of Alexander’s successors. Xenophon wrote a Treatise on Hunting; so did Arrian. Both works still remain. Finally, Arrian very modestly calls himself the younger Xenophon, and sometimes simply Xenophon. It is unnecessary to pursue the parallel farther; the following quotation from his book on Hunting will show the close analogy of the same city with Xenophon, and having the same name, and from my youth up having had the same pursuits —hunting, military science, and philosophy. Xenophon was a god; and, in distributing the offices shows by his remarks that he was a true lover of field-sports, and had practical knowledge on these matters. He endeavours to supply some of Xenophon’s omissions, which he says were not caused through any negligence on the part of Xenophon, but through the Celtic breed of dogs, and with the Scythian and Lybian breeds of horses. Arrian’s description of his favourite dog Hume (Oophis), his constant companion and friend, is written with the delicacy of a Selene, with the natural and true opinion of his character. How long the second Xenophon huntsman, general, historian, and philosopher lived we do not know; it is possible that he lived till the beginning of the reign of Marcus Aurelius, n.c. 161, which is the time when he failed to complete the parallel between him and Xenophon, who

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lived to be above ninety years old. (Lucian, Macrobii.)

Don Cassius (see Suidas) is said to have written a life of Arrian. (See St. Croix, Examen Critique, &c.; Doxwell's Dissertations in vol. i. of Hudson's Minor Geographers.)

The English ed. of separate parts of Arrian, but only one, as far as we know, of all his works; that by Borbeek, 3 vols. svo. Lemos, which is very incorrect. The latest edition of Arrian's History of Alexander and his India that we have seen, is by Schneider, Leipzig, 1799. The Periplus of the Euxine, a Latin translation of Arrian's Periplus of the Black Sea, by Bernard, a merchant of Toulouse, was printed at Venice in 1708. 250 copies were printed. Dr. Didcin calls this book a 'dear delight.' An English translation was published in 1729, in 2 vols. svo. by Mr. John Rook, of the History of Alexander's Expedition, with notes, historical, geographical, and critical. To this translation is prefixed, M. Le Clerc's Criticism upon Quintus Curtius; Arrian's Indian History; his Account of the Division of the Empire after Alexander's Death; Raderus Tables; a Catalogue of the Authors who have written upon his History; a Chronology of the whole; and a complete Index. There is also a translation of the Periplus of the Euxine Sea, by Dr. William Falconer, published in London, in 4to, in 1805. The latest translation of the Port-De-Rap, (or Port of the Gulf of the Euxine,) by M. d'Holbach, is that of Expéditions d'Alexandre, par P. Chaussard, 3 tomo. svo. Paris, 1802.

ARRIEGE, or ARRÉGE, a river in France, one of the tributaries of the Garonne. It flows from the Pyrénées, in the ridge which separates France from the valley of Andorra in Spain. It flows N.E., N., and N.W., forming an arc, to the town of Tarascon, receiving on both sides a number of streams, which descend from the lofty ridges, and drain the seceded valleys of the Pyrénées. From Tarascon, which is thirty-one miles from its source, it flows due N. about thirty-one miles farther, by Foix and Pamiers, to near Saverdon; from thence its course is N.W., and W., and S.W., having the beauty of the north of Spain (as a Lena) for its principal tributaries, which falls into it on the right bank, to Autervie, about eleven miles. Here the navigation commences, and the stream flows, still in the same direction, about twelve miles, to its junction with the Garonne, about six miles above Toulouse. Its whole course is about eighty-five miles.

This stream is noted for the excellence of its fish, especially salmon, bass; and for the gold which is found in its bed. The fluvial flowers at Cruas, on the right bank, and a half N. of Foix, in small quantity but, following the course of the stream towards the north, it becomes more abundant, and the village of Varilles, which is nearly two miles from Crampagne, serves as the southern limit of the gold-searchers; Pamiers may be considered the centre. It is between Varilles and Pamiers that the largest grains are found; these have, in some very rare instances, weighed half a pound. The nearness of Foix, (pop. 16,000), as far as Saverdon, fourteen or fifteen miles below Crampagne, at which it commences. The subsoil of the neighbourhood and the banks of the river in this district consist of pebbles of all sorts and sizes, more or less firmly united by a softest, easily crumbled, calcareous cement. The gold, however, is found detached from the pebbles with which it is intermingled. The soil above the pebbly substratum produces excellent crops. The tulips which fall into the Arrège within the limits above described have gold in their channels, but the whole quantity gathered, whether in the river itself or its feeders, is at present insignificant.

Some have suspected that this stream derived its name from the gold found in it, asserting that it was antiently called Aurigera (gold-bearing); but we are not aware that any antient author gives support to this assertion, and the etymology itself is disputable. (Encyclopédie Méthodique; Dr. Diderot, and D'Alembert; Frontenac, Freycinet and Brun.)

ARRIEGE, a department of France on the Spanish frontier, comprehending the former county of Foix, and parts of the province of Languedoc, and of the districts of Comminges, and the inhabitants form the considerable part of the range of the Pyrénées, which form their southern boundary. On the N. and W. it is bounded by the department of Haute Garonne (Upper Garonne), on the N.E. and E. by that of Aude, and on the S.E. by that of Pyrénées Orientales (Eastern Pyrénées). Its greatest length is from W.N.W. to E.S.E. 67 miles, and its greatest breadth is 48 miles. Its superficial contents are 2169 square miles, according to M. Babi; or 2193, according to M. Hafte-Brun. Population of the inhabitants to the square mile, according to the first-mentioned calculation of surface; or 113, according to the second. This department is traversed by numerous streams which descend from the Pyrénées, which form, forming the river L'Arize, and the Arrège, which fall successively into the Garonne. Of these the Arize is remarkable for its waters passing under ground in two places. The Leze and the Lers, streams of considerable size, descend from the Pyrénées and the brooks westward from the Arrège yield gold; they traverse a soil similar in its nature to that through which the Arriege flows in the gold district.

The mountains are very lofty. The following are the principal summits, with their altitude in English feet. Montcalm, 10,663; Peak of Estats, 10,611; both near the head of the valley of the Vic-de-Sos, a feeder of the Arrège. Peak of Serrac, 9646; Peak of the Port (or Pass) de Siguiel, 9613; Peak Pedrons, or Pedross, 9511; Peak of Montoulong, 9492; Peak of Fonte Arangite, 9370; Peak of Monvallier, 9249; Prigue, or Peyrie, 9121; Mount Carbere, 8655; and Roc Blanc, 8294. The Port-De-Rap, at the head of the valley of Vic-de-Sos, is 7473 feet high; that of Puy Morens, to the east of the last, is 6299 feet.

The mineral wealth of the department is considerable. Iron, lead, silver, copper, and sulphur; the last, however, not in any great quantity. There are mineral waters at Ax, a little town on the Arrège near its source; and coal, slates, marble, and jasper are wrought. Turquoises are found in some places. The southern part of this department is of great elevation, and therefore very cold. It affords fire-wood and pastureage. A considerable quantity of cattle is reared. Medicinal plants are numerous, and the vivid colours of the flowers are striking. The fruits were in some places, in high esteem with the florist. The northern and lower part of the department has a far higher temperance, and great fertility of soil; suited, however, for corn rather than for the vine. The fruit is excellent.

The chief trade of the department is in iron—which is wrought in considerable quantity, especially in the valley of Vic-de-Sos—oak, resin, and wood; and in mules, which are in estimation for their strength. Some manufactures are cottons, woollens, and linens, in the latter town; and of woollens, hats, leather, and paper, at St. Girons. The inequality of the ground forms a great obstacle to the transportation of goods, which is chiefly effected by means of horses and mules.

The chief towns are Foix, the capital, on the Arrège (population 5000); Pamiers, also on the Arrège (population 4500); Mondon, on the valley of Vic-de-Sos, (population 1400); and Saverdon, on the Peille, which descends from the Arrège, near its source, has a lead-mine (in the town), and some warm springs, much recommended in some diseases. The population of Ax, at the beginning of the present century, was about 1500. Miroix, on the Arrège, is the seat of a bishopric, and has a population of about 1500. It is about fifteen miles east of Ax, and Saverdon on the Arrège, had each nearly double the population of Ax at the same period.

The department sends three deputies to the chamber. It is judicially subject to the cour royale (assize court) of Toulouse.

ARRIS, in French Arête and Arête, is a term employed in building. It may be defined as the intersection or line in which the two straight or curved surfaces of a body, forming an external surface to each other, converge. By a line with edge, is constantly employed by workmen engaged in buildings, especially in the formation of mouldings, whether of stone, wood, or plaster. In parallel-sided bodies, on which the length and thickness may be measured, as in shutters, &c., the term edge only is used. In Gothic architecture, owing to the numerous lines and angles, the arris is of frequent occurrence; for example, in the Mullions and transoms (see Mullion and Transom) of windows, where there are many mouldings, every
edge is an arris, whether formed by square mouldings or by the intersection of curves. In Grecian architecture, the raised edge between two flutes of a Doric column, and in both Grecian and Roman architecture, the lines bounding every flat moulding are so many examples of the arris.

ARRIS FILLET, a small triangular piece of wood, used to raise the slates of a roof against the shaft of a chimney or a wall, to throw off the rain more effectually: it is used for the same purpose also in forming gutters round skylights, which have the same inclination as the roof, and are similarly raised above it.

ARROBA, a Spanish measure, both of weight and of capacity, and used as one or both in Portugal and the Canaries. It exists in Morocco, under the name of Krob, but with great local variations of value. It is also found to be different in different parts of Spain.

**Weight Arroba in Pounds Avoirdupois.**

| Spanish standard | 25.36 |
| Alencat        | 25.36 |
| Valencia       | 28.25 |
| Aragon         | 27.76 |
| Majorca        | 22.93 |
| Lisbon         | 32.38 |

**Measure Arroba in Imperial Gallons.**

| Spanish standard | 3.54 |
| Greater Arroba   | 3.54 |
| Lesser Arroba    | 3.49 |
| Malaga          | 2.59 |
| Valencia        | 3.54 |
| Canaries         | 3.54 |

The standard greater arroba (used for wine) is also 981 cubic inches, and the lesser (used for oil) is 771 cubic inches.

ARROE is a Danish island off the eastern coast of Schleswig, due south of the island of Funen, and at the southern entrance into the Little Belt, from which it extends in an oblong form about fourteen miles from N. W. to S. E. Its superficial area is thirty-two square miles; it is divided into five parishes, contains a town and market-village, and has between 7000 and 7600 inhabitants. The surface of the island is a continued level, interrupted only by a lake called the "Wilt-See: the soil is very rich and productive, but has no wood. The inhabitants breed considerable quantities of cattle, and raise grain, peas and beans, vegetables, asparagus, and currants; they are actively engaged likewise in fishing and navigation. The landowner, or bailiff, exercises the executive and judicial powers in all but civil causes, the latter of which are under the cognizance of a local tribunal. Arréskøbing, at the eastern side of the island, in 54° 35' N. lat. and 10° 35' E. long., is the capital; it has a convenient harbour, formed by the opposite shore of the island of Degerhe, with which Arré is connected by a bridge. The town consists of four streets, and has a church, three schools, two of which are for the education of navigators, and 1400 inhabitants, who are the owners of above fifty vessels, and depend chiefly upon trade and shipping for their maintenance. The market-village is called Mønsted; it is situated on the western side of the island, and contains about 1400 inhabitants, wholly mariners and fishermen. The island itself forms part of the Duchy of Schleswig.

ARRIO, a large island, or, more strictly speaking, a group of islands, in the eastern seas, situated to the south and west of Papua or New Guinea, and north-east from Ti- mor-laut island. The cluster consists of five islands, divided from each other by such narrow channels that the whole have been sometimes considered as one island. The centre lies nearly in 6° S. lat. and 135° E. long. The length of the whole from north to south is about 140 miles, and the average breadth about one-fourth of that measure.

Arrio has never been explored by Europeans, and little or nothing is known of either the interior of the country or the character of the inhabitants. What little knowledge we have of the place has been obtained through the report of Chinese merchants settled at Banda, who carry on a traffic between the islands, procuring from Arrio pearls, tortoise-shell, edible birds' nests, and an aromatic bark named "miryset," which resembles cinnamon, and is much used among the Eastern islands, although never, or but very rarely, imported into Europe.

This cluster of islands is likewise remarkable as being much resorted to by birds of Paradise, which breed here in large numbers. These birds are caught for the sake of their beautiful plumage by the natives, who first cut off their legs, and then drawing their entrails, preserve the remainder by means of fermentation. Valentyn has described seven varieties of these birds, of one of which specimens are sometimes found thirty inches in length. In this dried state these birds likewise form an article of commerce between the natives and the Chinese traders. (See Malham's *Naval Gazetteer, and Hamilton's East India Gazetteer.*

ARROW, see Archery and Arms (Weapons).

**ARROW-HEAD.** [See SAGITTAE, Constellation.] ARROW-HEADED CHARACTERS, a name particularly given to those marks which have been found stamped on the bricks of Babylon, and cut upon the marble monuments at Persepolis. They have been found also at Nineveh, on some rocks near Argish on the lake Van in Armenia, at Shus (the site of the antient Susa), and more rarely in Egypt. The arrow-headed characters have also been called in Latin canesformes, and in German *keilformig, or die Keilschrift;* meaning wedge-shaped, and wedge-shaped characters. The arrow-headed character is formed from a very simple element, an isosceles triangle or wedge. Two of these are sometimes joined so as to form a figure not unlike an extended pair of compasses, or very open barbed arrow-head. Some writers on this subject have considered that the characters of Babylon differ essentially from those of Persepolis; but more accurate observation has led others to the conclusion that the cause of the variation lies merely in the difference of the materials on which they occur. Those of Babylon are coarsely stamped upon brick; the Persepolitan inscriptions are sculptured upon marble. The Babylonian characters, on account of their ruler shape, are often called nail-headed,
The Persepolitan have a more distinct form, and therefore the term arrow-headed more peculiarly applies to them.

The tablet given in p. 398 is a copy, reduced, of one given from Babylon, and now in the museum of the East India House. Beneath is a representation very much diminished of one of the bricks; the inscription is on the upper side, and surrounded by a broad plain margin. A number of Persepolitan and other early Latin classical writers make any very distinct mention of the arrow-headed character, though it has been conjectured that the ἀρχαῖα γραμματικα of Herodotus, iv. 87, and of Thucydides, lib. ii. 33, in which Amasis is mentioned, i. e. 565, refer to Babylonian inscriptions in this character.

Sir William Ouseley, in his Oriental Collections, has communicated from a Mohammedan manuscript what professes to be a Persepolitan alphabet; but, like other alphabets which he had collected, it was in later times, and he did not think it was real.

Della Valle supposed the ruins of the tower of Babel in the year a.d. 1616. Pietro Della Valle (Voyage, Paris, 1747, tome v. p. 320, &c.) and Figueras, ambassador to the court of Spain, were the first European travellers who are known to have formed any conjecture respecting the interpretation of the arrow-headed characters. They supposed that the direction of the wedges and angles on the Persepolitan characters were the same as the inscriptions, and that they were to be read from left to right. Chardin inclined to the same view, but added, that they might also be read perpendicularly.

Mandelbrot, one of the most intelligent early travellers, was the first who noticed the ruins of Persepolis about a.d. 1638, describes the characters he found there as triangular, pyramidal, or like obelisks (p. 11, Leyden ed.)

Chardin, Le Brun, and Kämpfer, towards the close of the seventeenth century, published the magnificent ruins of Bab-El-Mardānīr or Tehermianar, which is the modern name of Persepolis. But the travellers of that age seldom took the trouble to copy inscriptions which they did not understand; and if they attempted a transcript, it was generally inaccurate.

Hyde (de Relig. Vet. Pers., pp. 527, 528) and others supposed that the arrow-headed characters at Persepolis owed their origin merely to the capricious whim of the architect, and were placed there as mere ornaments round the doors and windows. Others took them for talismans and charms.

In the Archeologia (vol. xiv. p. 55) of the London Society of Antiquarians, there is an account, by Dr. Hume, of a sun-baked Babylonian brick which has the figure of a lion impressed upon it, with an inscription in a different, probably a later, character, of which Mr. Henly, in the same volume, p. 206, discovered the meaning to be in तददू, a brick marked in the name of Nebuchadnezzar.

Niebuhr, after his return from the East, published the earliest exact copies of the arrow-headed inscriptions; and thus gave rise to some attempts to explain them; although, owing to the silence of ancient writers, little or no external help could be derived.

Olaus Gerhard Tychsen of Rostock published in 1798, his Lociubratio de Cassiea Inscriptionibus Persopolitanis, and was followed by Münter at Copenhagen (who lately died, Archbishop of Zealand) in an Essay published in Danish in the year 1800, and in German in 1802. Tychsen and Münter thought they had ascertained that the arrow-headed characters are alphabetical, that the words are separated by a character placed obliquely, and that they are to be read from right to left, like the Indian and European alphabets.

They endeavoured to prove that a certain group of arrow-headed characters frequently recurring must signify 'king.'

Dr. Joseph Hager published in the Monthly Magazine for August, 1801, a facsimile stamped with arrow-headed characters, which had been sent to the East India Company; and, in the same year, a dissertation on the newly-discovered Babylonian inscriptions. Dr. Hager supposed the characters to be a mixture of formed and combined arbitrarily, and designed to express, not letters or syllables, but either whole sentences or whole words. (Dr. Hager, Dissertation on the Babylonian Inscriptions, London, 1802.) In a number of characters on the bricks indicated the brick-maker's name. The facsimile published by Hager excited the inquiries of Lichtenstein.

Lichtenstein maintained these characters to be a variety of the ancient Arabic or Cufic character, which is derived from the Persian alphabet; and, with a few additions and modifications, still used in Africa, principally in the empire of Morocco. Led by this supposition, Lichtenstein read, or fancied that he read, some passages of the Koran, and, at least in some verses, he then proceeded to form an alphabet from the face-similar, which he applied to some Persepolitan inscriptions given by Niebuhr on plate xxiv, under C. E. and L.; and he produced as the result some Persian words, the Persian characters being, he believed, equivalent to the arrow-headed characters of the Persepolitan alphabet. Several other arrow-headed inscriptions he has declared to be convertible, by the substitution of the Persepolitan signs for the alphabetic letters which they represent, with such a view that he considers to be, by a similar process, reducible into words in the Chaldee, or rather in the Aramaic language. Several other arrow-headed inscriptions he has declared to be in pure Arabic, and one in Chaldee, or rather in Aramaic.

This was the view which he held, and it is to be read from left to right. He refers the inscriptions in the ruins of Babylon to the seventh or eighth century after Christ.

The interpretations of Lichtenstein are made upon the supposition that in the various combinations of arrow-headed characters one only is essential, and that the rest are added without either necessity or rule. Thus various groups of these inscriptions, obtained the same value, according to his interpretation. The reading of the arrow-headed characters to the Cufic is the only ground for the interpretation which he has offered.

The present director of the gymnasium at Hanover, Dr. Grootefend, has published several dissertations on these characters. It is said that he was led to make it the object of his peculiar attention in consequence of a trifling dispute with one of his friends; in the course of which he laid a wager that he would decipher the Persepolitan inscriptions. His dissertation under the title Praxis de Cassiensi, quae con- cant, Inscriptionibus Persopolitanis legendis et explicandis Relativus, was read before the Royal Society of Göttingen in the year 1817; it was reviewed by Tychsen in the forty-ninth number of the Göttingischen Gelehrten Cluben, December 18, 1822; and the manuscript, revised and improved by the author, is now in the possession of the London Asiatic Society, and will soon appear in an English translation. Grootefend has also published dissertations on the same subject in various numbers of the Fundgruben des Orientalen.

The leading points of Grootefend's views are,

1. That the arrow-headed characters are not simple ornamen- 
tal or numerical figures, but alphabetic characters.

2. That there are on the inscriptions of Persopolis three different systems of arrow-headed or cuneiform writing; that every inscription is triple, so that whoever is able to deci- ple one will know the sense of the two others. This is illustrated in the inscription Grootefend deciphered from a vase belonging to the National or Royal Library at Paris. In this opinion the late Professors Tychsen of Rostock agreed.

3. That the arrow-headed characters are not syllabic; otherwise the walls would be loaded with them.

4. That all the Persepolitan arrow-headed inscriptions are to be read from left to right.

5. That in the first of the arrow-headed systems there are forty signs; that among these signs are included separate characters representing both the long and the short related vowels. This opinion Grootefend supports by the analogy of the Zend. Tychsen and Münter say nearly the same.

6. That the inscriptions of Persepolis are in Zend.

7. That these inscriptions belong to a period between Cyrus and Alexander. Grootefend thinks that he has discovered in every inscription which he has examined the name of either Darius Hystaspis or Xerxes.

In the Lettres de M. Sévère de Sacy a M. Millin sures Inscriptions des Monuments Persépolitains, extraite du Maga- zine Encyclopédique, Année VIII. (1803), tome v. p. 438, this great orientalist points out the inconsistencies in Lichten- stein's statements published in the Transactions of the Magazin. De Sacy expressed his doubts if Lichtenstein would be able to substantiate his assertions in the more elaborate work which he had promised. This work appeared in quarto under the title Tentamen Ptolemaicae Assyriacae, 1812, and finally appeared in four volumes. Though De Sacy was more inclined to favour the system of Grootefend, he objects to the grounds on which he maintains that the characters are not syllabic; for De Sacy observes, that Grootefend is not in the position of speaking of words; his words are words of more than ten syllables. To the opinion of
Grotefend that the forty signs must contain long and short vowels, because there would otherwise be too many for the purposes of an alphabet. De Saedens objects that the Samaritans have more than forty consonants, and that in various Semitic alphabets the shape of the characters is altered according to their position, so that there seem to be more consonants than actually exist. Compare the Arabic and Syriac alphabets.

Dr. Hager, professor of Oriental languages in the University of Padua, published at Milan in 1811, his Illustration d'un Zodiacin Orientale, which contains matter bearing upon our present subject. The work of Maurice on the Ruins of the East India Company, 1818, contains some observations which coincide with those later published in the Morning Watch, which will be noticed at the conclusion of this article. Proceeding in chronological order, we have next to notice an Account of the Progress made in Deciphering Cuneiform Inscriptions, by Mr. C. Bellino, read on the 13th June, 1818, and published in the Transactions of the Literary Society of Bombay.

Sir William Ouseley's Travels, 1819-1823, as well as the second volume of Ker Porter's Travels, 1822, pp. 416-426, contain remarks on cuneiform characters, and several fac-similes of them. Several arrow-headed inscriptions are exhibited and explained in A Dissertation upon the Antiquities of Persopolis, by E. H. Manning, published in the Journal of the Society of the Asiatic Archaeologists, by Colonel Ouseley, Ambassador to the Court of Persia, London, 1825. One of these inscriptions contains a combination of hieroglyphs and arrow-headed characters on a scroll, found in the vicinity of Memphis. The Memphite relatif aux Antiques Inscriptions de Persie, by the Thés des Inscriptions et Belles Lettres, by M. J. St. Martin, 1823, contains some modifications of the opinions of Grotefend. Kennicott's treatise on the Ancient Inscriptions of Persopolis, published in 1825, contains a grammatical and historical survey of the inscriptions attempted up to that time, and communicates the fact of Schultze having found more than forty arrow-headed inscriptions near the lake Van in Armenia. A tablet containing the alphabet was discovered by Colonel Montet in a tour through Azerbaijan, "London Geog. Journ., 1823." He remarks, that five miles from the fortress of Argish, on the banks of the lake Van, are some remarkable rocks covered with arrow-headed inscriptions. This place is frequently visited by pilgrims of all religions. The Mohammedans even consider them sacred, though they allow their date to be anterior to the existence of their religion. Colonel Montet procured an impression of some of the arrow-headed characters on the rock, but they are not given in the Geographical Journal.

In each of the last four numbers of the Morning Watch there is a dissertation by the editor, on the Records and Science of the Persians, and the development of the characters in particular. These dissertations treat principally of the Babylonian inscriptions, and of the bricks found in the ruined buildings more especially; but we understand there are inscriptions of a similar nature found in the Persepolitan remains; and proposes to give a further development of his system. He considers that the arrow-headed characters were first used to symbolise the heavenly bodies; that they are neither alphabetic nor syllabic in their nature, or primary application, though there are instances of their occasional employment to express proper names, as they would be written by an alphabet; that they are not intended, like the Egyptian hieroglyphs, as representations, but simply as symbols.

The editor of the Morning Watch believes that the specimens of cuneiform writing found at Nineveh, Persepolis, and Babylon, differ from each other in the individual characters. He states that the Nineveh inscriptions being different from those of Persepolis; and the Babylonian writing, including the characters of the two others, with some in addition peculiar to itself; that they differ in the same extent as the characters of the Scythians. Persepolis always stand detached and never come into contact, being grouped by juxta-position only; while the Babylonian characters are scarcely ever combined without contact, being stars, crosses, squares, and triangles in great variety.

This writer divides the Babylonian inscriptions into four classes—calendrical, astronomical, genealogical, and magical, or literary; it is puffed that the former is employed for the use, according to the class. He considers that the first two classes have the same elements, but that they differ in the length and arrangement of the series; the calendrical inscriptions, containing at the most thirty-five, and usually only thirty groups, arranged in either ten, seven, six, four, or three lines, and that the astronomical series contain an indefinite number both of lines, and of groups in each line, and in the whole. The inscription on the stone in the museum of the East India Company, which was obtained by Sir Harford Jones, and presented to the Company by Sir Hugh Inglis, consists of precisely the same inscription, more than 686 varieties of grouping. The calendars, for which so much has been led to consider the bricks to be by arguments deduced from the order and recurrence of the signs, he states to have contained inscriptions corresponding to the periods of solar and lunar years, and to the number of years of the comparison of the two; the character employed for these two classes of inscription nearly resembled a straight horn.

'The genealogical character, he says, 'avoids the horned shape, and is made up of combinations of two elementary characters; one of which is very narrow, the other very broad; one like a mace or the handle of a lance, the other like a funnel or a pyramid hollowed out to make its point more taper. A series of such combinations runs along the top of these inscriptions in regular order as long as a dynasty lasts, and clusters of such characters hang down to indicate the descent or passage to another dynasty; indications of the name of the father in full bottom. The talismanic, or magical character, he states to be very uniform, though very abundant, and never designed to have a meaning, being merely a confused medley of forms somewhat similar to those which were known, but so arranged as to be wholly unintelligible. The former was so carefully formed, he says, as to have the appearance of a meaning in order to keep alive interest and induce the belief of hidden mystery; while the disorderly clustering and crowdings of random figures in the talismanic inscriptions are of the same form from the very same stamp, demonstrate the design to mystify and deceive by opposite means. The talismans or amulets themselves are found in great abundance, and are of two kinds, the one of human characters, the other raised characters. These, he says, 'must not be confounded with the seals, whether cylindrical or flat, as these last contain seal characters which throw light on the other inscriptions.'

This writer entertains expectations that the interpretation of the Babylonian inscriptions according to his system will throw much light both on the history of astronomical science and on the classification of ancient chronology.

ARROW-ROOT. An article of commerce, which is imported in considerable quantities from both the West and the East Indies. It is a farmaceous substance, prepared from the roots of certain plants. That which is brought from America is called sugar dana (Annona squamosa); the arrow-root imported from Asia is extracted from the tubers of the Curcuma Angustifolia. (For the botanical descriptions of these plants, see Maranta and Curcuma.)

The English name of this preparation is derived from the use to which the Indians of South America were accustomed to apply the juice extracted from another species of Maranta—the Maranta galanga, which was employed as an antidote to the poison in which the arrows of hostile tribes were dipped.

The method of preparing the arrow-root of commerce is the same from which the arrow root is extracted. The root, or tuber, as the case may be, must first be carefully washed, in order to remove the adhering particles of earth, and then it is either grated or beaten to a pulp, to consistence, in a grindstone, such as the manioc root. The pulp is then intimately mixed with a considerable quantity of pure water, by which operation the fibrous portion is separated from the starch, which remains mechanically suspended in the water. This fibrous portion is then removed, the larger part by the process used in the extraction of the manioc. The starch, being strained through a hair-sieve. The remaining milk-like fluid is then left for subsidence, after which the water is drawn off. A second and sometimes a third washing in fresh water, and then thorough heating in the sun, is employed; after which the starchy matter is collected in a state of purity, and its moisture thoroughly evaporated by exposure to the sun and air. When perfectly dry, it retains its nourishing property unimpaired for many years.

Arrow-root may be used with advantage as the food of
young children or of persons in delicate health, since its nutritive property is great, and it is of very easy digestion. It is used either mixed with hot water or boiling milk, or in the form of puddings. The powder is frequently adulterated by the admixture of common starch or the farina of potatoes, and it is therefore advisable to purchase it in the package in which it is shipped from some dealer of repute.

That which is the most esteemed for purity is imported from the Bermudas and New Providence; but within the last few years the arrow-root of Ceylon has acquired some celebrity; this is made from the American plant the Marsanta Arundinacea, which was conveyed from the West Indies to Ceylon.

When imported from any British possession arrow-root is subject to the merely nominal duty of one shilling per hundred weight. The quantity consumed in the United Kingdom is about 400,000 pounds weight in the year. (Lottery of Entertaining Knowledge, Vegetable Substances, vol. ii.; Porter's Tropical Agriculturist; Government Statistical Tables.)

ARROW-ROOT. [See Maranta.]

ARSACES, the founder of the great Parthian monarchy, which afterwards proved the most effectual bar to the extension of the Roman empire in the East. His birth is doubtful; and it is probably the sluttish of courtly writers which traced it to the royal and ancient Persian family of the Achemenidae. Justin speaks of him as being 'of doubtful origin, but tried and shrewd to live by robbery;' who, in the belief that Seleucus (Callinicus) was conquered by the Gauls in Asia, attacked Andragoras, the governor of the Parthians, and took possession of the empire of the nation. (XII. 4.) According to Arrian, or from an old digest. (Add. No. 58), a family of his name, and which bore the title of Arsatoc. He was the son of Seleucus, the son of Seleucus, who, in the belief that the Persian and Egyptian warfare, neglected this new source of disturbance until Arsaces had gathered a sufficient party to resist him successfully. Nor was Seleucus Callinicus more fortunate. He made two expeditions into Parthia: the first failed, and the second was still more unfortunate; for he was defeated in a great battle, taken prisoner, and died in captivity. The day of that defeat was long observed by the Parthians as the commencement of their independence. This is the reason that some writers have set down the revolt as first occurring in the reign of Seleucus; but it is certain that it took place under Antiochus. Arsaces reduced the neighbouring district of Hyrcania, and died, according to Justin, in a 'ripe old age.' He seems, from the very meagre accounts which is improperly called by the name of 'Arsaces.' He is said, in the dnc. Un. Hist., to have been killed in battle against Ariarathes IV., king of Cappadocia; which may be true for anything we know to the contrary, but is not warranted by the authorities there quoted.

The small coin which we here give must rather be considered as a specimen of the coinage of the dynasty than as one which can with certainty be referred to any individual of the Arsacids. Eckel (Catalog. Mus. Casar. Findel, sec. i. p. 233) attributes this small coin to Arsaces I. or II.; Fröhlich assigns it to Arsaces I. Visconti (Iconographie Græcque) assigns the large silver medal (which is magnified to twice its linear measure) to Arsaces VII., and the small one to Arsaces I. The inscription which Eckel gives on the reverse of the large coin differs from that in the British Museum, in having ὡτατηρᾶμον instead of ὡτατηρᾶμον.

ARSAICIDE, a name given to the Parthian kings, from Arsaces, their progenitor. [For their history, see Parthia.]

ARSENAL, a public establishment where naval and military arms, or warlike equipments, are manufactured and stored. Toulon, Marseilles, Rochefort, and Brest, are naval arsenals.

In the arsenal of Paris, great guns or cannons are cast; in that of Woolwich, all the brass guns used in the British service are manufactured; gun-carriages, Congreve-rockets, all sorts of ammunition, and every article of military equipment, are also both made and warehoused there.

ARSENIC. The term arsenic is derived from the Greek ἀρσενίκας, which is found first in the works of Dioscorides, and of some other ancient writers about the beginning of the Christian era. It denotes, in their works, the substance called kastropóxou by Aristotle, and διαφωτιστεῖς by Theophrastus (although Pliny, lib. xxxiv. 18, seems to make a distinction between kastropóxou and διαφωτιστεῖς), and is said to be the wurt pigmentum, the well-known paint, or pigment.

Arsenic is a peculiar metal, which, though long known, was first examined with tolerable precision by Brandt in 1727; it has not been known before under its natural state, or in its pure metallic state, but more commonly combined with other metals, as iron and cobalt, or with sulphur, and frequently united with oxygen. It may be artificially obtained from its natural compounds in a mode which will be presently pointed out.

Arsenic has a steel grey colour and considerable brilliancy; its density is 5.700 according to Berzelius, and 5.684 by Turner's experiments; when sublimed, Dr. Thompson and family quarred it is only 3.255; the native metal is granular, and the artificial crystallizing; it is extremely brittle, and consequently easily powdered. When arsenic is exposed to the air, it soon loses its lustre, and becomes black on the surface; the artificially obtained metal not only suffers these changes, but falls to powder by the action of the air: in this state it is known on the continent by the name of fly-powder, and is supposed to be Berzelius to be a peculiar arsenious acid; most commonly used as a mixture of arsenious acid and the metal. When kept under water, arsenic undergoes no change; if heated to 356° Fahrenheit, it is volatilized, without previous fusion; the vapour is strong, and boils at 600°; we have given that this, to a certain extent, is relied upon as proof of its presence; the vapour readily condenses in small brilliant crystals of metallic arsenic, the form of which it is difficult to determine.

Arsenic and oxygen combine in two proportions, and both compounds possess acid properties; that which contains the smaller quantity of oxygen is termed arsenious acid; according to Berzelius it consists nearly of—

<table>
<thead>
<tr>
<th>2 atoms of arsenic</th>
<th>34 atoms of oxygen</th>
<th>total weight</th>
<th>atomic weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>38 x 2 = 76</td>
<td>3 x 34 = 102</td>
<td>166</td>
<td>49</td>
</tr>
</tbody>
</table>

As a natural product, arsenious acid is extremely rare;
it may be artificially prepared by heating the metal in an atmospheric air, when, being very pure, it burns and forms with oxygen, the white vapour of arsenious acid, speedily condensed, and frequently in the form of the regular octahedron; this acid may also be procured by heating the metal in very dilute nitric acid, which being decomposed by heat, forms arsenious acid. These processes are, however, needless, for arsenious acid is met with abundantly, and very pure, as an article of commerce; being formed and volatilized during the roasting of cobalt ores, it is first condensed in an impure state, and purified and freed from the slight admixture iron vessel. Arsenious acid (oxide of arsenie, the white arsenic of the shops, and of the London Pharmacopoeia) has the following properties: it occurs in compact masses of various sizes, which are externally colourless and opaque, but internally, when recently broken, transparent, and of a glassy appearance and fracture; by exposure to the air the transparency is lost; the density of the opaque kind is 3.706, and that of the glassy 3.899. Arsenious acid is volatile at 386° Fahrenheit; the vapour has not the garlic smell, like that of metallic arsenic. According to Dr. Christiansen, arsenious acid has little or no taste; it is well known as a most virulent poison, which does not appear to be the case with the metallic. Arsenious acid is soluble in water; at about 60° Fahrenheit it probably dissolves about 1-100th of its weight, and when boiling nearly 1-13th; on cooling to 60°, a considerable portion is deposited in an opalescent manner, but only a small part of that which has already undissolved remains dispersed; the solution reddens litmus paper but slightly, and though it acts feebly as an acid in this respect, and does not decompose the alkaline carbonates when cold, yet it expels their carbonic acid when they are heated, and appears to be the same as the arsenious acid. The solutions of the saline compounds will be presently mentioned.

**Arsenic acid**, that containing the larger quantity of oxygen, exists in nature much more commonly than the arsenious acid; sometimes it is in a limpid state, frequently with various metallic oxides, as those of copper, iron, and lead; the arseniates of copper constitute, indeed, a most beautiful and extensive variety of the ores of that metal. Arsenic acid consists of, very nearly, according to Bervelius,

| 2 atoms of arsenic | 38 x 2 = 76 | or 1 atom | = 38 |
| 5 atoms of oxygen | 8 x 5 = 40 | or 24 atoms | = 20 |
| atomic weight | = 116 | combining weight = 58 |

Arsenic acid may be formed artificially by heating either the metal or arsenious acid in nitric acid, or, which is preferred, in a mixture of nitric acid and hydriodic acid; it is to be dissolved without until it has acquired the consistence of a syrup; afterwards it is to be heated nearly to redness in a platina crucible, until all the nitric acid is expelled. The properties of arsenic acid thus prepared are—thick, is of a brownish color, and when heated in the air, the gas evolved contains arsenious oxide, which, however, in a little time, is converted into arsenious acid. The oxygen of the arsenious acid is not very strong; but the arsenious solution is extremely sour, acts strongly as an acid on litmus paper, and decomposes alkaline carbonates when cold. It is extremely poisonous. Its salts, termed arseniates, will be mentioned hereafter.

Arsenic and hydrocyanic acid do not unite. **Arsenic and hydrogen** combine; indeed it is one of the few metals which forms a permanent compound with this gas. Arsenic-hydrogen may be prepared by fusing equal weights of arsenic and zinc, and dissolving the alloy in muriatic acid; the gas may be received in air jars filled with and inverted in water, in which it is insoluble. The properties of this compound are—that it is gaseous at the usual temperature and pressure in the air; but when heated to intense cold, it is condensed into a limpid liquid resembling water.

The gas has an extremely feeb smell; its specific gravity is 2.695; it is fatal to animals when it forms only 1-100th of the air which they breathe. When exposed to the action of atmospheric air, it is slowly decomposed, and a greenish metallic arsenic, mixed with some arsenious acid, is deposited, and water is formed. It is composed of 3 volumes of hydrogen gas, and 2 of the vapour of arsenic, condensed into 3 volumes, or

\[
\begin{align*}
3 \text{ atoms of hydrogen} & = 3 \\
2 \text{ atoms of arsenic} & = 76 \\
\text{atomic weight} & = 76 \\
\end{align*}
\]

There is also a solid compound of arsenic and hydrogen; it is obtained by employing arsenic as the negative conductor, when water is decomposed by electricity; the hydrogen of the water, instead of being evolved, combines with the arsenic, so as to form a compound which is obtained solid in brown-coloured flocks. It is probably composed of 1 atom of hydrogen = 1 + 1 atom of arsenic = 38; its atomic weight is therefore 39.

**Arsenic and chlorine** combine to form chloride of arsenic. When the metal in powder is thrown into chlorine gas, it burns, owing to the rapidity of the combination; when also a mixture of 1 part of arsenic and 6 parts of perchloride of mercury is distilled, a thick, smoking, colourless liquid condensed in the receiver: it is frequently volatile, and does not become solid at a low temperature. If water and chloride of arsenic are mixed, both are decomposed, and arsenious and muriatic acids are formed. When heated, chloride of arsenic dissolves sulphur and subnaphthenic acids, and if they separate on cooling; it combines with oil of turpentine and of olives. Chlorides of arsenic is probably composed of—

\[
\begin{align*}
3 \text{ atoms of chlorine} & = 36 \times 3 = 108 \\
2 \text{ atoms of arsenic} & = 38 \times 2 = 76 \\
\text{atomic weight} & = 184 \\
\end{align*}
\]

Another method of preparing chlorides of arsenic is, to put 1 part of arsenic acid and 12 parts of sulphuric acid into a retort, heat the mixture nearly to 212°, and then gradually add small fragments of fused common salt; pure chloride of arsenic, which is to be condensed by artificial cold, passes over into the retort. A little chloroform comes over with the chloride towards the end of the operation, and this hydrated chloride does not mix with, but floats on, the anhydrous chloride first distilled.

Arsenic unites with carbon; it combines with bromine, iodine, fluorine, selenium, and phosphorus; but the resulting compounds are not important. **Arsenic and sulphur** may be made to combine in four different proportions: the first is the most important, exist in nature, and these only will be described at any length. The first is the red sulphuret of arsenic, commonly called *realgar*; this is found native in several parts of Europe, and sometimes crystallized. It is of a deep-red colour, brittle, easily reduced to powder, insoluble in water, but dissolves in a mixture of acid. In close vessels, it sublimes unchanged. It appears to be less poisonous, but more volatile than sulphuric acid. It is sometimes used as a paint, and is composed of—

\[
\begin{align*}
1 \text{ atom of sulphur} & = 16 \\
1 \text{ atom of arsenic} & = 38 \\
\text{atomic weight} & = 54 \\
\end{align*}
\]

The second is the yellow sulphuret of arsenic, usually called *orpiment*. This sulphuret is also a natural product, occurring rarely crystallized; it is commonly phosphorous, but is composed of thin plates, which are of a very fine yellow colour, and flexible to a considerable degree; its specific gravity is 3.452. It is insoluble in water, and inodorous. Acids do not dissolve it, but nitric acid and chlorine combine with it. When heated in closure, it melts, and then sublimes; when heated in the air, it burns with a pale blue flame, and gives a white smoke, and a smell of sulphuric acid. It may be formed artificially by passing a current of sulphuretted hydrogen gas through a solution of arsenious acid. It is sometimes used as a pigment, and is a sesquialphurphosphate composed of—

\[
\begin{align*}
3 \text{ atoms of sulphur} & = 16 \times 3 = 48 \\
2 \text{ atoms of arsenic} & = 38 \times 2 = 76 \\
\text{atomic weight} & = 124 \\
\end{align*}
\]
resulting arseniurates are decomposed by water, the potas-
sium and sodium are oxidized, while the hydrogen of the
water converts the arsenic into the brown arseniuret of 
hydrogen already noticed.
The metallic arseniurates are not of sufficient importance 
to require a more minute description.
We have now to notice the salts that contain the arsenious 
acid, and are called arsenates.
Arsenite of ammonia may be prepared by dissolving 
arsenious acid in solution of ammonia. It cannot be ob-
tained in a solid form, for by evaporation the salt is decom-
posed, arsenic is evolved, and octahedral crystals are ob-
tained, which are mere arsenious acid, without a trace of 
ammonia.
Arsenite of potash is procured by digesting the acid in a 
solution of the alkali. By evaporation, a saline mass is left, 
but no crystals of the salt are formed. This compound is 
employed in the preparation of arsenite of copper, sometimes 
called mineral green. It is also the basis of the liquor 
arsenicalis of the London Pharmacopoeia.
Arsenate of soda is prepared as the last mentioned. By eva-
poration, a viscid mass is obtained; and when the evapora-
tion has been continued till the solution has acquired the 
consistence of a syrup, small granular crystals are obtained 
as it cools.
Arsenite of lime may be readily procured by mixing an 
aqueous solution of the acid with lime water; the arsenite 
being nearly insoluble in water, is precipitated in the state 
of a white powder: it contains water, is soluble in acids, and 
evolves some saline solutions.
Arsenite of barytes is a white powder, slightly soluble 
in water.
Arsenite of strontium is soluble in water.
The metallic arseniates, strictly so termed, are not in 
general an important class of salts. We shall notice only two 
of them.
Arsenite of copper. — This compound was first prepared 
by Scheele, and by him proposed as a pigment; and it has 
been long and extensively used as such, under the name of 
mineral green. It is formed by adding a solution of arsenite 
of potash to one of bipersulphate of copper (blue vitriol).
By double composition, arsenite of copper is formed, and 
is precipitated of a fine green colour. The exact composition 
has not been determined: indeed, it is probable that more 
than one compound may be formed, or one may be mixed 
with variable quantities of hydrate of copper.
Arsenite of silver may be made by mixing a solution of 
nitrate of silver with one of arsenite of ammonia, potash, or 
soda. It is of a fine yellow colour: and the soluble salts of 
silver, like those of copper, are occasionally used to afford 
corroborative evidence in cases of poisoning by arsenic.
In several cases presented to us by nature. Thus, in Cornwall, arseniate of iron occurs in small 
green cubic crystals, and also several beautiful varieties of 
arseniate of copper. Arsenite of lime, called pharmaclite 
by mineralogists, is sometimes, though rarely, met with.
The metallic arseniates are generally procured either by 
derived combination or by double composition; 
and the metallic arsenates usually, if not always, by the 
latter method. We shall describe the arseniates in 
the same order as the arsenites, as it is better to draw 
spirit lamp. The potash of the flux retains the arsenious 
acid until it is sufficiently heated to be decomposed by the 
charcoal. If the quantity of arsenious acid be extremely 
small, it will not be found upon the tube, and let it fall 
a little powdered charcoal upon it. In a very short time 
the charcoal combining with the oxygen of the arsenious 
acid, the reduced metal rises in vapour, and condenses in 
the upper and cool part of the tube: it has a metallic 
appearance, and is beaded or arranged to the air, to half 
of their base, and are converted into biarseniate of 
ammonia. When subjected to distillation, the arseniate 
of ammonia decomposes as it becomes dry, ammonia, water, 
and azote gas, are obtained, and the arsenic is reduced.
The biarseniate of ammonia may not only be obtained, as 
above-mentioned, by exposing the neutral salt to the air, 
but also by adding acid to it. By slow evaporation, large 
crystals are formed: when heated, it yields arsenious 
acid, but no ammonium.
Arseniate of potash. — It may be procured by saturating 
the acid with the alkal. It is an uncrystallizable deliques-
cent mass, and may also be obtained by fusing a mixture of 
arsenic acid and the potassium of potash. The arsenious acid 
acquires oxygen from the decomposed water, hydrogen gas 
being evolved, and sometimes a portion of the arsenious acid 
is reduced.
Biarseniate of potash may be formed by adding arsenious 
acid to the neutral arseniate. It is usually prepared by 
heating a mixture of arsenious acid and nitrate of potash. 
When the nitrous acid is introduced into the arsenious 
acid, it is converted into arsenious acid, which uniting with the potash, the 
biarseniate is formed. The mass, when dissolved in hot 
water, yields transparent crystals of the salt. The solution 
reddens litmus paper, showing the presence of acid. This salt 
turns next day yellow by exposure to the air: its taste is copper 
and saline, somewhat like that of nitrate of potash. It 
consists of two atoms of arsenic acid, and one atom of potash.
The crystals contain water.
The arsenite and biarseniate of soda are crystallizable 
salts, but which do not require any particular notice.
The earthy arseniates are not of importance.
Arseniate of barytes and arseniate of strontia are both 
soluble salts: they are entirely artificial compounds, and 
are applied to medicine with respect to the metals. We 
have already stated that the arseniates of iron and copper 
which occur in Cornwall: they may also be formed artificially. The arseniate of silver is of a brick-red colour while, as 
already noticed, the arsenite is yellow. Some use is made 
of this difference in processes for detecting the presence 
of arsenic. Most metallic arseniates are insoluble in water, 
but dissolved by acids. As to the general properties of 
arsecial acids and salts, we shall merely remark that both 
arsenic acids and their salts when boiled with alkalies 
are precipitated yellow by the salts of silver, and 
green by those of copper; while the arseniates are 
thrown down red by the silver salts, and blue by the 
copper ones.
Arsenic, Detection of. Of all substances, arsenic is that 
which has most frequently occasioned death by poisoning, 
both by accident and design; we shall therefor 
briefly state the methods of ascertaining its presence.
Suspecting a white powder to have been found in 
suspicious circumstances, the process to which it is to be 
submitted is that of reduction to the metallic state and sublima-
tion, and for this purpose we employ a small glass tube, a spirit 
lamp and black flux or from burnt and powdered 
wood charcoal.
The tube should be thin, closed at one end, about one-fourth 
of an inch in diameter, and three to four inches long: those 
known by the name of test tubes answer the purpose 
extremely well. Black flux is a mixture of charcoal and 
carbonate of potash, prepared by dilagrating two parts of 
bitartrate of potash and one part of nitrate in a crucible. 
It is to be powdered, and immediately put into a well-stopped 
bottle to prevent its acquiring moisture from the air: the 
charcoal which it contains is derived from the decomposi-
tion of the tartaric acid, and the potash from that of the 
bitartrate and nitrate. Mix a small portion, a grain 
or two, or even less, of the suspected powder with twice 
it quantity of the black flux, and convey the mixture to the 
bottom of the tube by means of a trough of smooth writing 
paper, taking care that none remain adhering to the sides 
of the tube. Put a paper plug loosely into the tube, and 
twist a piece of paper round the upper end of it, to serve as 
handkerchief: hand the tube over to the spirit lamp. The 
potash of the flux retains the arsenious acid until it is sufficiently heated to be decomposed by the 
charcoal. If the quantity of arsenious acid be extremely 
small, it will not be found upon the tube, and let it fall 
a little powdered charcoal upon it. In a very short time 
the charcoal combining with the oxygen of the arsenious 
acid, the reduced metal rises in vapour, and condenses in 
the upper and cool part of the tube: it has a metallic 
appearance, and is beaded or arranged to the air, to half 
of their base, and are converted into biarseniate of 
ammonia. When subjected to distillation, the arseniate 
of ammonia decomposes as it becomes dry, ammonia, water, 
and azote gas, are obtained, and the arsenic is reduced.
Although this effect may be regarded as evidence of the 
presence of arsenic, Dr. Turner has improved upon it by 
showing that the metal may be easily re-converted to arse-
nious acid and black flux; the arsenious acid may then 
be again sublimed, and combined with the oxygen of the air in the tube, and well-defined crystals of 
arsonsious acid are formed.
If no solid arsenious acid should be found, it is suspect 
to exist in solution, in which case, after adding or 
dissolution of the substance, then a solution of sulphuretted 
hydrogen should be added to the suspected fluid, or a current 
of the gas should be passed into it. This gas is very easily 
procured by heating powdered sulphuret of antimony and

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arsenite acid in a flask furnished with a bent tube; or sulphuric acid may be formed by melting in a crucible a mixture of equal weights of sulphur and iron filings; this sulphuric acid may be decomposed by dilute sulphuric acid, without heating the mixture. By the action of sulphuric acid on arsenic, it is evident that the tubercles in varium is formed, and by heat, or after exposure to the air, the excess of sulphur is converted into arsenious or arsenic acid, which metallic arsenic will sublimate, as already described. This same treatment may be adopted with any substance which may be suspected to be either yellow or red sulphuret of arsenic (or arsenious or arsenie) supposed to have been poured on occasion poisoned.

If the suspected liquid is tolerably free from colour, then various fluid tests may be used to prove the presence of arsenic previous to the process of reduction just described; many of these tests have been proposed, but there are two only which require particular notice: these are the ammoniuret of copper and the ammoniuret of silver. The former is prepared by adding a solution of biper-sulphate of copper (or vitriol) to one of ammonia, nearly as long as the call continues to re-dissolve the oxide of copper at first precipitated; this compound is of a well-known azure-blue colour, and when mixed with a solution of arsenious acid, a green precipitate is formed, which is arsenic of copper. It is to be noted that this precipitate is not affected by dilute sulphate of copper, occasions no precipitate; it is requisite either that the arsenious acid should be combined with an alkali, or the oxide of copper with ammonia, and the use of the latter fact the ammoniuret of copper, is probably the best process.

Ammoniuret of silver is prepared by adding a pretty strong solution of nitrate of silver to a solution of ammonia, taking care that the ammonia is not slightly in excess; the ammoniuret is colourless, and when added to a solution of arsenous acid in water, a yellow precipitate is formed, which is arsenic of silver, and which becomes dark brown by exposure to light. In the methods of using sulphuretted hydrogen and the copper and silver tests, but little ambiguity can arise. It is, however, well known that the salts of cadmium give a yellow precipitate with sulphuretted hydrogen; but these can scarcely be confounded with or mistaken for a mere aqueous solution of arsenious acid. The ammoniuret of copper will also turn green when added to a yellow solution of most substances; there are, however, but few bodies which, when merely dissolved in water, will give a green precipitate with this test; the silver test may, under peculiar circumstances, give a precipitate with muriatic acid and muriatic acid; this, however, is colourless, and insoluble in nitric acid. If, therefore, any chlorine of silver should have been added to make the test clear; the properties of the latter by diluting its yellow tint, add nitric acid to the suspected mixture of chloride and arsenite of silver; the former will remain unacted upon, while the latter will be dissolved, and may, by the cautious addition of ammonia to the nitric solution, be precipitated of its characteristic yellow colour.

It is to be understood that the arsenite of copper and of silver, obtained in the above-mentioned experiments, may, after drying, be reduced by the black fluid in the mode already described.

It is to be observed that sulphuretted hydrogen does not precipitate arsenious acid when it is dissolved in alkali, as potash or soda; but on adding a little acetic acid, so as to saturate or supersaturate the alkali, precipitation readily occurs.

Arsenic acid and arseniates have been but rarely taken either by accident or design; sulphuretted hydrogen throws down its reduced form, but it is not so soluble as the arsenious acid, as with arsenious acid; but with ammoniuret of salt it gives a peculiar reddish precipitate of arseniate of silver, which may be reduced in the tube already mentioned, by mean of the precipitate to be dark, it will give immediately arseniate of silver on the addition of the ammoniuret of silver; but the neutral arseniates require a little acetic acid to produce this effect.

ARSENIC MEDICAL USES OF. As metallic arsenic, in the human system, we will mention our observations to the employment and mode of action of the white oxide or arsenious acid, and its compound, the white oxide or arsenious acid have been given above, but one remarkable circumstance connected with these requires to be noticed here, the degree of solubility depends on the degree of transparency or opacity of the specimen or portion employed. For example, 100 parts of the 97 parts of the transparent, retaining only 18 parts of water; the addition of an equal quantity of water will dissolve 115 parts of the opaque variety, and retain 29 parts when cold, the remaining parts being precipitated. It is manifest, therefore, that the strength of a solution must vary with the kind of specimen employed.

The precise character of the taste of white arsenic is a matter of dispute; it is generally said to be acid and corrosive, followed by pungent sensations in the London states, that it is al first always sweet, but afterwards somewhat acid. (Gordon, Dissert. Inaug. de Arsenico, Edinb. 1814, p. 9; Edinburgh Medical and Surgical Journal, vol. xi. p. 134.)

The white oxide of arsenic being so often employed for the destruction of human life, a dread of it exists not only among the unprofessional part of the community, but even among medical men, which has caused it to be less tried, and its modes of action less studied, than most other medicinal agents of the Materia Medica. That it labours under a most unjust opprobrium cannot be doubted, for it is not so poisonous as many other articles frequently used, such as prussic acid and arsenic; in short, this poison is extremely very great. If a small quantity, such as ¹/₁₀₀₀ of a grain be swallowed, in about a quarter of an hour the individual experiences an agreeable sensation of comfort and satisfaction, which gradually extends itself over the whole of the abdomen. The appetite and thirst are moderately increased, the secretion of urine becomes more abundant, and the evacuations from the intestines often more frequent, and of a pulpy or poppy character. From the intestines and caeca, while its parasitic power propagates itself over the whole system. The heat of the surface is augmented, and the increased temperature is experienced particularly about the forehead and eyebrows, and the skin becomes dry, with little or no perspiration. At the same time an increased strength and frequency of pulse is felt. The whole muscular system acquires energy and elasticity; the involuntary muscles especially become more powerful and vigorous in their action; the respiration is slightly accelerated. The nervous system partakes of the impulse communicated to the frame, and the spirits as well as the courage of the individual rise, liveliness and regularity characterising the whole functions of the system.

That the whole is generally the effect of a tonic medication. That the agent is sufficiently clear; and that its employment in such doses as we have stated is not only safe but beneficial, may be satisfactorily proved. Not only are old worn-out horses endowed with new vigour, but pigeons to which this article is given show greater appetite and liveliness than others without it; and in Upper Syria the peasants use it as a seasoning with many articles of food, such as porridge.

It will not, we trust, be supposed that, by bringing forward these facts and statements, we desire to lead any one to make a hasty or inconsiderate use of this very powerful agent. We only wish to show that much prejudice exists against it, in order to show how circumstances seem to require its use, medical men may not be deterred from employing it, from ignorance of its qualities, nor have to encounter unnecessary difficulties from the objections of others. That the oxide of arsenic is cumulative, will rise to slow poisoning, cannot be questioned; but if exhibited in appropriate cases, the morbid state of the system seems to act as an antidote to it, just as it acts as an antidote to the disease, health being the result of their neutralisation. Every medical man must have seen large doses of opium may be given with safety and benefit in tetanus and some other diseases: it has been stated, under Antimony, that very large doses of tartrate of antimony can be given with safety, and, in certain states of the system; and in the West Indies, during the state of insensibility following the bite of a snake called the coluber carcinus, eight grains of the white oxide of arsenic and eighty drops of turpentine of opium have been given in the course of four hours without injury on the patient's side.
White oxide of arsenic is not often given in the solid form, nor, owing to its variable solubility, is the solution frequently employed: the form most generally adopted is that of the mixture with potassa, or arsenite of potassa; which is the basis of the liquor arsenicalis of the London Pharmacopoeia, in the preparation of which the quantity of potassa is scarcely sufficient to saturate the whole of the acid, some of which must consequently remain free in solution or be precipitated. Before the regular introduction of this or any other preparation into medical practice, it had long been employed in Lincolnshire for the cure of intermitents, under the name of the "Tasteless Aqueous Drops;" and from that it has been introduced into the United States. Formerly, it is frequently called Fowler's Solution. It is never given in larger quantity than three or five drops, and should always be taken about half an hour after a meal, to prevent it entering into direct or immediate competition with the alimentary products of the body.

Being considered entirely an anti-pestilential [see Aescul., vol. i. p. 226], it has been used in most diseases which partake of a periodic character; the chief of these we shall notice, along with two or three others not possessed of a periodic character. It is most frequently employed in intermittent fevers: the greatest advantage is derived from it in the tertian and quartan forms, the quotidian often resisting this and all other remedies. Its beneficial effects may be increased by giving calomel first; cinchona bark may be given also during the employment of arsenical medicines, but it should rather be alternated with them than given at the same moment, and only when they are given in the same formula or prescription, though, if the patient be very weak, other tonics may be given along with them. Opium is sometimes advantageously given along with them, but it should be employed in very small quantity.

It has been given in the angina maligna, which approached nearly to the character of intermitents, which it most frequently employed in interminent fevers: the greatest advantage is derived from it in the tertian and quartan forms, the quotidian often resisting this and all other remedies. Its beneficial effects may be increased by giving calomel first; cinchona bark may be given also during the employment of arsenical medicines, but it should rather be alternated with them than given at the same moment, and only when they are given in the same formula or prescription, though, if the patient be very weak, other tonics may be given along with them. Opium is sometimes advantageously given along with them, but it should be employed in very small quantity.

In rheumatic cases it has been used, and is most successful when the pains are markedly periodic, or true to a parti
cular part of the body, it is especially useful in those cases as general or local, as in some rheumatic affections of the eye. (See Travers On Diseases of the Eye.) In no
doses of the poisons from rheumatism it is also very valuable.

In some affections, more especially of the nervous system, such as tic doloreux, and other neuralgic pains, it is useful. In cardialgia, or heartburn, when chronic, if combined with belladonna, it has been very successful, and its beneficial action may be increased by giving liquor potassae along with it. We hold that the previous failure of other and more com
mon remedies is a sufficient justification of the employment, with due caution, of arsenic in any of these diseases.

In cases of an over-dosage, or of intentional poisoning by arsenic, it is proper that we should indicate an antidote, and point out the mode of treating a casualty. Both these are difficult. First then, in the case of a substance so sparingly soluble, we can only attempt to give a preparation of the arsenious oxide of lime is almost insoluble, and nearly inert. After that, an emetic of sulphate of zinc (3 i in a pint of distilled water); then copious draughts of oil (oast oil if possible) or milk. After which the case must be treated on general principles. (See Arsenical Remedies.)

ARSENICAL MINERALS. Those minerals in which arsenic acts the part of the electro-negative element may be considered as forming a mineralogical family or class, accord

First genus. Species. Metallic, or native arsenic.
nic arsenic of nickel.
Fifth species. Arsenic of bismuth.
Sixth species. Azotous arsenious pyrites (Mohs).

Third genus.
Species. White arsenic, or arsenious acid.
Fifth species. Olivente: of these there are two species, the one crystallized in the right, the other in the oblique, prismatic system.
Sixth species. Euchrole mica (Mohs): rhombohedral arse
niate of copper (Phillips): kupferglimmer.
Seventh species. Cobre ore: hexahedral kroische: arse
niate of iron.
Eighth species. Rhombohedral lead spar.

The geological position of arsenical minerals is confined to primitive districts, where they occur in metallic lenses, usually associated with metallic sulphures, to which the arsenures have considerable analogy. The only genus which has been found in any quantity is the second, the most abundant and most common is the arsine of cobalt, nickel, and iron, which are found both in veins and beds.

The fourth genus appears to owe its origin to the action of the atmosphere on the arsenures; they occur frequently in various combinations with other minerals, and are usually less replaced by the arsenic, or the reverse.

The arsenic contained in any mineral may, in general, be readily detected by the blow-pipe, owing to the charac
teristic odour of the vapour of metallic arsenic. In per
forming this operation it is necessary to be careful to submit the mineral to the interior or deoxidizing flame, or, in order to ensure the reduction of the arsine more completely, it is advisable to add a small quantity of the powder of charcoal; this reduction to the metallic state is essential, for it is the vapour not of the white, but only of the metallic arsenic, which possesses the peculiar smell of garlic. If the mineral be from its colour suspected to be opulent or realgar, it must be mixed with a small quantity of black flux in a glass matras and heated in the flame of a spirit lamp, by which the arsenic will be liberated, and a sulphuret of potassium formed.

Native arsenic is usually found in veins, accompanied by sulphur and sulphures; it occurs massive, also in reticule
ated and stalactite shapes, and of a curved lamellar compo
sition, exhibiting the manner of the arsine oxide. When fractured, the new surface presents a metallic lustre and a

The principal species of each of which is here given:—

3. Copper pyrites: arsenic of nickel: pras
mic arsenic of nickel.
5. Arsenic of bismuth.
6. Azotous arsenious pyrites (Mohs).

The second genus of arsenical species may be divided into two subclasses: the first, metallic, or native arsenic; and the second, arsine oxide or arsenious acid.
in the Harz, in the Black Forest, in Alsace, at Allemont in Dauphiné, at Kongeb erg in Norway, at Kopin in Transylvania, and in beds at Oruwitch in the Bannat of Temeswar.

The second genus presents us with a very valuable series of minerals, owing to properties of the metals with which the arsenic is combined. The first three species will be described in the heads of Cobalt, Prussian, and Copper Nickel. The arsenical silver, which constitutes the fourth species, has not been sufficiently investigated. Professor Haussmann considers it as a more or less intimate mixture of prismatic arsenical pyrites with antimonial silver, a compound poor in silver, of the specific gravity of 8.4 to 7.6 of silver. The same chemist states 96 parts of arsenical silver to contain of

| Arsenic | 35 |
| Antimony | 30 |
| Silver | 12.75 |
| Iron | 44.25 |

Many mineralogists, on the other hand, consider the antimonial and the arsenical silver varieties of the same species. The first of these occurs in crystals and in granular masses; the latter possesses a curved lamellar composition of thin crystalline plates. They both readily tarnish, and assume a yellowish colour. The specific gravity has been stated by Haliy at 9.46, by Klaproth at 9.82. The antimonial silver is found in veins at Altwohl in Fürstenberg, and at Andraseberg in the Harz; the arsenical in various mines in the Harz, at Guadalual in Spain, and also in England. It is scarcely necessary to mention that this mineral, when found in sufficient quantity, is highly valuable for metallurgical purposes.

Prismatic arsenical pyrites, described by some mineralogists under the name of micaepol, is composed, according to the analysis of Stromeyer, of

| Arsenic | 42.88 |
| Sulphur | 21.08 |

Berselius considers it to be a definite chemical compound, expressed by the following formula:

\[(FeS)^3 + (2FeAsP)^2\]

on the supposition that the atomic weight of arsenic is 37.7, and in his own notation.

This mineral possesses a tin-white colour and a metallic lustre. The specific gravity is 6.127, and its hardness is 6. It occurs massive, and also crystalized in different systems of rhombic rhomboids; crystals are seen in many modifications of this system; they admit of cleavage in planes parallel to the faces of a prism, whose angles are 111° 12' and 68° 48', which may be considered as fundamental for the other varieties. This mineral is found commonly in most of the localities of arsenical minerals, associated with ores of silver, lead, and tin, both in veins and beds. It is a product of almost every mine of Cornwall, as well as those of Saxony, &c. Some specimens contain silver, of which the principal are found at Brunsbord near Freiberg, in veins of quartz, traversing mica-slate.

White arsenic, which constitutes the third genus, is found crystallized in octahedrons, and also in botryoidal and stalactite forms, frequently pulverulent. It occurs in metallic veins, and probably is the product of the decomposition of some other minerals. The lustre is vitreous, and colour white, with a slight degree of transparency. Its specific gravity is 3.698. It is readily recognized by its behaviour in the blow-pipe: if alone, being volatilized; if on charcoal, being volatilized with the production of the garlic odour.

The general characteristics of the fourth genus have already been given; the species will be described in their alphabetical order.

ARSZNIUS, the son of Michael Apostolus, a Greek man of letters of the fifteenth century, who, being exiled from Greece by the Turks, where he resided for some time the patronage of Cardinal Bessarion. Having lost his favour, he went to Crete, and gained his livelihood as a transcriber of manuscripts. Arszenius was born in that island towards the close of the fourteenth century. He resided at Rome in the pontificate of Leo X, who made him archbishop of Malvasia, or Mossembegia, a town on the eastern coast of Morea, not very far from the promontory of St. Angelo. He published a collection of Greek aphorisms of remarkable men. (Fracisca Dicta Philosphorum, Imperatorum, ac Posthumorum ad Arsenas Mossembegianum Archepiscopi collecta, Rom. 1523. Caliiergi.) He also published Scholia on the first seven plays of Euripides, taken partly from Moschopolus, Lascaris, and Thomas Magister—partly from earlier sources. Venet. 1534. This work was dedicated to Pope Paul III, whose friendship he possessed. The dates of his birth and death do not appear to be known. Having become a member of the Roman, he was excommunicated by the Greek, church, and his credulous countrymen believed that his dead body bore 24 parts of antimony and 84 to 76 of silver. The same chemist states 96 parts of arsenical silver to contain of

[Image: [Bibl. Mus. Acad.] by her brother, and he called one of the districts of Egypt by her name. The architect Dinocrates was employed by Ptolemy to erect a temple to her honour, and he intended it should be reared with leadstones, so that her statue, made of iron, might have the appearance of being suspended in the air. The death of the architect prevented its completion. We thus find that the Mohammedans of Medina were not the first to whom this strange idea had occurred, (Phin. xxxiv. 14.)

Strabo (x. 460) attributes to this Arsinoe the founding of a city called by her own name on the banks of the Arbelus, in Ætolia. (See Steph. Byzant.) This fact, if true, will tend to confirm the opinion of the Arsinoe, the wife of Lysimachus, being the mother of the states of Ptolemy Philadelphus; the strange adventures of her life, and the confusion in this period of history, render it very difficult to believe all the history of Arsinoe, as it is given by the various authorities. A statue of Arsinoe existed at Arsinoe in the time of Pausanias (i. 8). The beautiful medal of Arsinoe, which we have given, with a cornucopia on the reverse, confirms what Athenaeus says (xi. chap. 13), 'that the kind of cup or drinking vessel called Rhodon (ρυθών) was first devised by Ptolemy Philadelphus as a present for the statues of Arsinoe; which had in the left hand a cup of this kind filled with the fruits of the earth, by which was indicated that this horn is more fertile than that of Amauthus.'

ARISINO, the son of Ptolemy I, called Arsinoe, king of Egypt, and Arsinoe, was married to Seleucus, king of Thrace, then so far advanced in years that his eldest son, Agathocles, had already espoused Lynsandra, the half-sister of Arsinoe. This marriage was by no means a source of happiness to Lynsaschus. Arsinoe, fearing lest her children should be exposed to the violence of Agathocles on the death of her husband, prevailed on him to consent to the death of Agathocles, and Lynsaschus found himself involved in war with Seleucus in consequence of this atrocious proceeding. One report was that Seleucus had assisted Agathocles to be put to death, because he had declined her proposals. (Pausan. i. 10. Justin. xiii. 1.) Lynsaschus fell in battle in Asia, and his kingdom of Macedonia was left as possession of Seleucus. Seleucus and Lynsaschus were assassinated by Ptolemy Ceraunus, the elder brother of Ptolemy Philadelphus, who also treacherously put to death the two children of his half-sister, Arsinoe, after he had inveigled her into a marriage with him. Their mother, Arsinoe, he banished to the island of Samothrace. (Justin. xxiv. 3.) So far is Justin's story. Arsinoe would appear to have remained at Samothrace till she was summoned to Egypt, to become the second wife of her brother Ptolemy Philadelphus, king of that country, who reigned from B.C. 224 to 246. This was the first example of an unnatural custom which prevailed among the Greek kings of Egypt, the origin of which is difficult to account for. Though Arsinoe was now far advanced in years, she was much beloved...
Bentley, following the Greek principle, has inserted only three accents in his edition of *Teryxen*, yet he was fully aware, and often speaks of the asis upon the fourth and eighth syllables, if not the twelfth also. The German editors of *Plautus* have, for the most part, followed his example. An attention to the difference of power in the stronger and weaker aris is important for another reason. After the stronger aris, the thesis must be very weak to mark the contrast, while after the other there may be admitted even a long syllable, provided it has not also the accent. The laws of the iambic, trochaic, Sapphric metres, &c., will afford examples. In many metres, certain variations in the place of the asis are not merely permitted, but even desirable, at least in poems of any length. In our own iambic metre of six feet, commonly called the heroic verse, in which the asis is very generally weak, the accent, according to *Tutino*, gave his affections to *Arsinoe*, instead of her daughter, which led to his assassination, and the marriage of Berenice and *Arsinoe* III., by which the kingdoms of Cyrene and Egypt are once united. (See *Tutino*, xxii. 3.) There is a great difficulty in identifying this *Arsinoe*, and much difference of opinion on the subject. (See Schlosser, Th ii. Abh. 1.)

*ARSINOE*, daughter of *Ptolemy III.* *Euergetes,* was married to her brother, *Ptolemy IV.* Philopator: she is called *Eurydice* by *Justin,* and the *Cleopatra of Livy* (xxvii. 4.) seems to be no other than *Arsinoe.* She was present at the battle of *Rhaphia,* a city not far from *Gaza* in *Judaea,* which she was fighting against her brother, *Ptolemy IV.* *Antiochus,* the Great, *c.* 217, and is said to have contributed not a little to the gain of the victory. (See *Antiochus*.) *Ptolemy* afterwards, seduced by the charms of *Aglabocles,* ordered *Arsinoe* to be put to death. (*Justin,* xxx. 1. Polyb. xv. 33.)

*ARSINOE,* the name of a city in *Egypt,* at the mouth of the western branch of the Red Sea, and near the termination of the canal which unites the Red Sea and the western branch of the Nile. Its name, which was derived from *Arsinoe,* the wife of *Ptolemy Philadelphus,* appears to have been afterwards changed to *Cleopatra.* The modern site of *Suez* must correspond pretty nearly to that of *Arsinoe.* (Strabo, xvi. 763.)

ARSINOE was also the name of a dome, or one of the ancient provincial divisions of Egypt which corresponds to the modern *Faioum.* This province, and the chief town in it, derived their name from the *Arsinoe* just mentioned. The old name of the town was the 'City of Crocodiles,' this animal being highly revered there, as we learn from *Strabo,* an eye-witness (p. 811).

*Arsinoe,* a name given by *Ptolemy Philadelphus,* in honour of his wife, to *Ptolemais in Lybia,* after he had prevailed that she should be an old name prevailing, and the new one was disused. (Strabo, p. 666.)

Two cities in the island of *Cyprus* were also called *Arsinoe.* (See the article *Arsinoe* in Stephan. *Byzant.*)

ARSINOIS (diploc, elevation) is a technical term in antient music and antient metres. In the latter it denotes elevation of the voice which we now call metreical accentuation; whether it consists in a higher musical note, a greater volume, or greater duration of sound, or rather, perhaps, in all the three combined, is a matter of dispute. The musician is said to have struck the ground with his foot to mark the aris, and hence the Latin term *ictus* (stroke) has been used in the same sense. The aris is opposed to the thesis (*thesis*) or depression of the voice, the precise meaning of which is of course subject to the same ambiguity. The order in which the aris and thesis recur, constitutes the law of any verse or metre. It must be recorded, however, that although only two terms are used, yet one aris may be more energetic than another, one thesis weaker than another. Thus in the ordinary iambic measure of six feet, there are six places marked by the aris, viz. every odd foot, the second, fourth, &c.; but the stronger aris attaches itself to the second, fourth, fifth, and tenth. The Latin writers on metres accordingly called the verse we are speaking of *sixfoot* (senarius), while the Greeks applied to it the name of a triple metre (trimeter), the former including every aris, the latter only those which are more marked.

Perhaps this variety may have been more pleasing to the Roman ear, as it is certainly more common in Latin hexameters, from an objection to the attachment to the Saturnian verse, in which the cadence commonly terminates the line; or, in other words, perhaps the Latin hexameter may be a compromise between the Greek hexameter and the Latin Saturnian. A metre in which the asis is very generally weak, is disapproved by the English reader is the Sapphic, the true melody of which runs thus:

```
= = = = = =
   `and `and `and `and `and `and `and `and
```

where ` and ` mark respectively the stronger and weaker
aris; ` the thesis; whereas the ordinary English intonation is

```
= = = = = =
```

&c.; and thus a melody, which by *Horace* was selected as peculiarly adapted to the solemnity of the religious hymn, has been degraded by the English into the fit vehicle of burlesque and ridicule. An example may be seen in the pseudo-.Sapphic ode on *A Knife-grinder* in the *Antiquarian.* *See Procody, Accent.*

ARSIS and THEESIS, in music, the rising and falling of the hand in beating time, from *dpcn,* raising, and *stnc,* depressing. These terms were also used by composers who lived in the time of *Sappho,* and in the *Dodecasyllabic* music, to mark a particular mode of a subject. *Per aris* is, when the air, or counterpart, descends from acute to grave; *Per theesis* is, when it ascends from grave to acute.

ARSIS is the selsed, or used, in the technical meaning of the term, at common law, signified the offence of voluntarily and maliciously burning the house of another. This offence always amounted to felony by the law of *England,* and was punishable with death. But in order to constitute burning a felony at common law, it was necessary that the building destroyed should be a dwelling-house, or a part of it, or at least some of the buildings attached to it. The property destroyed must also have been in the possession (posuo jure) of some other person than the supposed offender at the time of the fact committed. On these grounds, and on account of the obscure phraseology of several statutes, nice and doubtful questions constantly arose upon the trial of persons charged with arson, both with respect to the nature of the buildings destroyed, and the character of the possession of the proprietor. These ambiguities were removed by a recent statute (7 and 8 Geo. IV. c. 30, sec. 2.), by which it is declared, That if any person shall without right or lawful authority set fire to any church or chapel, or to any dissenting chapel duly registered, or to any house, stable, coach-house, outhouse, warehouse, office, shop, mill, mal-house, hop-cask, barn, or granary, or to any building or factory, or to any trade, art, manufacture, or any branch thereof, whether the same, or any of them respectively, shall then be in the possession of the owner, or in the possession of any other person, with intent thereby to injure or defraud any person, every such offender shall be guilty of a capital felony. By the 8th
ACROSS the entrance is a bar composed of soft sand and sea-weed, over which the greatest depth of water is fifteen fathoms, and the entrance itself is about a mile wide. The bar extends in a straight line for five miles, and then turns sharply round to a point near the S.E., and opens out much wider for about four miles, the western shore being low and the eastern high. A second entrance is then formed by the two high capes of La Scara and Madonna to the large basin of the gulf, about a mile in width, which is enclosed on the bottom by black mud. The deepest water is thirty-six fathoms, which is towards the head of the gulf. The narrowest part of the entrance is only seven yards, and a party of men standing on the edge of the water on the northern point of low sandy ribands, separating large lakes and marshes from the gulf. At the distance of eight or nine miles to the northward of the gulf, a sharp and uneven range of hills runs about east and west; the westernmost part of which, overlooking the Ionian sea, called Mount Zalunga, is about 1500 feet in height, and continues its undulating descent to the ruins of Nicopoli, three miles north of Presvea. After a short abrupt descent the range rises again to a remarkable three-peaked mountain, called from its colour Mavro Vouno (Black Mountain), which has about the same elevation as Zalunga, but its sides are rugged. Beyond this hill and the lakes before-mentioned, lie the plains of Artsa, rich in corn and vine, but so barren of trees, that the thinnest of poplulation and want of commerce, they are little cultivated, and principally devoted to pasture. Further to the N.E. are ranges of hills connected with the chain of Pindus. To the eastward, and directly on the coast of the gulf, rises the Makonono ridge, about 250 feet in height, along which runs the road from Albania into Greece: this road is capable of being strongly defended, and furnished with numerous fortresses. All the hills of this group are very rocky and steep, and the the cliffs of the shore are very high, and steep. The ruins of Argo Amphitochium are now visible at the mouth of the gulf.
prosperity until the Emperor Septimius Severus suddenly invaded his dominions and sacked Ctesiphon, his capital, in A.D. 198. The son of Sapor II was taken captive and was held deeply; for having asked and obtained in marriage the daughter of Artabanus, he entered the country with a Roman army, and in the middle of the festivities gave orders for a massacre, A.D. 216, in which number of the Parthians was estimated, although judging himself especiably with difficulty, of Arzaban, who now, at the head of this numerous army, Caracalla took the field with a numerous army. Caracalla was now dead, having been assassinated on his march between Carthage and Edessa, and was succeeded by Macrinus. After this indecisive battle of two days, the Romans came to terms, by informing the Parthian king of the death of Caracalla, against whom he was chiefly incensed, and by restoring the former Roman prisoners. Thus Artabanus, however, was deadly bought; for it led to the overthrow of the Parthian monarchy. Artaxerxes, otherwise called Ardashir, took advantage of the losses sustained by the Parthians to incite the Persians to revolt. [See Sassanids.]

After the revolt had been maintained three years, the king and his rebel subject met, each at the head of a powerful army, and after three days’ hard fighting the former was beaten, taken, and put to death, A.D. 229. The Parthians in consequence acknowledged as their master the son of their former masters for 475 years. (Herodian, iii. c. 9; iv. c. 10 to 15; Lives of S. Severus, Caracalla, and Op. Macrinus, in the Historia Augusta; Bayle, Anc. Univ. Hist. v.)

ARTAXERXES, or ARTOROXEES, a Persian name, and evidently a compound word, Arta-xerxes. Herodotus (vi. 98) interprets it to signify a great warrior. Artaxerxes very commonly occurs as the first part of many ancient Persian names, such as Artaxerxes, Artapalae, Sco. Persian name of Maccinius Marcellinus (xix. p. 147, ed. Lindenbr. 1683) interprets it as conqueror of war. We are inclined to consider the root as the syllable ar, which appears in many different languages under the forms of ara, ara, ar, and art, with the addition of t, which is not elementary; in all of them it has the idea of courage or strength. *Artaxerxes, Mars, mir, and Art, in this Persian word, seem to have the same root.*

For the life of Arzaban, see Diodorus, L. xvi. p. 127; Grot. Hist. XXXI. i. 127; Crozer, Symbolik, ii. p. 734; and Pot, Etymologische Forschungen, &c. Lening, 1833.

I. ARTAXERXES, or ARTORAXEES, surnamed Longimanus (in Greek Macrochier), a Persian, whose right hand being larger than his left (Plut. Artaxerxes), was the second son of Xerxes I., and succeeded to the throne on the murder of his father and elder brother Darius by Artabanus (Herodotus iii. c. 463). Darius, his father, was a very great warrior, the younger brother of Xerxes and his same hand, but his superior strength saved him in the struggle, and Artabanus fell by a blow from his dagger. (Compare Ctesias and Diodorus.) During the civil commotions that ensued, he continued all the time engaged in reducing the rebellious province of Bactria, the Egyptians, thinking this a favourable opportunity to recover their independence, of which they had been deprived by Cambyses, rose in arms under Cyrus. Artaxerxes II. and his brother, at the time attended upon him, and nearly freed their country from the yoke of the Persians. They at the same time received a numerous body of Athenian auxiliaries. Artaxerxes employed his uncle Achamenes or brother (Cres.) to reduce them to obedience, but he was defeated and slain. (Herodotus iii. 12; vi. 7.) In a second expedition which he sent under Artabazus and Megabazus he was more successful, and the Athenians found themselves obliged to evacuate the country, B.C. 455, leaving Egypt in the hands of the Persians after an obstinate resistance of six years, during part of which time the Athenians were absolutely in possession of Lower Egypt. The Athenians, however, still continued the war, and sent a body of troops under Cimon to take possession of Cyprus. Cimon defeated the Persians several times, and had nearly reduced the whole of the island where he was cut off by disease of B.C. 449. Peace was then concluded on the following conditions:—

1. That all the Greek cities of Asia should enjoy full independence.
2. That no Persian ship of war should have the sea extending from the coasts of Pamphylia as far as the entrance to the Black Sea.
3. That no Persian army should approach within a horseman’s day’s journey of the territory of the Persians.
4. That the Athenians should attack none of the possessions of the king of Persia. This peace was con-
eluded the same year that Cimon died (Diod. xii. 4), though some writers have placed it immediately subsequent to the battle of Salamis. (Plut. Cim. 13.) (See the subject discussed in a note on Diodor. xii. 4, by Wesselius.) Artaxerxes seems to have spent the remainder of his life in peace: he died after a reign of forty years, B.C. 465 (forty-two, Ctes.,) and was succeeded by his son Darius II.

Theostrates, who was obliged to fly from Greece, found safety and an honourable reception at the court of this Artaxerxes in the beginning of his reign. The date commonly assigned to this event is 465 B.C. (see Theostr. in Phot. Bibl. x. 19.) (See THEODOR. II. ARTAXERXES, surnamed Mnemon (Μνήμων) from the excellence of his memory, was the eldest son of Darius II. and Parysatis, and succeeded to the throne on his father's death B.C. 465. His original name was Arasees, or Araxes. His younger brother, Cyrus, who founded his right to the crown on his being the first born after the accession of his father (Phut.), conspired against him, and would have been put to death but for the intercession of his mother, who obtained his pardon, and even his continuation in the command of the maritime provinces of Asia Minor. At Sardis he collected a large force with the intention of usurping the throne, and proceeded with these troops and a large treasure to Ephesus, and at the gates of the city attempted to murder the king. This is the celebrated expedition of which Xenophon has left us so interesting an account. (See ANAXIM. A decisive engagement took place at Cunaxa, about forty miles from Ephesus; and the death of Cyrus and the complete establishment of Artaxerxes on the throne, B.C. 401. The part which the Spartans had taken in this expedition was not likely to be overlooked by the king, and a war arose between them. The Laconians, indeed, were encouraged by Artaxerxes to invade his Persian monarchy, which the expedition of the 10,000 had revealed to all Greece. After several Spartans had been sent out, Agesilaus was at last appointed to command the Spartans in this war. In the battle of Leuctra, in which he was almost slain, he acquired the high reputation which he had already acquired. He overran the greater part of the western provinces of Asia Minor, and probably have reduced the whole of the peninsula, if Artaxerxes by bribery had not succeeded in exciting a Grecian war against Sparta. Agesilaus was recalled to the defence of his country, and the Persians soon afterwards gained a naval victory near Cnidus, principle, by the narrative of Dr. Conington, Athen. xiv. 13.

The Spartans were at last induced to sign a treaty which gave up everything for which they had been contending, and is known in history as the peace of Antalcidas, from the name of the person who was employed by the Spartans to conclude it. The peace of Antalcidas was to the following effect:—that the Greek cities in Asia and the island of Cyprus should be subject to the king; that all the other Greek states, except Lemnos, Imbros, and Seyros, should be independent. Cyprus, however, did not submit [see EVAGORAS], and it required more than ten years to reduce it to subjection. The only war which Artaxerxes conducted in person was that against the Cadusii, a people inhabiting the mountains of the island of Crete, and towards the latter years of his life he put his son Darius to death in consequence of a conspiracy which he had formed against him. Artaxerxes was unsuccessful in his attempts to reduce Egypt. [See ARAEUS.] He died from grief on account of the bad conduct of Ochus, the youngest of his sons, B.C. 359, at the age of ninety-four (Plut.), and was succeeded by Ochus. (Plutarch's Life of Artaxerxes; Dio Cass. lxvii. 8.)

III. ARTAXERXES, called Ochus before he ascended the throne, was the third son of Artaxerxes Mnemon. All accounts concur in making him one of the most cruel and sanguinary of the Persian princes. He began his reign by punishing all the cities of the Boeotian league whom he thought himself likely to incur his displeasure. Egypt, which never yet quietly submitted to the sway of the Persians, was at this time in revolt, and governed by the last of its native princes, Nectanebus II. Artaxerxes II. led a powerful army against him, and completely beat the troops of Egypt, B.C. 354. His treatment of the Egyptian god,Apis, is said to have proved his destruction, for it excited so much indignation in the mind of Bagoss, his favourite eunuch, an Egyptian by birth, that on the king's return to Persia he demanded his life, and brought the death of his youngest son, Arsies. If, however, the date of the Egyptian war, B.C. 354, and the death of Ochus, B.C. 338, are both correct, this story seems to have little foundation. (Diodor. lib. xvi. 23.) At this time Artaxerxes was at war with the Medes, and Plutarch (Arde. 3) represents him as having been present at the battle of Cunaxa, and says that he was engaged in its conduct as a spectator. (See ARDETELI.) PETER, a distinguished naturalist, the second son of Olaus Artedi, was born 22nd February, 1705, at Anund, in Angernland, a province of Sweden. Possessing extraordinary辨别 spots and flowers, Artedi was destined for the church, but after beginning his studies at Normalcing, where his father officiated as clergyman, the secret inclination of his heart led him to visit the rich shores of the Bothnia Gulf to study fishes; he also examined plants, chiefly those used in agriculture and domestic economy.

In 1716 he was sent to the school of Hernosand, where, while others spent their hours of relaxation in play, he devoted himself to the study of fishes and the collecting of plants. During his residence here he read many works on alchemy. In 1724 he went to the University of Upsal to study philosophy and theology, but he gradually abandoned these studies. When he left Upsal, he returned to Uppsala and alchemy turned him to chemistry, and ultimately to medicine. In 1728 Linnaeus likewise went to Upsal to study medicine, and on inquiring who among the students was prominent, all pointed to Peter Artedi; on which Linnaeus sought his acquaintance.

At this time, according to Linnaeus's description of him, he was tall, thin, with long black hair, and a countenance resembling that of John Ray, judging by the portrait of the English naturalist, engraved in the middle of the whole period of their residence at Upsal, which was seven years, during which time an honourable rivalry subsisted between them: each endeavouring to the other the departments of natural history in which he seemed to excel; in this way the study of fishes and the amphibia was assigned to Artedi, while Linnaeus surpassed him in a knowledge of birds and insects. In testimony of their friendship, before the departure of Linnaeus for Lapland and of Artedi for England, they mutually constituted each other heir to their papers and collections of natural history, the survivor pledging himself to publish whatever manuscripts might seem worthy of the public.

In September, 1734, Artedi sailed from Stockhom to London, where he met with the most courteous reception, particularly from Sir Hans Sloane. During his stay in London he wrote the preface to his Ichtyologica.

In 1735 Linnaeus went to Leyden, where, after residing a few weeks, he was agreeably surprised to find himself joined by his friend Artedi. The means of Artedi being now almost exhausted, he mediated a return to his native land; but a very different fate awaited him. Albert Seba, an old and wealthy apothecary of Amsterdam, who had collected an unrivalled museum of objects of natural history, had published two volumes descriptive of quadrupeds and serpents, and when about to publish the third concerning fishes, he requested the assistance of Linnaeus; but he, being occupied with other matters, and moreover engaged with Dr. Clifford of Leyden, declined Seba's offer. Linnaeus, however, forwarded the request to Artedi. Previous to this Artedi assisted Linnaeus in his great Systema Naturae, particularly in the departments of fishes, and in the unembellished form, in the arrangement of the genera of which he is acknowledged as the author. Indeed it was the intention of Artedi, after his work on fishes should have been finished, to devote himself entirely to the study of unembellished plants. Having entered upon this new office, he was, to the great satisfaction of Linnaeus, so diligent and exact in his examinations, the synonyms, the genera, and species of nearly all that remained.

About this time, Linnaeus, having finished his Fundamenta Botanica, proceeded to show it to Artedi, who on his part showed Linnaeus his Philosophia Ichthyologica, which had been the work of several years' labour.

Vol. II.-3 G
This delightful and advantageous intercourse of ideas soon experienced a melancholy interruption; Artedi, on the 21st September, 1735, when returning to his lodgings from the house of Seba, fell into the canal of Amsterdam, and his assistance being at hand, he was not discovered till morning. Thus, in the thirtieth of his age, perished one whom Linnaeus justly pronounced an honour and ornament to his country.

Lindevid devoted more than a year to render these works complete, and then gave them to the world, preceded by a well-written life of the author, in vol. 5vo, Leyd. 1738. Linnaeus had previously availed himself of them, for his department of fishes, in his Systema Naturae, published at Leyden in 1735.

Cuvier and Valenciennes, in their history of ichthyology, prefixed to their Histoire Naturelle des Poissons, Paris, 1826, pronounces the first work, which gave a truly scientific character to the natural history of fishes, completing that which had been so well begun by Willoughby and Ray.

Artedi founded his orders solely upon the consistency of the species upon the genera of the gills (branchiae), and the nature of the rays of the fins. Of these there are four, (for we do not admit the catacies,) denominated the malacopterygi, the acanthopterygi, the brachiopterygi, and the chondropterygi. The branchiopterygi, being badly constructed and basely defined, cannot be retained, but the other three are strictly natural, and nothing superior to them has yet been proposed. The genera were sixty-eight, but of these fifty-five only were defined, thirteen being merely indicated in the supplements to the Genera and the Systema.

Genera of Artedi.

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In his botanical labours he was not so successful. The influence of the general umbel and the involucellum of the partial umbel (in other words, the general and partial involucella) are merely bracte, on which, in no other case, have been attempted to found generic characters. These parts, indeed, furnish very secondary characters, and an arrangement of umbelliferous plants according to them must be at all times bad, and cannot be retained in the present day, especially since the labours of Koch and Decandolle have furnished us so much superiority. (See Nov. Acta Academiae Caesareae Naturae Curiosorum, 1824, vol. xii. part i. p. 55, and Decandolle, Memoir sur la Famille des Umbellifere, Paris, 1829. Decandolle, Prodromus Systematis Naturalis Regni Vegetabilis, vol. iv. Umbellifere, p. 55, Paris, 1833.) Linnaeus called a genus of umbelliferous plants after his friend, Artedia, of which only one species is known. A. ophiopis. Of the latter, Artedi thought it was originally a form of Solanum, and enlarged by J. Waldbaum, three volumes quarto, Lubeck, 1788, 1789, 1792.

ARTEMIDORUS of Ephesus wrote a treatise on general Geography, in eleven books, besides some other works. His name is not precisely known, but he wrote probably about one century B.C. His geographical work is very often quoted by Strabo as authority, by Pliny in his Natural History, by Stephanus of Byzantium in his Dictionary, and by other writers. The passage contained in the Canon of Amsterdami and the assistance being at hand, he was discovered till morning. Thus, in the eighteenth of his age, perished one whom Linnaeus justly pronounced an honour and ornament to his country.

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ghost, so that the poet Alcaeus (who flourished probably n.c. 678) says, that she derives names from ten thousand mountains, cities, and rivers. She is Lycia (Mount "Mauon" (Paus. viii. 36), Chalceat at the river "Cinodius" (viii. 53), Symphallas on Symphallas (23), Cucuilea and Conil- "in" means either to "inhabit", or "to be". 2. The old Peloponnesian divinity is frequently found in con- where the streams and rivers. She is ammion dominia, 'mistress of rivers', in Catullus (34, 12); ἱπποκράτης ιερ- "the great goddess or superintendent of ords in Calli- mancias" (iii. 46).

Artemis was a favorite subject with the artists of Greece, and they have generally represented her as a huntress. They endeavored to invest her with all the freshness and vigor of young men; in their representations clad in the stola, the artist still contrived to indicate her full and well-formed figure. In the works of Scopas, Praxiteles, and Timotheus, Artemis was, like Apollo, repre- sented of a slender form; her hips and breasts with- out the fullness of womanhood. The countenance is that of Apollo, only with a softer expression and more full; the hair is sometimes bound over the forehead, but more frequently in a bunch behind or on the top of the head in the manner peculiar to the Dorians. The dress is a Doric vest (χρῶν), either tucked up high, or reaching to the feet; and the shoes are Cretan. Sometimes a dead or dying stag lies near her feet, or a dog lies beside her. The most con- tinent, Iconography, ii. 1: Diana Locchi in Müller, Monumenta italic., ii. 34. (See this subject treated fully in Müller, Archithecis der Kunst, Breslau, 1830.) We have not entered into the question whether there were several goddesses of this somewhat amorphous divinity, with their own characters and attributes, but we think that this opinion is by no means improbable. She is considered the same as the Bubastis (Herod. ii. 59) of the Egyptians. (See Sarfert, Geschichte des alten Ägypten, Leipzig, 1857; Müller, Die Dorier (translation) vol. i.; Voss, Mythol. Br. iii. 1. See DIANA, SILENE, and HERACLES.)

ARTEMIS'IA, the daughter of Lygdamus, became queen of Halicarnassus, a city on the coast of Asia Minor, when her father was killed by the Persians. She was one of the most distinguished women of antiquity, if we may credit the account given by her countryman Herodotus. She attended Xerxes in his expedition against Greece n.c. 460, and furnished five ships, which were second only to those of the Ionians. In the council of war before the battle of Salamis, she strongly represented to Xerxes the folly of risking a naval engage- ment, and the event justified her opinion. In the battle she displayed so much courage, that it called forth from Xerxes the exclamation, 'that the men behaved like wo- men, and the women like men.' To her Xerxes intrusted the care of his children, that they might be transported in safety to his kingdom. (Herodot. viii. 99, viii. 61-103.) She is considered one of the-foundresses of the city of Symphallas, which she called Artemis, as it was called at Sparta) which was erected to commemo- rate the great defeat of the Persians. (Paus. iii. 11.)

ARTEMIS'IA, daughter of Heracus, king of Caria in Asia Minor, to whom Ctesippus, and wife of Mausolus, from whom she derived her name, was married. She is said to have been attached to the war parties, and to have died a few years after her marriage. (See also Verleson Max. lib. iv.) She proposed two prizes, one in trage- dory, and another in oratory, to those who should pronounce the best panegyric on her husband; and among those who came forward, the orator Theopompus, Theocleides, and Nauere: some have even added Isocrates. The successful competitors were Theop- pompus and Theocleides. She caused a monument to be erected to the memory of Mausolus, which, for its grandeur and magnificence, was considered one of the seven wonders of the world. It was called mausoleum from the name of her husband, and hence the name mausoleum is often applied to grave vaults. Thucydides (i. 15) and Herodotus (i. 52), when they wrote their history of the time of Strabo (p. 550). She died after a reign of two years, and was succeeded by her brother, Idrieus. (b.c. 351. (Diod. xvi. 44.)

ARTEMISIA an extensive genus of plants belonging to the natural order compositae, and remarkable for the intense bitterness of many of its species. It is easily recognised by the multitude of fine divisions into which its leaves are usually separated, and the numerous clusters of small, round, drooping, greenish-yellow, or brownish flower-heads, with which its branches are loaded. The flower-heads are all tubular, but those in the circumference of each head are very imperfect.

The most interesting species are wormwood, tarragon, and Artemisia absinthum. The former (Artemisia absinthum) is found in the northern parts of Asia. It is pale yellow, its leaves have a silvery or hairy aspect, and in consequence of a thick covering of exceedingly delicate hairs, are very fragrant. Their leaves are very numerous, and of a light buff colour. Wormwood is celebrated for its intensely bitter, tonic, and stimulating qualities, which have caused it to be an ingredient in various medicinal preparations, and even in the preparation of liqueur. It obtained its name from its use in destroying worms in children.

Tarragon (Artemisia dracunula) is a Siberian species, the stems of which grow two or three feet high, are perfectly smooth, and of a bright green. Its leaves are divided, very narrow, smooth, and rather succulent; when bruised they emit a stimulating odour, and if chewed produce a pecu- liar pungent moisture in the mouth, which is so generally considered agreeable that the leaves are employed as a pickle, and as an ingredient in some kinds of vinegar. The flower-heads are small, round, and smooth, and contain seven or eight flowerets.

Southern Wormwood (Artemisia abrotanum), an odoriferous herb found all over the south of Europe from Portugal to the Dardanelles, and thence through Palestine, Persia, and the middle of Asia into China, is frequently seen in old- fashioned gardens where it was cultivated for its peculiar scent. It is a low plant, about 18 inches high, a common shrub on the borders of countries has been acquired a woody stem after a few years; its branches bear loose panicles of yellow flower-heads, which are externally grey with down; the leaves belonging to the panicles are much longer and narrower than those of the stem.

All these are increased either by division of the crown of the root or by what are technically called stipas, that is to say, cuttings rudely torn from the woody part of the stem as nearly as possible, which strike root readily and make young plants in a month or two.

ARTERY, from the Greek ἀρτερία (arteria), signifying an air-vessel; because the aintents, ignorant of the circula- tion, and finding the arteries always empty after death, sup- posed they were tubes containing air. Why after death the arteries are empty and the blood accumulated in the veins will be explained hereafter. By the term artery is meant a vessel which conveys blood from the heart to the different parts of the body: a vein, on the contrary, is a vessel which conveys blood from the different parts of the body to the heart. (See Vein.) All the arteries of the system proceed from two great trunks immediately connected with the car- diac artery, which arises from the right, and the aorta, which springs from the left ventricle. (See Heart.) The pulmonary artery conveys blood from the right ventricle of the heart to the lungs; the aorta conveys blood from the left ventricle of the heart to the different parts of the system, and consequently is the common source of all the arteries of the body, with the exception of those which circulate through the lungs. (See Aorta.) The arteries derived from the aorta contain arterial, those de- rived from the pulmonary artery contain venous blood, and this latter vessel is the only artery in the system which does not contain arterial, that is, deoxygenated or proper nutrient blood. (See Blood.)

The arterial branches are: (1) the cerebral branches, which spring from the aorta successively increase in number and diminish in size as they proceed from the heart towards their ultimate terminations in the system. Each trunk commonly ends by dividing into two or more branches, the combined area of which is always greater than that of the trunk from which they spring. The capacity of the branches is estimated to exceed that of the trunks in the proportion of 25 to 20, and at all events they cannot at any time be reduced into branches, and the larger branches into branches more and more minute, it is obvious that the blood in the arte- rial system is always flowing from larger into smaller tubes.

The organization of the arteries is peculiar, and differs considerably from that of the veins. (See Vein.) They are of a yellowish-white colour, loose and flocculent on their external surface, but their internal surface is smooth and
extensibility is chiefly in the direction of their length. If an artery be tied in two places, and divided between the ligatures, the portion which is next the heart is sensibly elongated at each contraction of the ventricle; but their extensibility in the circular or transverse direction is not great.

After an artery has been extended, either lengthwise or transversely, it suddenly retracts on itself when the extending force is removed. If the finger be forcibly introduced into the section of a large artery, the sides of the vessel re-set on the finger, and proportionally compress it. If an artery be divided in the dead body, though emptied of its contents, it maintains its cylindrical form, and preserves its capacity unimpaired. The elastic property on which these phenomena depend is commonly called the 'tension', but it is greatest in the external, and least in the internal tunic; and it is also much greater in the larger trunks than in the small branches. Elasticity, in the longitudinal direction, restores the artery to its original state after it has been elongated in the various motions of the body; in the transverse direction, it keeps the artery open, and thus maintains a free channel for the passage of the blood through the vessel, while it also assists the fibrous tunic in resisting the over-distension of the artery by the impulse of the circulating current.

The most important vital property of the artery is its contractility, that is, its power of diminishing its capacity, or approximating its parietes, and thus proportioning the volume of its contents. Even the large trunks possess this property to some degree; but it resides chiefly in the ultimate divisions of the arterial branches, that is, the capillary vessels. The main purpose of the trunks and large branches of the arteries is to distribute the arterial contents, and for this purpose it is supplied with an abundant supply of small branches, the capillary vessels in the organs. The purpose of the capillary vessels is as various as the actions of the organs in which they terminate, and of which actions, indeed, they are the great instruments. Between the trunks and large branches of the arteries, and their ultimate divisions, there is such a total difference in structure and function, that they must be regarded as two distinct sets of vessels, and the latter require a separate consideration. [See Capillary Vessels.]

Arteries, besides capillary vessels, terminate also in veins, in exhalant vessels, that is, colourless vessels, which are supposed to open by minute orifices on various membranous surfaces, perhaps in lymphatic vessels (which see), and in excretory ducts. [See Gland.]

The principal diseases to which arteries are liable, are inflammation, ossification (deposition of bony matter), calcareous deposition (deposition of chalky matter), and aneurism.

ARTESIAN WELLS are perpendicular perforations or borings into the ground, through which water rises from various depths, according to circumstances, above the surface of the soil, producing so much of it as is indispensable for the proper application of the ligature. In the first cases treated by Mr. Hunter for aneurism [see Awurara], four ligatures were placed around the diseased artery, which was divided in the interstice of these ligatures. These were called safety-ligatures, being intended to be drawn tight if the others gave way; but the application of these ligatures disturbed the nutrient arteries of the vessel to such a degree, that inflammation, ulceration, mortification, and hemmorhage ensued, so that those so called safety were really danger-ligatures, producing the very evils which they were intended to avert. The careful observation of the functions of these vessels has corrected this, and several other errors, and led to most important improvements in surgical practice.

The principal nerves of arteries are derived from the gacroniole or the organic system, but with these are mingled branches derived from the sentient or the animal system. [See Nerves.] Accordingly, under ordinary circumstances, arteries carry on their functions independently of any influence derived from the brain and spinal cord, but they are capable of being altered by agents applied to those organs. Under ordinary circumstances, and in a state of health, arteries are but little sensible: they may be irritated in living animals by the scalpel, or by the application of chemical agents, without affording any indication of pain. Nevertheless, in certain states of disease, they cannot be a question that they become exquisitely sensible.

Among the physical properties of arteries, the most important are their extensibility and their elasticity. Their

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Let $h, a, b, l, w$ be the surface of a country upon which stands the town $T$: $a, a$ be a bed or thick mass of rock, either impervious to water, or through which it percolates with difficulty: $b, b$, a sand or rock, or through which readily percolates among the strata that occur beneath the rock $a, a$, and are concealed by the latter in the plain on which the town $T$, stands, but crop out, as it is geologically term, or rise to the surface beneath the rock $a, a$, and are revealed by the heights, $h, A, A$, on each side: $c, c, c$, a rock through which water either cannot pass, or percolates with difficulty. It will be obvious that the rain-water, falling on the heights, $h, A, A$, and which may not run off into the
drainage depressions, will be absorbed by the exposed part of the rock, b. b. From the action of gravity the water would pass downwards upon the rock, c. c. which being impervious, or nearly so, to the passage of water, it will be checked, and take a direction under the other impervious, or nearly impervious, rock, a, a, percolating through all parts of b. b. From its endevour to seek its own level, the water will so far as its effects are felt along the same line, be carried down the same rock; but being unable to do so, it will, in the natural order of things, remain beneath, free from evaporation. If, under these conditions, a perforation be made at w, near the town through the rock a, into the rock b, b, the water in the latter will rise upon the surface of a, a, at w, in proportion to the height of l, h above the level of s, and to the checks, from various causes, which it receives while percolating through the rock b, b. It might be supposed that these checks would be sufficient to prevent it from rising higher than a very slow rise of water in the Artesian well, but it should be recollected that the quantity of water locked up beneath a mass of im pervious rock of large area, such, for instance, as the London clay, is considerable, and that the hole or perforation is very small.

The rock b, b may, in fact, be considered as the inside of a great pipe, into the two ends of which water is poured; so that when a hole is made in the upper side of the pipe, as at w, the water will spring up, and endeavour to attain the level of the water at the ends.

Artesian wells can be formed under circumstances which appear to the general observer somewhat different, though, in point of fact, they are much the same. Let a, b, c, d, e, f, in the annexed diagram, represent a section of a country, several miles in length, and h, i, l, l, four different kinds of stratified rocks, resting conformably upon each other, among which the rock k is of a structure to permit the comparative free passage of water, entering it at f, while through the other rocks water either percolates with difficulty, or is unable to pass. In this case, the rock k merely performs the office of a longer pipe, not indeed so obviously to those unacquainted with geology on the large scale, as in a plain between heights; yet the principle of action is the same, for when the series of rocks, a, b, c, d, again rises to the surface on the side now truncated by the section, the same general facts are represented as in the first diagram, though on a much larger scale. Thus when a perforation is made at w, the valley between the hills a, b, c, d, the water ascends to the surface, and an Artesian well is established. The Artesian wells at Rouen exist under similar conditions.

In nature, great areas or sheets of stratified rocks, particularly those of a main relative antiquity, are seldom unbroken; but are, on the contrary, fractured in various directions in consequence of disturbing forces which have acted upon them. Even in these cases, perforations for Artesian wells have sometimes been successful, the hole being pierced between the fracture or fissure and the point where the porous bed receives the rain-water.

Let the line a, c, in the above wood-cut, represent the surface of a country; d, d, a porous bed, or one through which water cannot be percolated, but which neither takes up nor down from the nature of the rocks above or beneath. Let f be a fracture or dislocation, geologically termed a fault, from the effect of which the bed d is suddenly thrown down to a considerable curvature of the earth's figure, and the continuity of d on the side one and on the other is destroyed. If we tap, as it were, the bed or rock d, at w, the water in it would rise but a short height upwards, if d could be easily penetrated by the water; but if water is furnished with c, let it pass freely out at f. The rapid percolation of the water is, however, checked by its friction among the particles of sand or against the sides of the strata, so that when a perforation is made at w, and a free vent given to the water, it rises, and an Artesian well is established.

It will be evident that, if we regard the above section without reference to the artificial boring at w, we have a natural Artesian well, the fissure or fault f serving the same office as the artificial perforation; with this difference, that the latter may be considered as a mere puncture, while the effects of the former are felt along the surface of the line of the bowld. b, b, and occasionally a few miles in length. Without such fissures, which permit the escape of water from beneath, many districts would be comparatively destitute of this great necessity of life, more particularly during dry seasons. If these fissures or faults are more permanent than others. This arises from the mechanical arrangement of the reservoir, if we may so term it, by which a vast quantity of water is accumulated, and can only escape by slow degrees; and thus severe droughts, which dry up the more superficial springs, are comparatively little felt in those from fissures.

It must be apparent from these considerations that extreme caution is necessary in the choice of situations for sinking to obtain Artesian wells, and that a general geological knowledge of the country, in which the attempt is to be made, should precede any borings for this purpose, otherwise much useless expense may be incurred, without a chance of success. Indeed, the power of pointing out those situations where Artesian wells may, in all probability, be successfully established, is one of the practical applications of geology to the useful purposes of life.

Water percolating through or springing from strata of rocks, becomes impregnated with various substances, some of which are injurious to animal or vegetable life, and to various useful processes in the arts. Now it sometimes happens, in situ, that the Artesian wells can show from the course of the lines of water, which may be tapped, or are described in the description; it therefore becomes advisable to get rid of such water, if possible, in order that it may not injure, by combining with it, any purer water afterward met with.

[Diagram of water movement and fissures]

The water, when it is impregnated with various substances, some of which are injurious to animal or vegetable life, and to various useful processes in the arts. It is sometimes necessary to remove the water from the well, and then, by percolating it through a column of good water, water can be obtained at d, while purer water is discovered at n, both waters rising to, and above, the surface. To prevent the mixture of these waters, the diameter of the boring is increased from the surface to the bed, or interchanges between the strata, where the bad water is supplied, and a central cylinder is passed through its centre to the continuation of the boring, beneath the line of bad water at d, in such a manner that the latter cannot mix with the column of good water, l, l, rising from n, but passes up round the interior cylinder, and descends itself of the strata which is a natural establishment, because the first supply of water met with in a boring will not rise to the surface, that all other lines of water in the same boring will also refuse to rise, for it frequently happens that small supplies are first cut through which do not elevate themselves above a few feet in the pipe or perforation. These smaller springs are due to the more local percolation of water, and though they obey the same laws, rising to their respective levels, they do not reach the surface, because they are not connected with a system of supply which will enable them to do so. Numerous common wells are so far Artesian, that when a particular bed is cut (and there is generally a more known one in every district), the water will sometimes rise in them suddenly as to render an immediate escape by the workmen necessary. In such cases the water in these particular lines does not seek its level: its rapidity of percolation is proportioned to the fissures through which it can percolate or flow through the beds or fissures of strata containing it.

Artesian wells are necessary of various depths, and it has been observed by M. Arago and others that the temperature of the water that has been increased, by regard being paid to the mean temperature of the climate in which they may be established. This fact has been considered an argument in favour of the interior heat of the earth.

Artesian wells have been established in the old and new world; many have been made in the United States; and notwithstanding their name, appear to have been known as well in Italy as in Argoz from time immemorial.
memorial. It is also probable that they were known to the ancients, for, according to M. Passet, in his "Description Générale de la France" (1838), Niebuhr cites the following passage from Olympeidoros:—"Wells are sunk in the oases from 200 and 300 to 400 yards in depth (the yard being equal to half a foot), whence water rises and flows to the north, and the Floir, a brewer of Ghent, and a great popular leader in the early part of the fourteenth century.

Louis, then count of Flanders, had married a niece of Charles le Bel, king of France. He was grandson of Robert de Bure, who had married between himself and Robert de Cassel, his uncle, about the succession, which was decided by the parliament of Paris, supported by the king of France's power, in favour of Louis. This measure did not gain for Louis the affection of the Flemings, whose subjects, who had been accustomed to alienation, were still more. The great towns of Flanders had charters and privileges, and could not be taxed without their consent. Their wealth consisted in their manufactures and commerce, by which they had been long connected with England, from which country they drew the wool required for their cloth fabrics. The chief proprietors in the country were nobles, who generally took the part of the count and of his French patron, for the king of France was then suzerain of Flanders. The four principal chartered communities, or municipalities, of the county of Flanders were Ghent, Ypres, Bruges, and the county or district of Bruges, which was called le Frans, or "free country."

This measure in fact led to the enmity of Count Louis, and at last took him prisoner, and kept him till the people of Ghent, who were then jealous of their neighbours of Bruges, rescued the count. Another and a more General insurrection of the Flemish was put down, and Philip, who had supported Charles of France, was defeated at Philip, within the walls of the city, in 1328, and obliged them to surrender at discretion. The leaders were put to death, and the towns were heavily taxed.

The war which broke out some years after between the many atrocities perpetrated on both sides, the count succeeded in intercepting all supplies to the insurgent city, which was reduced to great distress. Van der Bosch and the other leaders of the Ghentse, finding that the people of Ghent were more insulted than subdued, and strengthening themselves by engaging Artevelde as the nominal chief of their party. They proposed him to the people, and he was elected Captain by acclamation. After some desultory negotiations with the count, in the course of which two deputies of Ghent who had agreed to surrender the town were stabbed in the market-place by Van der Bosch, Artevelde, seeing that it was impossible to hold out any longer for want of provisions, consented to the terms proposed, marching out with a chosen body of men and attacking the count, who was then at Bruges. He left Ghent on the 26th of May, 1332, with 5000 men, determined to conquer or die, and halted in a good position, within the city, but the people's introduction and entrance of the festival in that city. In the midst of the processions and rejoicings, news came of the Ghentse being at hand. The count went out to encounter them with a body of 800 knights and squires, followed by a numerous but disorderly multitude of the people of Bruges, especially the butchers, glaziers, cordwainers, and boatmen, who thought they were marching to certain victory over a few half-starved Ghentse. The Ghentse had a march in front of their position, and their flanks were protected by carts: they commenced with a brisk fire of artillery upon the assailants, which checked their ardour. Artevelde, by a skilful movement, having succeeded in drawing the enemy into the marsh, the men of Bruges fired on them, and many of the Ghentse were killed, and the rest came along by the flying multitude. The count re-entered Bruges with only forty horsemen, and the Ghentse poured in at the same time. It was now night, and the town was in such a state of consternation that it took some time to recover from their panic, the city was given up to plunder. All the inhabitants, as well as the butchers and other tradesmen to him, were hunted out and killed. The rattle of the town, as well as many of the serried ranks and columns of men, were cut off by the episcopal forces, joined in the middle of the city, and the carnage. Artevelde succeeded in stopping the indiscriminate slaughter in the morning; but the magistrates and nobles were deliberately sought after and led to execution, so that the country was made and the young Prince of Wales, afterwards called the Black Prince, should be elected governor of Flanders, on the under-
house of a poor woman, who had often received charity at his palace gate.

Now for the army of Bruges, the other towns of Flanders, with the exception of Oudenarde, opened their gates to Artvedel. He now assumed the state and pomp of a sovereign prince, taxed at will the country people, but took care to keep the city of Ghent well supplied with provisions at a low rate. This became Porkvent's principal occupation, the rest being necessities, but also luxuries. He began the siege of Oudenaerde, in which, however, he was unsuccessful. Meantime the people of the neighbouring states, Hainault, Brabant, Limbourg, and Artois, supposing Mr. Torre to be the representative of the crown, with the Flemings, and the spirit of revolt spread also into France, where the people were dissatisfied with the exact- inations and oppressions of their nobles. The feudal nobility at the time to the life of its old enervating spirit, as well as of its independent power. Artvedel, however, would not have the crown, but it still retained all its vexatious and tyrannical demeanour towards theburghers and peasants. It was still, in fact, above the laws. The duke of Burgundy, regent of France, easily induced the young king, Charles VI, to assist Count Louis in putting down the Flemish insurgents, before the English had time to join them. A large force was collected under the command of Olivier de Clisson, a visitor but vain commander: the oriflamme was displayed, and the campaign began in November, 1382. The French advanced to Roosbeke, between Courtray and Ghent. Artvedel rashly advanced to attack them: his men, equal in numbers, under a madcap, or More, were arrested too closely, so that the greater part of them had not room to wield their weapons. The battle lasted only half an hour, and 25,000 Flemings were killed, most of them in the pursuit. The body of Artvedel, being found under a heap of slain, was suspended on a gibbet. The battle of Roosbeke has been compared, for the importance of its results, to those of Agincourt against Attila, and of Charles Martel against the Moors. Had the Flemings been success- ful, observes Froissart, the revolution which had already begun at Paris, would have spread all over France, and would have proved more terrible than the Jacquerie; the whole of the nobility and gentry would have been de- stroyed. The troubles of Flanders continued for a long time, after the death of Count Louis in 1384. Philip the Bold, duke of Burgundy, who had married Margaret, the count's only daughter, succeeded him in the possession of Flanders, and at last restored it to peace. (Brantome, Histoire des Deux Duces de Bourgogne de la Maison de Valois.)

ARTHUR. (See GOUR.)

ARTHUR. We shall divide this article into two heads: the first, comprising those particulars of the life of this celebrated hero, which are indeed of historical and critical value; the second, giving a short account of that mass of fictions concerning him which forms the earliest portion of our national literature. Truth, indeed, has been so over- laid by fiction, that some writers (Milton among others) have described Arthur as a fiction. Of this there seems no more reason to doubt, than of the existence of Hengist, Cerdic, or any other man of note of that time. Beside the later works of Nennius and Geoffrey, the most ancient specimens of Welsh poetry, the Triads, the poems of Liwyarch Hen, and of Taliesin, speak of him, not as the fabulous prodigy described by later romancers, but as a prince and captain of eminence, yet not distinguished by marked superiority over his others contemporaries. The following are the incidents of his life which appear to be best attested.

He was a prince of the tribe of Britons called Silures: according to some accounts, the son of Pendragon (Dargon's Head), a title given to an elective sovereign, paramount (at least nominally) over the many kings of Britain. The date of Arthur's birth, or even whether his succession to his paternal inheritance, is very much disputed. He appears to have commenced his martial career about the year 500, and was raised to the Pendragon- ship according to Owen, in 517; according to Whitaker, in 568. Nennius, however, in his History of the Britons, states, that Arthur reigned 12 years in Wales, and 20 years in Britain. To explain the use of the exigency and machinery of authority. For the ground of that writer's belief we must refer to his work: the reader will at least be repaid by seeing how connected, circumstantial, and plausible a story, may be made out of a single narrative, and how much better it is, than the scattered notices in ancient chronicles, and local knowledge, and popular tradition. All this early history of Arthur is placed in the north, whither he is said to have been sent by Ambrosius, his predecessor in the Pendragonship; but after all this, all his exertions were directed to stopping the progress of the Saxons in the south, led by the active and successful Cerdic. He was commander-in-chief at the battle of Longborth (literally the ' haven of ships'), supposed by Mr. Torre to be Portmouth, on the autho- rity of Liwyarch Hen, a well-known Welsh bard, who fought in that battle, and composed an elegy, still extant, on the death of his friend Geraint ap Erhen, who fell in it. He mentions elsewhere another battle, in which ' Arthur did by the sword of his brother, and his shield (the shield of the Saxon) the most important battle is that of Badon (placed by Whitaker at Badly in Wiltshire; by Camden and Turner at Bath; by Carte, in Berks), the twelfth battle in the list of Nennius, mentioned also by Gildas, Bede, and others, which checked the progress of Cerdic, and compelled him to content himself with those provinces along the south coast which he had already gained; from which Arthur is not recorded to have ever retired. The description of this battle is variously placed. Whitaker, following Mats. West., says 520, which a doubtful passage in Gildas seems to confirm. From this time we hear no more of Arthur, until the revolt of his nephew, Modred, or Mor, which took place in 542. Modred was slain, and Arthur, mortally wounded, was conveyed by sea to Glastonbury, where he died and was buried. Tradition preserves the memory of the place of his interment within the abbey, as we are told by Gildas himself. The abbey was opened by command of Henry II., and saw the bones and sword of the monarch, and a leaden cross let into his tombstone, with the inscription in rude Roman letters, Hic jacet retulensi flavus, in rusticis Lelantanus, which is seen by Leland, and copied from an attested copy by Camden. This story has been elegantly versified by Mr. Warton. A popular traditional belief was long entertained among the English that he was conceived in the river Elbe, and brought up by the fairy queen of that country. Another tradition states that he was conceived in the land of the Druids, and reared in the field of battle. Arthur hastened by forced marches to punish this new aggression, and routed them with immense slaughter at the great battle of Mount Badon, in which he slew 470 men with his good sword Caliburn and his lance Resa. Again he hastened with all speed to Scotland, to relieve Dunbarton (Alcludy), besieged by the Scots and Picts. Having done this, and pursued those barbarians into the fastnesses of Loch Lomond, where he fitted out a fleet and obtained permission to land, he returned southward, kept the Christmas at York, and employed himself in destroying the pagan temples of the Saxons, and restoring the Christian churches. The following summer he conquered Ireland and Iceland, as he returned to England, and sought to maintain peace. We need not dwell on his foreign conquests of Norway and Gaul, which occupied ten years more. He then returned to England, and held a great festi- val at Caerleon in Montgarnish, a multitude of tributary kings attending him. Not long after the Romans demanded tribute; on which he collected a mighty army, and passed into Gaul. There he defeated the Romans, and was preparing to cross the Alps, when he received a message of his death, which had been reported by himself with the Saxons, Scots, and Picts. Ar- thur gained two victories, one on the coast of Kent and one
A R T

near Winchester, and forced Modred to fly into Cornwall, where a third engagement, fatal to both, was fought on the field of Co-an-an.

Such is the story told by Geoffrey of Monmouth, and much later by Buchanan (Historia Scotiae), and adopted with all manner of additional fiction by the romancers. The reader will see how widely it differed from the simple traditions relating to the British authorities. Yet Geoffrey professed to draw his account from an Armoric an or Breton original, or whether tradition had already so transformed the British hero, as has been disputed by the British historians, we are not at liberty to say, however, that Geoffrey is not entitled either to the credit or discredit of having invented the preposterous story which he has told. (See Ellis's Specimens of Metrical Romances, i. p. 85, &c.) It is certain, however, that in the Armoric an tales if such they are, we find more mention of the Picts, Scots, and Irish, than of the Saxons; more traces of Arthur's presence in the north than in the south, of the Cornish or Breton rac has been more familiar to British bards. So in the romances found on those tales, Merlin, Morte Arthur, Lanciolot, and others, the scene is more frequently laid in the north than the south; and York and Carlisle occur more frequently than Caer-

laun or Cædwalla (in Winchester). Cornwall, however, is a favourite country in romance, and this may point to an Armoric an original. On the other hand, our British authorities, Taliesin, Gildas, Aneurin (Gildas and Aneurin, though every thing points to the latter) and Llyd-

wrachHen, were all connected with the north of England; yet they are silent as to Arthur's exploits there, and only mention his residence to the Saxons in the south; evidence of what we have been expected not as, far as we are aware, been noticed by any writer on this subject. There is an ancient collection of Welsh stories for children, called Mabinogion, which in-

volves Arthur with certain mythological attributes of romance, which was given by Mr. Owen, above quoted, into some very mystical speculations. The island abounds with memoirs of the fame of Arthur, whether he be a real or imaginary person: we have Arthur's Seat; Arthur's Round Table, in a certain place on the north side of the Tamar, which call the constellation Lyra Arthur's Harp (Telur Arthur); and the Principality abounds in monuments of art or nature which bear his name. The industry of the topographer would soon multiply references.

For the genuine history of Arthur, see the History of the Anglo-Saxons, by Sharon Turner, and Whitaker's History of Manchester. The works of Geoffrey, and the early romances which state that Arthur, will be found fairly treated in Watson's History of English Poetry, vol. i.; Ellis's Speci-

mens of Early Metrical Romances, and Duhou's History of Fiction.

A R T H U R, D UKE OF BRETAGNE. [See JOHN.]

A R T H U R ' S S E A T. [See EDINBURGH.]

A R T I C H O K E. [See CYNARA.]

A R T I C L E. The name given by modern grammarians to the two little adjectives the and an in the English language, and to words of like import in other modern languages, the former being called the definite, the latter the indefinite article. We do not attempt a more philosophical definition, because the separation of these words from the other adjecti-

ves of language, whether they be substantives, adverbs, or adjectives, does not appear to de- pend upon any very accurate principle; and the distribution of the parts of speech would perhaps not be the less philo-

sophical, if the so called articles were restored to their proper place, as definite articles, formed by a corrup-

tion of the adjective one, or, as our ancestors wrote it, ane; and a is still more violent corruption of the same word. Thus in German ein is at once equivalent to our one and an. In the same way the French un, Italian uno, Spanish uno, &c., are evidently derived from the Latin unus. On the other hand, the definite article will appear, on the slightest consideration, to be a corrupted demonstrative pronoun. The term article or of (a joint) was invented by the German grammarians; but a is only applied by them to the definite article, and also to what, by modern grammarians, is called emphatically the relative (who). Nor is there any inconsistency in applying the same term to these two notions, which can be found on the Greek language, corresponding to our word this, was employed per-

haps originally to denote a physical object pointed out at the

time by some action of the body; secondly to an object men-

tioned just before, or to an object present between the

speaker and hearer; or, lastly, to an object worthv to be brought

before the hearer's mind. In the last case we are likely to have

a repetition of the defining particle, as: 'I gave you

the book,' you asked for,' or 'I gave you the book in a perfect

way.' I give you that book that you will read.' It was from

the contemplation of such a sentence as this that the

Greeks considered the defining particles as performing

the office of joints which connect the two proposi-

tions together; and from this source the article was de-

rived, that which precedes the noun (the), was called

the prepositive article, and that which follows it, viz.,

the relative, the postpositive article. The qualifying

terms first and last are performed by the adjectives;

the term article is very expressive of these relative particles,

which in all cases, or nearly so, do perform the duty of con-

necting two propositions together; and hence we ought

not to be surprised that a large proportion of the conjuncts

have their origin in the relatives or demonstratives. But

the repetition of the defining, demonstrative, or relative

article is no way necessary. Whether we say 'I gave you

that book (pointing to it), or, 'You asked for a book that

(for that book) I gave you,' or, lastly, 'I gave you that book

you asked for,' the word that performs in all cases the same

duty. The two ideas thus logically connected in the ex-

pression — 'I gave you the book that which you asked

for;' are rephrased for the book: 'I gave you the book.'

It is only a luxury in language, which tends in a

great measure to the mere place in a sentence that a word may occupy;

and if, in the more polished forms of the Greek language, we

find the demonstrative, the definite article, and the relative

substantive, they are there taken from a Greek common

parent, το, and its dialectic varieties. In Homer,

the article does not yet appear; in Herodotus, the same

element performs at times all the three offices. As we

descend chronologically we find the demonstrative,

the relative, and the substantive, once confused, the

diverging forms of the relative and article, and even in certain phrases, retained by the later writers,

besides these we find the relative at times employed where the English idiom at least requires the demonstrative this; and what is called the

relative joining the adjective to the substantive in the English language, has the form of a relative, and the meaning of a demonstrative. To trace the same analogy in the Teutonic languages, the German der, of which de only is

radical, is at once demonstrative, relative, and definite article. So correspondingly in Greek and Latin, the article when used in a sentence, a kind of doubled form, δεισερ, was adopted for the perfect demonstrative, on the same principle of formation as the, from το, with the same meaning in Greek. And lastly, the English philologist will find the same threefold power among the derivatives from the English

aided languages, the French ad, the, and the, which, when compared with the Latin, or with the Greek στο and ου, is the

form δείσερ that is still retained, as was before observed, with the

power of the relative; but in the older writers, there, there, &c., were freely used where we now only employ where, where, &c.

Horne Tooke, whose views of etymology were neither

extensive nor accurate, has fancied that the English article the

is the imperative of an Anglo-Saxon verb bea, to take. (Diversions of Purley, Taylor's edition, ii. 63.) We need not repeat that it is allowed to the Dutch de, that the Dutch de, for the the is merely the characteristic of a

masculine nominative, to the Greek στο or θα, and that through these to the Greek element ηθ, a form which actually occurs in the English, the article the can be considered as the English article will be satisfactory which does not equally apply to

all these languages. In the same way the definite articles of the modern languages derived from the Latin are

in the French, the Italian, the, lila, &c. [See RELATIVE

ARTICLES, DEMONSTRATIVE.]

A R T I C L E S O F F A I T H. [See CONFUSIONS.

A R T I C L E S O F W AR. [See MUTINY ACT.]
ARTICULATA, or ARTICULATED ANIMALS, form the third great section of the animal kingdom, according to the arrangement of Cuvier. They are so called because the different parts of the body are composed of mobile pieces or bones articulated to each other. They differ from molluscan animals in generally possessing a skeleton, and from vertebrated animals, by their skeleton being external, while that of the vertebrated is internal. Though presenting an apparent similitude to that of the amphioxus, they are generally provided with a skin, which is either soft (as in the leech), or horny and crustaceous (as in the crab and cray-fish). Certain families are destitute of feet, but the greater number are provided with these members, which, when present, are never fewer than six. The connexion of the joints of the members is so close as to permit only a very limited range of motion to each; which is, however, compensated by a greater number of pieces which compose each member or limb.

The point in which there exists the greatest degree of accordance or resemblance among articulated animals, is the nervous system. Their brain is extremely small, and two nervous cords, surrounding the esophagus, or gullet, and continued along the abdomen, unite here and there into knots, or ganglia: in some crustaces it is still more simple, consisting merely of two knots, one placed at the head, or the thorax, united by slender threads.

The organs of sense are very imperfectly developed, and in some cases are altogether wanting, except the organ of sight.

No organ of smell has yet been discovered, unless the sense of touch, which is the most apparent. The crustacæ are provided with a considerable diversity of structure, being sometimes one and single, or three united in a triangle; in other cases composed of a considerable number of little plates, or facettes (as in the fly), each of which receives a branch from the optic nerve.

The mouth is sometimes destitute of jaws, but when these are present, they are never one above the other, but always lateral; and frequently there exist several of these ranges in succession, the two anterior of which are termed mandibles.

The respiration is effected either by branchial, as in those which habitually live in water, such as the crustacæ, or by tracheal, as in air-borne animals divided into three parts, one membrane internal and one membrane external, both of which are cellular; and a sort of cartilaginous elastic tube, rolled spirally, and placed between the two membranes. These tracheæ receive air by certain lateral entrances in and out.

The organs of the circulation vary very much. Sometimes there is a distinct heart, whence proceed blood-vessels, which return to the heart. (See Recherches sur la Circulation dans les Crustaceés, par MM. A-M. Audouin et Edwards, quarto, Paris, 1827; also, Annales des Sciences Naturelles, 1827.) In other instances there is no recognising organ from which the blood-vessels leave the heart. The circulation is not yet well ascertained; this is more particularly the case in those articulated animals which dispose by tracheæ, and in which these organs seem in a certain degree to perform the functions of blood-vessels.

The Articulata have been divided by Cuvier into four classes: viz. 1. Annelida. 2. Crustacea. 3. Arachnida. 4. Insecta. Of these, the general characters have been given under the subject Anatomy (Comparative); and they are also dealt with under the heads Anneli, Arachnida, to which we refer, as well as to Crustacea and Insecta.

ARTICULATION, the term by which anatomists express the union of the different bones of the skeleton. The junction of any two bones, however firmly or loosely connected, or in whatever mode the union may be effected, is designated by the name of articulation. Commonly two substances are employed as the media by which the connection is established, namely, a firm and strong membranous tissue termed ligament [see Ligament], which may be considered as the band by which the bones are tied together, and a peculiar substance termed cartilage or gristle [see Cartilage], which is often interposed between the surfaces of the bones to be united, and which, besides serving as the bond of union, accomplishes other purposes.

Of all the parts of the animal fabric, there is none in which modification is more clearly or beautifully shown than in the connexions of the bones with each other, and more especially in the structure of joints. There is no part of the human body which deserves or which receives on the part of the wise and careful student the manifold and serious injuries to which joints are exposed, as from the various modifications of dislocation and fracture, stress him an opportunity of exemplifying the inestimable value of his art, in the sure and speedy recovery of such injuries which it enables him to prevent and especially when contrasted with the suffering and deformity which result from neglect or from want of skill.

The objects to be obtained in the economy of the body are the several bones of the head, requiring almost every conceivable variety in the mode of their connexion. And such variety actually exists; but still these varieties admit of classification, and they may all be arranged under three heads, those which formmoveable, fixed, and mixed articulations.

1. One object to be accomplished by the union of bones is, to form a secure situation for tender and delicate structures. Accordingly the bones are often so disposed as to enclose cavities in which the organs that need protection are placed; such, for example, is the cavity of the head which encloses the delicate substance of the brain; the cavity of the spinal column, which encloses the less delicate substance called the spinal cord; and the cavity of the abdomen, which encloses soft and tender organs, on the security of which life depends. Bones forming cavities of this class are generally so firmly united that they admit neither of no motion, and are not provided with a degree of it, the union being effected sometimes by the apposition of the surfaces of strong and flat bones; at other times by the formation of numerous prominences and depressions which mutually secure the bone. Examples of these two modes of union are found in the articulation of the bones of the head and face. The firmness of the union is sometimes increased by alternate indentations and projections, like the teeth of a saw, formed on the surfaces of the bones, the surface of one bone being precisely as similar to that of the other; by this mechanism the bones become firmly impacted, and deficiency in extent of contact is compensated by what may be truly called (and it is an admirable example) dentation, or the term given to this mode of union, and the bones of the cranium are nicely adjusted and firmly united to each other in this manner.

At other times a ridge is formed in one bone which is received by the other, and the whole part of the septum which divides the nostrils affords a specimen of this mode of union, while the teeth are secured in their sockets, that is, a conical surface is firmly impacted in a cavity, very much as a nail is fixed in a board.

2. The mode of articulation is also that by which the bones are in contact, but not continuous with each other; such, for example, is the union of the arm with the shoulder, the forearm with the wrist, the lower jaw with the lower jaw. In these cases the articulating surfaces are mutually adapted to each other, in general one being convex and the other concave, and the bones are maintained in their situation by the firm and strong membranes termed ligaments. Sometimes the union is assisted by the muscles which surround the joint, as is strikingly exemplified in the shoulder-joint, in which the head of the humerus is kept in contact with the cavity which receives it, partly, without doubt, by ligamentous substance, but still more by the surrounding muscles.

This is proved by the effect of disease; for if by paralysis, or by any other cause, the neighbouring muscles become very much weakened, dislocation of the joint readily takes place. Both the strength of the joint and the range of its motion depend mainly on the extent of its articulating surface, and on the arrangement of the ligamentous substance by which the bones are held in their situations. The extent of contact, and the strength and adjustment of the uniting band, are different in every different joint; they are regulated in every case by the kind and degree of motion which it is intended that the joint should exercise.

3. The mixed form of articulation resembles the immovable, in having the bones connected by a dense and strong substance (cartilage), and the movable in admitting some degree of motion between the surfaces. The articular surfaces between the several bones that form the spinal column are examples of this mode of union. These are some of the modifications of these several kinds of articulations, which
are described with great minuteness in anatomical books, and most of which are distinguished by specific names. 

ARTICULATION. [See Vecch.]

ARTILLERY, a word believed to be of French origin. Most of the old were artillery, to fortify. Vossius (De Vitis Sermonis, lib. iii. cap. 1) says the ancient word, instead of Artilleria, was Arcueia, from arcus, a bow; the earliest military engines of this description having arisen out of the art of archery. Both of these, in his most significant implication, signifies all kinds of missiles with the engines used in propelling them. Since the application of gunpowder to projectiles, it has chiefly been confined to large ordnance, or cannon, mortars, howitzers, and guns, to launch to be added; and includes their ammunition and appurtenances.

It was long after the nations of the East had formed war into a science, that military engines, such as are comprised in the term artillery, were invented. The earliest were, in all probability, those for casting stones of prodigious weight. Of Uziah (b.c. 1000), in 2 Chron. ch. xxvi. v. 15, it is said, 'And he made in Jerusalem engines, invented by cunning men, to be upon the towers and upon the bulwarks, to shoot arrows and great stones withal. And his name spread far abroad; for he was marvellously helped till he was strong.'

The chief, or Chauntra, or Balista, and Catapultia imply a Greek origin. The balista was for throwing stones, the catapulta for propelling darts and arrows. The invention of the latter of these instruments, or rather its re-invention, is ascribed by Pliny (lib. vii. 56) to the Syrians; but Diodorus (Plutarch) affirms (De Rerum Nat. lib. 4to. lib. i. 533) they were contrived in Sicily, about the same time with the battering-ram, alluding to a period not more than 300 B.C. Aelian (Var. Hist. vi. 12) ascribes the invention to Diocles the Elder himself in Sicily. The balista is attributed by Pliny to the Phoenicians. Both instruments were unquestionably much used in the Roman times: they are mentioned in Caesar, Cicero, Livy, Seneca, Tacitus, and other writers; and were employed in great numbers by Titus at the siege of Jerusalem. Two thousand machines for throwing darts and stones were surrendered to the Consul L. M. Censorinus when he marched against Carthage. (Appian, lib. viii. De Rebus Ponticis, § 80.) Ammianus and Vegetius are both particular in describing the construction of the balista. Vegetius, who lived in the fourth century, under Valentinian, speaks of balista, onagri, scorpiones, arcubalista, fusibilia, and fundas, as engines of artillery (lib. iv. c. 22).

We have no evidence that machines of this description were known in England previous to the arrival of the Normans. According to the testimony of William of Poictos, machines of wood (exclusive of the cross-bow) were used for piercing the crests of arrows of points with iron heads; so early were they introduced in the Norman times. It is worthy of notice, that among the tenants in capite in the Domesday Survey, balistarii occur as well as arcubalista. These were first employed, however, in battles; they were most frequently used in sea-fights, when not only stones and darts were discharged from the machines, but pots of Greek fire, quick-time, and other combustible materials. Robert of Bruce (in Peter Langtoft's Chronicle), speaking of Richard T's wars against the Saracens, says that in his bages and galleys he had mills, which were turned by the wind, and by force of the sails threw not only fire, but stones which were taken from the Rhine.

It is impossible to enumerate all the arts and all the machines which were employed in the middle ages in assaulting and defending towns and castles. Indeed few sieges of great importance occurred without the invention of some new engine. Grose, in the preface to his Antiquities of England, makes this a rule, 'probably a figure of a considerable number. Some of these were distinguished by the apppellations balista, catapulta, espingral, trebuchet, manguna, mangonel, bricola, petraria, matufanda, berfery, and many others. One, as mentioned in the acts of Edward I, was called engine-avirge, used by the English in France, as late as the reign of Charles VII. Of the vast force of these machines surprising stories are related in our chronicles.

The engines used by Edward I at the siege of Stirling Castle in 1303, according to Hemingford, threw stones of 200 pounds weight.

This antient artillery continued to be used in sieges for a considerable time, in some instances for two centuries, after the invention of gunpowder and cannon. (See Pére Daniel, Histoire de la Milice Française, tom. i. p. 319.)

Greek fire continued also to be employed in war long after the invention of gunpowder. The use of cannon was introduced in the reign of Henry III. in order to enable the English to defend strong places as at Ypres and Burburgh in France, in 1383. (Walsh. ed.Camb. pp. 302, 303.)

The invention of gunpowder, however, by slow degrees brought about a total alteration in the art of war. Barbour, in his Military Discourse, tells us that cannon (which he calls 'crakys of war') were used by Edward III. in his first campaign against the Scots, A.D. 1327. Du Cange, in the article Bombard, says that the French used cannon on Mont St. Cricq in 1328; and that Edward III. used them at the battle of Crewey, as well as at the siege of Calais in 1346, seems agreed. Four pieces planted on a little hill at the battle of Crewey did great execution among the French troops, and having been before unbelieved in France, contributed as much to the success of the battle as the slaughter to the success of the day. (See Rapin, vol. i. p. 425.) By degrees, the use of cannon became more and more common. Petrarch, in his Dialogues on the Remedis of Good and Bad Fortune, writes of cannon as no longer rare, or as viewed with astonishment and admiration.

Cannon, or, as they were then called, bombards, were the most ancient ordnance. The first of them were short, upright, and ill-contrived, wider at the mouth than at the chamber, and so like a mortar, that Dr. Henry supposed the idea of them might have been suggested by that in which Schwartz, a chemist of the beginning of the fourteenth century, who was said by the MSS. editor of his works to be the first who made gunpowder, used his materials. They were all made of iron, without any mixture of other metals; and consisted usually of bars or pieces of iron fitted together lengthways, and hooped with iron rings. Some of them were too long, and others of them too short. In a word, the art of making cannon was still imperfect.

Both gunpowder and cannon were made in England in the fourteenth century. This appears from a commission given to Sir Thomas Norwich by Richard II., A.D. 1378, to buy two great and two small cannon in London, or in any other place, and also to buy certain quantities of saltpetre, sulphur, and charcoal, for making gunpowder. (Rym. Fed. tom. vii. p. 187.) From the same commission, as well as from other evidence, it appears that cannon-balls were at first made of stone: for the same person is therein commanded to purchase six hundred balls of stone, for cannon, and for other engines.

Beside great guns, which are still named cannon, a smaller kind of ordnance called hand-cannon came into use at this period. They were so small and light that one of them was carried by two men, and fired from a rest fixed in the ground. (Père Daniel, tom. i. lib. 6, p. 321.) The 400 cannon, or the number mentioned in the treaty of Brétigny signed by St. Malo, A.D. 1378, mentioned by Froissart (Lord Berner's Transl. chap. cccxxii.), must have been of this kind: though Dr. Henry conjectures that these hand-cannon were first used during the thirteenth century, they are mentioned, accompanied Edward IV. in his return to England, A.D. 1471. The Scots, he adds, had a kind of artillery at this period peculiar to themselves, called cars of war. They are thus described in an act of parliament, A.D. 1455. 'It is thocht speidfull, that the kinge mak requisition to certain of those great barons of the land that are of any myght, to mak carts of weir, and in ilk cart twa gunnis, and ilk ane to have twa chalmers, with the remanent of the gun that effecteth thereunto.' (Rym. Fed. A.D. 1471, the prelates and barons are commanded to provide such carts of war against their old enemies the English. (Henry, Hist. Brit. from Black Acts, James II. act 52, James III. act 55.)

The invention of artillery of the middle of the fifteenth century, though all called by the general name of cannon, were of very different kinds, shapes, and sizes; and distinguished from each other by particular names. The small cannon with which the English at Agincourt were armed in 1418 for the resistance to invasion from Scotland speak of 'bumberods, canobes, culverynes, foweleres, serpentynes, et alias canones quoscumque, ac pulveres sulphureus, salpetre, petræa, ferrum, plumebus, etquinomidas alias sturera pro rursum ordinem necessarias et opportunas.' (Rym. Fed. tom. xii. p. 140.)

A French translation of Quintus Curtius by Vasques de Lucene, a Portuguese, written in 1645, preserved in the
British Museum, and which formerly belonged to Philip de Cluys, a Knight and Commander of the order of St. John of Jerusalem, has one or two early representations of the larger sort of cannon, which are here exhibited.

Monastrelet illustrates the clumsy form as well as the clumsy management of ancient cannon. Under the year 1459 he says, 'while King James (of Scotland) was observing the effect of his artillery (at the siege of Roxburgh Castle), one of the rudely-contrived cannons of that age, consisting of bars of iron, gilded with circles of metal, suddenly burst: a fragment struck his thigh, and the great effusion of blood produced a death almost instantaneous. The Earl of Angus, who stood next to James, was wounded.' Under 1478 he says, 'a great bombard, that had been cast at Tours, was brought to Paris the Monday before Epiphany to be proved, and was for this purpose drawn out in the fields in front of the battles of St. Anthony. It was pointed towards Charotrent, and when first fired threw the ball as far as the gallows on the bridge of Charovent; but as those present did not think it had discharged all the powder that had been put into the chamber, they ordered it to be recharged and the chamber perfectly cleaned of all that remained within it, which was done, and an iron ball, weighing five hundred weight, put into its mouth, before which stood John Maugré, the founder of it. As the ball rolled down the bombard, by some unknown accident the powder in the chamber took fire before the match was put to it, and by its discharge tore in pieces John Maugré and fourteen other persons, whose heads, legs, arms and bodies were blown into the air. The ball killed a poor innocent bird-catcher that was attending his nets in the fields, and the bursting of the bombard

maimed fifteen or sixteen others, several of whom died; so that by this accident twenty-two or twenty-three persons lost their lives. The remains of John Maugré were collected, put on a bier, and carried to St. Merry for interment; and proclamation was made through the streets of Paris, that all people should pray for the soul of John Maugré, who had lost his life in the king's service.' (Johnes's Monastrelet, 4to, vol. iv. p. 408-408.) In 1477, when Louis XI. made his attempt upon different towns of Flanders and Picardy, he ordered bombard of prodigious length and weight to be cast at Paris, Tours, Orleans and Amiens. His iron bullets were cast at the foundries at Creil, and his stone bullets made at the same time in the quarries near to Pontoise.

From one or two of the preceding passages, it will be observed that the ancient method of constructing cannon had been changed about the middle of the fifteenth century for that of cast-iron. Daniel (Annals, i. 450) tells us, that about the close of that period a hard and mixed metal was invented for this purpose, called fond-metal, or bronze. Cannon, it should seem, were now cast in one solid piece.

It is probably this same metal that Stowe alludes to in a passage of his Annales. He says, 'this year, 1535, John Owen began to make brass ordnance, as cannons, culverines, and such like. He was the first Englishman that ever made that kind of artillery in England; his issue of the same name and the name of Pitt have continued unto the days of King James most ready and exquisite gun-makers for the general service of the kingdom.' A beautiful specimen of this sort of ordnance, cast at Utrecht in 1644, and presented by the States of Holland to Queen Henrietta, is still preserved at Dover Castle. Other specimens, both English and foreign, a little later in period, may be seen at the Tower of London and in the Royal Arsenal at Woolwich, as well as in many of the foreign arsenals. The sizes of cannon, generally speaking, in the sixteenth century, were considerably diminished, and forms of greater elegance were given to their exterior.

Robert Borthwick, an artist in the service of King James IV. of Scotland, had attempted the establishment of a foundry at Edinburgh a short time previously. Some of his guns, which remained in Leary's time, had this inscription: 'Machina summ Scoto Borthwick fabricata Roberto.'

The largest cast cannon now existing is a brass one at Bejapoor, called Maleck 6 Medzin, 'the lord of the plain;' it was cast in commemoration of the capture of that place by the Emperor Alum Geer, in 1655. Its extreme length is 10 feet 1 inch; the diameter of its bore 3 feet 4 inches. An iron shot for this gun of proper size would weigh 1200 pounds.

For Mortars we are indebted to workmen who were employed by Henry VIII., and for cast-iron ordnance to the reign of Edward VI. Under the year 1543, Stowe says, 'King Henry, minding wars with France, made great preparation and provision, as well of munitions and artillery, as also of brasse ordnances, amongst which, at that time, by one Peter Bawde, a Frenchman born, as gun-founder, or maker of great ordnance, and one other alien, called Peter Van Colen, a gunsmith, both the king's chief men, who conferring together, devised and caused to be made certain mortar-pieces, being at the mouth from eleven inches to nineteen inches wide; for the use of which, the said Peter Bawde and Peter Cawtis was made certain hollow shot of cast-iron, to be stuffed with fire-work or wild-fire, whereof the bigger sort for the same had screws of iron to receive a match to carry three kindles, that the fire should burn on fire, for to break in small pieces the same hollow shot, whereof the smallest piece hitting any man would kill or spoil him. And after the king's return from Boulogne, the said Peter Bawde by himself, in the first of Edward the Sixth, did also make certain ordnaces of cast-iron, of divers sorts and forms, as fowcomet, fawkons, munions, sakers, and other pieces. Unto this Bawde, John Johnson, his covenant servant, surviving his master, did likewise make and cast an ordnance of the same kind, to be used against this land. His son Thomas Johnson is yet living, a special workman. In the year 1595 he made forty-two cast pieces of great ordnance of iron for the Earl of Cumberland, dumpy cannons, weighing 6000, or three ton the piece.' (Annals, Stowe, p. 21.)

It appears from Sir William Monson's Naval Tracts, that the Falcon was a species of ordnance of two inches and a
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half bore; weight of shot two pounds: that the Demi-Cul-terius was another kind, of four inches bore; weight of the shot nine pounds and a half; and that the Myson was another of three inches and a half bore; weight of the shot fourteen pounds. The Culerius was a species of ordnance of five inches and a half bore; weight of the shot seventeen pounds and a half. The Powder is not described by Monson, but is mentioned by Lodge in his Illustrations of British History, 1553, principally by means of petards. (See tab. ix. pp. 404, 405.)

According to Pére Daniel (cited in L'Art de Vérifier les Dates, tom. i. p. 655), red-hot balls, revived in 1782 at Gibraltar, were used by Marshal Matignon during the siege of La Pére in 1786. But we learn from Elham's Life of Hen. V., p. 156, that they had an earlier origin. He says, that when an English army, commanded by the Duke of Gloucester, besieged Cherbourg in 1418, the besieged discharged red-hot balls of iron from their canon, to use in the same manner a saximororum faucibus studuerunt emitterre) into the English camp, to burn the huts in which the soldiers were lodged.

The Howitzer, an improvement upon the mortar, is said to have been invented by Belidor, and was first used at the siege of Ath in 1697. The Cannone, a sort of short cannon, or rather long howitzer, was invented by General Robert Melville, about the year 1779.

The present sizes, varying in weight from sixteen to more than forty pounds, were invented during the last war by Sir William Congreve, and are now called Congreve Rockets. They were first used at the bombardment of Copenhagen, after the English batteries had taken the Bous-voir and Noma tills, then at Flushing, and subsequently at the battle of Leipzig. A rocket establishment now forms a regular branch of the British military service.

Among ancient engines of artillery the Battering-ram has been usually included, though it certainly is not embraced in the ordinary or in any other definition of that word. Pliny, whose authority in such a matter is small, says that the legionaries used the ruecieri in the time of Julius Cesar, and makes no mention of it. The first notice of this engine is probably in Ezekiel, where the prophet speaks of a feigned siege of Jerusalem as a sign for the Jews, ch. iv. v. 2: “And a ram will come forth, and a boar will go up and eat in the profound of the sea, that drinketh up streams, and drinketh the water of the rivers.” Ezekiel lived about 590 b.c. The next mention of the battering-ram is in the Peloponnesian war, b.c. 429 (Thucyd. ii. 76); and we are certain that it was used a century afterwards at the siege of Motya by Dionysius the Elder. The ram was sometimes used, but not commonly, in the middle ages. (For the present mode of making CANNON see that article, and for the mode of using them see GUN.

ARTOCRÆPÆ (or the Bread-fruit Tribe), a natural order of plants, nearly related to Urteceæ (the Nettle Tribe), from which it is so difficult to separate them by any precise character, that there are many who consider them nothing more than a section of Urteceæ. This opinion has been adopted by Dr. Lindley in his Nuxus Plantarum. Whether a distinct order, or a section only of Urteceæ, the genus of Artocræpus is known by its having flowers with a very imperfectly formed calyx, no corolla, leaves with conspicuous stipules, a rough foliage, and an acrid milky juice, which often contains caoutchouc in abundance; the flowers are collected into round heads, and the ovules are suspended singly from the upper part of the solitary capsule of the ovary. They are thus distinguished from true Urteceæ by the position of their ovules, the manner in which their flowers are arranged, and by their yielding a milky juice. There is also a species all found in the warmer parts of the world, and many of them are natives of the tropics only. Their milk, which is always acrid, renders some of them intensely poisonous, as the Usus tree of Java, and certain Indian species. It is also evident that the habit of Mr. J. L. Sower or Bakter, according to Monson, was a piece of ordnance of three inches and a half bore; weight of shot five pounds and a half.

The invention of Petards is due to the French civil wars. They were first used by the Huguenots in 1586, at the siege of Caibors in Quercy. (De Thou, tom. viii. p. 376.) Montelum and Enbrum in Dauphiné were taken by Leodigéere at 1633, principally by means of petards. (Ibid. tom. ix. pp. 404, 405.)

With those writers who are too little acquainted with botany to understand the philosophical views which prevail at the present day, it is a favourite argument against the natural classification of plants, that those which are called natural orders, that the nettle and the fig are both arranged in the same order; and such persons appeal to what they call common sense, whether any relationship between a fig and a nettle can be seriously believed to exist in nature. If, however, they were capable of investigating the matter carefully, they would find that in structure of stem, leaves, stipules, calyx, stamens, and fruit, these two plants are so like each other, that it is impossible to believe that one is to be distinguished from the other than by the fact that the calyx of the fig is composed of the position of the young seeds, by which they can be distinguished; and that the differences which meet the unpractised eye are entirely connected with the size and manner in which the flowers are arranged: which is only necessary to be so. The nettle, that is to say, the wild English nettle, is an herb, the fig is a tree; but many species of the genus Uritce, of which the common nettle is one, are trees also; consequence, that the extended point of the stem on which the fig are not essentially distinct in regard to their general habit. But if it were otherwise, the nettle would not be the less allied to the fig; for a tree is nothing but an herb which continues to grow many years; and longevity does not interfere with the identity of genus, and it is the want of the distinction which consists in size. Next, as to the manner in which the flowers are arranged. In the nettle the flowers are disposed in loose branched clusters; in the fig, they are collected with a flabby receptacle, which is so much contracted to a point as to form a hollow case. These extremes of structural difference in regard to arrangement; but intermediate forms of arrangement occur which reduce these differences to nothing. It is true that in the common nettle the flowers are disposed in loose branched clusters; but in the Roman nettle (Uritce æ pilifera) they are collected into round heads; a loose arrangement of the flowers is, consequently, not a character of even the near kind. In the Uritceæ the flowers are also collected into heads, and, in addition, the part which bears the flowers is pulpy. Here is one step towards the formation of the receptacle of a fig: in the genus Uritceæ, and among the Thistles, the flowers are also fleshy, but so much extended horizontally as to form a sort of saucer, the edges of which are curved inwards. This brings us so exceedingly near the receptacle of the fig, that if the edges of the saucer-shaped receptacle of Durstenia were only curved inwards till they met, its apparent fruit would actually be a fig: we say apparent, because, however strange it may seem to make such an assertion, there is, in fact, very little difference between the true fruit of the fig and the fig in both it consists of minute pericarpial grains, each containing a single seed; but in the nettle it lies among the dry chaff of the calyx and bracts, while in the fig it is buried among the flesh of the receptacle and succulent calyces.

The essential differences between a nettle and a fig are thus demonstrated to be much more apparent than real. We do not usually enter so much into arguments touching speculative opinions as we have on this occasion; but the objection, which we have thought it worth answering, is a popular one, which it appears desirable to set at rest in a popular work.

ARTOCRÆUS, or the Bread-fruit, is the genus which has given its name to the preceding natural order. It consists of trees having stems of very considerable size, large leaves, which are exceedingly rough with little points; stipules like those of the fig, and monocious flowers, of which the stamens are united and the ovules are disposed in small spikes (fig. A.3), and the pistill-bearing ones in round heads.
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(fig. A 3), which become the fruit and often arrive at a very considerable size (fig. A 4.)

A Bread-fruit is a fig turned inside out, and much larger in all its parts; that is to say, the flowers which form the Bread-fruit and fig grow, in both cases, upon a fleshy receptacle; but in the former the receptacle is solid and bears its flowers externally, while in the latter it is hollow and bears its flowers internally.

The stamen-bearing flowers of Artocarpus (fig. B, C) consist of a tubular calyx containing a single stamen; the pistil-bearing flowers (fig. D), consist of two or three fleshy sepals grown closely together and meeting at the points, between which passes a long slender style with two stigmas, which are hairy and curved downwards. The ovary is simple, and contains but one ovule. At a very early period their flowers grow firmly together into a solid fleshy mass, which finally becomes the fruit. The seeds are large nut-like bodies, which lie beneath the rind of the fruit.

Many species are known, some of which, as Artocarpus chaplasha and birosa, are large trees, and yield valuable timber in the forests of Bengal and Malabar. The only two, however, we propose to notice here are the Bread-fruit and the Jack.

but it must be eaten new, or it becomes hard and choky. Others compare the flavour to that of a roasted potato; what we have just been told of the bread-fruit has been thoroughly dried, and it was very like a piece of dried biscuit. In Anson's voyages it is said to be delicious when ripe, and, when mixed with lime or orange juice, to have a grateful tart flavour, unlike any other fruit.

It forms so important a part of the support of the South-Sea islanders that it was introduced by the British Government into the West Indies, where it is still cultivated, and whence it has been carried to the continent of America. It does not appear, however, equal to the Plantain as an article of human food.

The Jack (Artocarpus integrifolia) is also a native of the islands of the Indian Archipelago, and is in its general appearance the Bread-fruit, but destitute of all laceration, and its fruit, which is very prickly, weighs 60 or 70 lb. This latter is yellow, and constitutes the principal part of the diet of the natives in some parts of India; but it is said to have an offensive odour, and to be little esteemed by Europeans: all, however, concur in attesting the excellence of the nuts when roasted.

Like all other Artocarpous plants, this exudes a great quantity of a viscid milky juice, from which the best bird-lime of India is prepared. See the 2d volume of the series of the Botanical Magazine for an excellent account of both the Jack and the Bread-fruit, illustrated by figures, by Dr. Hooker.

ARTOUS, a former province of France, now comprehended in the department of Pas-de-Calais. While the old divisions of France existed, Artois was bounded on the N.E. by French Flanders, on the E. by French Hainaut and by Cambresis, and on all other sides by Picardie. Former authorities give its length as twenty-five leagues, or six nine miles, and its breadth as about half that distance; but, measured on the Map of France in Provinces, published by the Society for diffusing Useful Knowledge, it is eighty miles long N.W. and S.E., and forty broad. Artois is a flat country. The line of greatest elevation, as determined by the course of the waters, is from S.E. to N.W. On one side of this line, the Aa, and the Scarpe and Sene et Cambresis, are two tributaries of the Scheldt, flow to the N.E.; and on the other side the Canche and Authie flow, parallel to each other, into the English Channel. The soil is admirably suited for grain, in which it is very productive; but fruit trees do not succeed. Wood is scarce, and is used as fuel only by persons in easy circumstances. The poor burn coal or peat. The population, as given in the Encyclop. Methodeique, Paris, 1782, was 300,000.

That of the department of Pas de Calais, which comprehends Artois and a small part of Picardie, was, in 1826, 643,602.

The capital was Arras, and among the other chief towns were St. Omer, Bethune, Aire, St. Pol, Lens, and Bapaume. (For which see the articles Aire, Arras, Bethune, Omer, St. Pas de Calais, and Stol.)

Artois takes its name from the people who formerly inhabited it, the Atrebatens (from whose designation, also, the capital was called Arras); although the limits of this tribe were hardly so extensive as those of the modern province. It was one of the early acquisitions of the Franks; in whose time the name Atrebatens, applied to the city Arras, was corrupted into Adertes or Adratas, and the province seems to have got the name of Pagus Adretus. Charles the Bald gave it, in 863, as a dower with his daughter Judith to Baldwin, Count of Flanders, surname Bras de Fer, or the iron arm. It reverted to the crown on the marriage of Philip Augustus with Isabel of Hainaut in 1180. In 1236 it was made a county by Louis IX., in reward of his brother Robert. After coming to the house of Bourguigny, and forming part of the dominions of those powerful princes, it was seized by Louis XI. of France. Charles VIII., son of Louis, ceded it to the Emperor Maximilian, reserving however the feudal sovereignty; and it remained in the house of Austria till 1629, when it was yielded by Spain (for it had gone with the Spanish branche of that race) to France, with which it has been united ever since.

The ex-king of France, Charles Lebs (Artouste), was known in the early part of his life by the title of Count d’Artois. (Encycl. Methodeique; Diction. de Martinie, &c.)

Previous to the revolution, Artois appears to have enjoyed several privileges and immunities. It had its council for the management of civil affairs, consisting of three constituent bodies, the clergy, the nobility, and the commons
This examination is undergone by those students who have been matriculated at one of these last named schools, and who, at the end of the preparatory course, would be ready to be admitted to the degree of Bachelor of Arts; and that the opinion of some persons, would be more appropriate if enforced at the time of the student's admission to the university.

II. In a final examination, comprising—1. The rudiments of religion, under which head is required a competent knowledge of the gospels in the original Greek—of the history of the Old and New Testament—of the thirty-nine articles of the Church of England—and of the evidences of the truths of religion natural and revealed. 2. The Literae Humaniores, under which head is comprised a sufficient acquaintance with the Greek and Latin languages and ancient history—wit rhetoric and poetry—with moral and political science, which are also to be made intelligible to the student. 3. The mathematical sciences, as illustrated, if need be, from modern authors; with logic (which is indispensably required from all candidates for the first, second, or third classes), and with the art of composition. 4. The elements of the mathematical sciences and of physics.

With regard to the examination in some parts of the Literae Humaniores, and in the elements of the mathematical sciences, and of physics, the examiners have a discretionary power. Now the examination in mathematical science is indispensable; and a man may obtain the highest honours and still be totally ignorant of these branches of learning. They are however bound to examine all candidates in at least two of the first four of logic, or the first four books of Euclid, and to ascertain their sufficiency in translating from the English into the Latin language. With respect to the rudiments of religion, they possess no discretionary power; and any failure in this part of the examination must preclude the candidate from his degree, without any regard to his other attainments.

After the candidates have been examined, the names of those who have honourably distinguished themselves by passing a good examination are inscribed in the books, and the pass necessary for the mere degree, are distributed, in alphabetical order, into four classes, together with the names of their colleges, under the two divisions of Literae Humaniores and Discipline Mathematicae et Physicae. A fifth class gives the names of those who have obtained their testimonium, who have obtained their testimonium, are not deemed worthy of any honourable distinction. Printed copies of the schedule containing these classes are sent to the chancellor, to the vice-chancellor, to the head of each college, and to the rector and common room of each college hall.

In Cambridge, those who proceed to the degree of B.A. also undergo a previous examination (known in ordinary conversation as the preliminary), the subjects of which are, one of the four Gospels or the Acts of the Apostles, in the original Greek; Paley's Evidences of Christianity; and one of the Greek, and one of the Latin classics, or a part of such books.

The next step is termed the keeping of an act, under a moderator. [See Act.]

The Senate-House Examination, which follows in the fourth year, is conducted under other regulations. This examination is now extended to eight days.

The examination of those who contend for Honours is conducted according to regulations confirmed by a grace of the senate, April 6th, 1839, and which were introduced into use in January, 1833. It consists in five days of examination in mathematics, commencing on the Thursday preceding the first Monday in Lent Term; the time of examination each day being five hours and a half, and the candidates being arranged in four classes, determined by the public exercises in the schools, and sometimes by the report of their college tutors. [See Act.] The examination on the first day extends only to such parts of pure mathematics and natural philosophy as are the methods of the differential calculus. On the second and third days, the questions from books include, in addition to the above subjects, the parts of natural philosophy somewhat more advanced, and the simpler applications of the calculus. The fourth day the examination extends to subjects of greater difficulty, care however being taken that there be some questions suitable for the lower classes. On the fifth day the classes are arranged for examination according to a settled plan, when the questions proposed to all the classes
are fixed upon by the moderators and examiners in common; but the duty of examining the answers to the questions is apportioned amongst the moderators and examiners as the plan directs. The result of the examination is published in their drawing-room on the following Friday at eight o'clock, when the names of all those who have obtained honors are arranged in brackets, as it is termed, the first bracket of course containing the names of those who occupied the honors. If the number of those who are to enter the first bracket, which is nearly always the case, the places of such candidates are finally determined by a fresh examination on that day.

The examination of the other candidates for degrees, viz., the fifth and sixth classes who are not candidates for honors, takes place according to another plan, confirmed by grace of the senate, May 21, 1828.

Of the six examiners of these candidates, two confine themselves to the best mathematical subjects; two to Homer and Virgil; and two to Paley's Evidences, Paley's Moral Philosophy, and Locke's Essay on the Human Understanding.

The examination is conducted entirely by printed papers. Each of the Euclid papers contains twelve propositions, selected from the first four books, with additional questions in the fifth, sixth, and eleventh books, and in trigonometry, and solid geometry. Each paper in arithmetic and algebra consists of questions entirely elementary: to which are annexed questions in the elementary parts of natural philosophy, at the discretion of the examiners. The papers in Homer and Virgil consist of passages, which may be accompanied with such plain questions in grammar, history, and geography, as arise immediately out of those passages. The examiners are strictly enjoined to take care that the number of questions to be answered, and the length of the passages to be translated, in any one paper, do not exceed what a person well prepared may be expected to answer and translate in the time allowed.

Upon the conclusion of the examinations both of those who contend for honors, and of the others, a select number, thirty at least, of those who have most distinguished themselves in the first four classes, are recommended to the provost for their approbation, and their names are set down according to merit, and classed as the three divisions, viz., wranglers, senior optimes, and junior optimes, which constitute the three orders of honour; the fifth and sixth classes are also arranged numerically according to merit, but are not published in the Calendar. The candidates, having separately taken the oaths of allegiance and supremacy, and to observe the statutes of the university, and having also subscribed that they are bond fide members of the Church of England, are admitted to their degrees.

It is not necessary for an examination in classical learning of such persons as shall voluntarily offer themselves to be examined, follows on the fourth Monday after the general admission to the bachelor's degree. The candidates are required to translate passages selected from the best Greek and Latin authors, as well as written answers to questions arising out of such passages; together with other exercises, but no original composition. The names of those bachelors who pass this examination with credit are arranged in three classes according to their respective merits.

Sixteen terms are required for the degree of bachelor of arts in Oxford from all except the sons of the clergy and minor benefactors, and the eldest sons of baronets and knights, when matriculated as such, and not on the foundation of any college; all such persons are allowed to be candidates for the degree after having completed three years. But of these sixteen terms, the day of matriculation, if it be in term, counts for one, and the day of admission to a bachelor's degree for another, and the term is counted once by matriculation and once by promotion; so that, in point of fact, residence for twelve terms is not necessary.

In Cambridge, a bachelor of arts must also reside the greater part of twelve terms, the first and last excepted.

Both Universities, the degree of M.A. is conferred without further examination. In Oxford, twelve terms are computed before the bachelor can be admitted M.A., though he is required to be actually resident for one term only.

In Cambridge, a master of arts must be a bachelor of three years' standing, reckoned from the second Tripos Day following his admission to the bachelor's degree.

Bachelors of arts in both Universities, though graduates, are considered to be in situam pupillaris, that is, they are still under the control of the statutes and control of the under-graduates, except attendance on college lectures.

The legislative bodies of the Universities consist of those who are masters of arts or who have taken a higher degree.

Masters of arts are not all of the same stature. Some are in Prince's stuff, with a semicircular cut at the bottom of the sleeves. The Oxford hood, for a master, is of black silk lined with crimson. At Cambridge, if the master is a non-regent, he wears a silk hood entirely black; if regent, he is hooded black with white. The Bachelors of both Universities wear black gowns of Prince's stuff; that of Oxford is with a full sleeve, looped up at the elbow, and terminating in a point. At Oxford, the bachelor's hood is edged with fur; at Cambridge, it is lined with lamb's wool. Representations of these dresses may be seen in Ackermann's 'History of the Unive. of Oxford,' 40. Lond. 1814, vol. ii. p. 391; 'Hist. of Camb. 40. Lond. 1815, vol. ii. p. 310.

For further information on the education of Oxford and Cambridge, particularly with reference to the degree of B.A., the fees, &c., see Journal of Education, Nos. I. III. IV., V. X. V. XII.; and on the Scotch Universities, Nos. VII. VIII. IX.; and also the Oxford, Cambridge, and Dublin Calendars.

ARTS. FINE. The fine arts are generally understood to comprehend those productions of human genius and skill which are more or less addressed to the sentiment of taste. They were first employed in embellishing objects of mere utility, but their highest office is to meet our impressions of beauty or sublimity, however acquired, by imitation or adequate representation. The capacity of the human mind for receiving such impressions, whether directly from nature or through the medium of the arts, depends greatly on civilization, and that leisure which supposes that first wants are satisfied; but an arts not entirely independent of the social, however ignorant, in which some symptoms of taste and some attempts to arrest the beautiful are not to be met with: the difference between such efforts and the most refined productions is a difference only in degree; the fact of the existence of the arts in some form may be always taken for granted, and it would only remain to regulate their influence and direct their capabilities afloat.

The arts are peculiarly interesting as human creations. They are composed of nature operating on human sympathies, and reflected through a human medium; and as nations, like individuals, present ever-varying modifications, so the free growth of the fine arts partakes of all these varieties, and many of them are directly connected with its development; to its developing causes whatever they may be, and nurtured in the first instance by the soil from which it springs.

In barbarous or degenerate nations, the sentiment of the beautiful has been obtained only on the negative side, while a false excitement, founded on the suppression of the feelings of nature, may be said to have usurped the place of the sublime. We smile at the simple attempt of the savage to excite admiration by the gaudiness of his attire; but we should shudder to contemplate the scenes which his fortitude or obduracy can invest with the attributes of sublimity. The just value of life, the characteristic of that civilization which reduces the defensive passions to their due limits, at the same time increases all the sources of gratification by pointing out the pleasures of the mind as distinguished from those of sense; and the perception of the beautiful is in its turn the cause, as it is in some degree the result, of the rational enjoyment of life.

The great use of the arts is thus to humanize and refine, to purify enjoyment, and, when duly appreciated, to connect the perception of physical beauty with that of moral excellence. In this respect it is one by one by one by one, that at all times when the greatest style of design has been practised with success, and particularly when the human figure has been duly studied, the taste thus acquired from the source of the beautiful has gradually influenced all kinds
of manufactures. Again, as illustrating science, the fine arts may be directly useful in the strictest sense, but this is not the application which best displays their natural and inalienable value. The essence of the arts, in short, begins where utility in its narrow acceptance ends. The abstract character of ornament is to be useless. That this principle exists in nature we immediately feel, in calling to mind the merely beautiful appearances of the flowers, the adornments of the frog and the peacock, the coloring of flowers. In every case in nature, where fitness or utility can be traced, the characteristic quality or relative beauty of the object is found to be identified with that fitness; — a union imitated in art, in so far as possible, in the less decoratively and in the less ornamental parts of a chair or furniture, &c.; but where no utility save that of conveying delight (perhaps the highest of all) exists, we recognise the principle of absolute beauty. The fine arts in general may be considered as the reproduction of that principle; the devotion of their utility therefore resolves itself into the inquiry as to the intention of the beauties of nature. The agreeable facts of the external world have not only the general effect of adding a charm to existence, but they appeal to those susceptibilities which are peculiarly human, and it becomes necessary to separate the instinctive feelings which we possess in common with the rest of the creation, from that undefinable union of sensibility and reflection which constitutes taste, and which, when it enlists the imagination as the auxiliary of beauty, is, in its highest influence, less allied to love than admiration. It is this last feeling which the noblest efforts of the arts aspire to kindle, in which not only the beauty of the beautiful, but the fear of god, produces that idea of fear and danger to the lofty sentiment of the sublime, which, as its objects become worthier, is the link between matter and mind, and which tends to ennoble sympathy and increase self-respect. As regards the classification of the arts, those are generally considered the most worthy in which the mental labour employed and the mental pleasure produced are greatest, and in which the manual labour employed and the labour of whatever kind that last would justly place poetry first; but the criterion should not be inconsiderately applied; for in architecture, where human ingenuity is most apparent, and even where the design is very simple, a powerful union of beauty and utility is required, and a certain method of proportion, or other causes. In such cases, however, it will still be evident that we lose sight of the laborious means in the absorbing impression of the effect, and the art loses its dignity. It would be an invincible dross as well as a very difficult task to assign the precise order in which painting, sculpture, architecture and music, would follow poetry and its sister, eloquence; but it may be remarked, that the union of the two is the most hazardous experiment of their effect. This is most observable in the attempts to combine the principles of sculpture and painting. The drama itself, which unites poetry with many characteristics of the formative arts, and with the union of the acting and the dramatis personae, the first principle of style, viz., the consistency of its conventions; and in the more intimate union of poetry and music, the latter, though the inferior art, is too independent and too attractive to be a mere vehicle, and accordingly usurps the first place. (See The Arts above-mentioned under their respective heads.)

ARUNDEL. [See Aris.]

ARUNDEL, a borough town in the rape of Arundel, in the county of Sussex, on the river Arun, a short distance from the sea; 55 miles S.W. from London, and 10 E. by N. from Chichester. It stands on a declivity on the N.W. bank of the river, the course of which is very winding in this neighbourhood; 50° 51' N., lat.; 0° 32' W. long. The houses are tolerably well built, and the streets paved. The trade of the place is not very great, though vessels of 150 tons can come up to the town, and a canal up to the church in which it stands with the Wey, a feeder of the Thames. There is, however, a good deal of bark shipped, as well as much timber for the use of the dockyards. The custom-house being at Arundel keeps up this house, and pays the duty thereon. It is, however, drawn away to Little Hampton, about four miles distant, on the east bank of the Arun, at its mouth. The population of Arundel in 1831 was 2803. The number of houses rated to the house tax at 10l., and above, was 150; the number of houses was 537. Twenty of which were uninhabited. There are two weekly markets (Wednesday and Saturday), and four annual fairs (May 14, August 21, September 25, and December 17), chiefly for cattle. There is also a theatre.

A neat arch, three arches, over the Arun, unites the main part of the town with a smaller portion which lies on the opposite bank of the river. The church is a handsome Gothic structure, built partly of flint and stone, in the form of a cross, and mostly in the perpendicular style. From the top of the tower, the view is extensive. The chancel has a north aisle, and contains many monuments of the former owners of the castle and others. It is now shut up, and in a very dirty, dilapidated state; but the nave and transept are in tolerable repair and clean. A pulpit of stone, supported on wood, standing against the south-west pier of the cross, was till lately used in divine service. This church belonged originally to the priory of See, in Normandy; but the priory was suppressed in the time of Richard II., and a chantry, or college, for a master and twelve secular canons, with other officers, was founded in its place. Southward from the church is a range of buildings, seemingly founded on the ruins of an antient structure, which was perhaps the habitation of the above-mentioned canons. A hospital, called 'Maison Dieu' (God's House), was founded in the time of Richard II., by one of the Fitz Alans, for the maintenance of a many poor as its revenues would permit. It was suppressed at the Reformations, and when its income was estimated at 42l. 3s. 6d. per annum.

The most striking feature in Arundel is the antient castle, which gives to its possessor (now the Duke of Norfolk) the title of Earl of Arundel. This instance of a peerage attached to the tenure of a house is now an anomaly. In Henry III. the county was divided, the Fitzalan, Earl of Arundel alone, without any creation, patent, or investiture, constituted its possessor Earl of Arundel. (Nicolai's Synopsis of the Peerage, 27; Cruise's Digest, 3 vols. 122; Report of the Lords' Committee respecting Peerage, 1820.) In 3 Charles I. the Earl of Arundel, as Speaker of the House of Commons, on the dissolution of Parliament, intituled, 'An Act concerning the title, name, and dignity, of Earl of Arundel, and for annexing of the castle, honor, manor, and lordship, of Arundel, in the county of Sussex, to the Fitzalan, Earl of Arundel; and for making the said Fitzalan, Chun, and Oswealdstre, and Maltravers, with divers other lands, tenements, and hereditaments, in the Act mentioned, being then parcel of the possessions of Thomas, Earl of Arundel and Surrey, Earl Marshal of England, to the same title, name, and dignity, of Earl of Arundel.' (Report of the Lords' Committee respecting Peerage, p. 374.)

The castle stands high, on a steep circular knoll, partly natural, partly artificial, close to the town, and commands an extensive prospect over the low flat country towards the sea as far as the Isle of Wight. It has been supposed that the sea once washed the castle walls, as among its old arms it is attributed to the Fitzalan, and by divers writers, including amongst them Sir Walter Raleigh and Sir John Aubrey. After the Norman Conquest, it was given by William I. to his kinsman Roger de Montgomery, created Earl of Arundel and Shrewsbury. Robert, one of the successors of this earl, supported Robert Duke of Normandy, the eldest son of William I., against Henry I., the youngest son of the Conqueror. Afterwards the castle passed into the family of Albini, from them to the Fitz-Alans, and at last, by the marriage of the heiress of this race with Thomas Duke of Norfolk (in the reign of Elizabeth), into the family of the Howards, by whom it is still retained.

In the civil war between Charles I. and his parliament, Arundel castle was held and garrisoned by the latter. It was, however, taken by Lord Hopton in 1643, surrendering to him at the first summons, as it was suddenly retaken by Sir William Waller. From that time it continued little better than a mass of ruins, until it was restored by the late Duke of Norfolk to its antient magnificence. It was then in a worse state than it is now. It has been demolished on this occasion. The modern parts are in the Gothic style, built of freestone; and stones of a brown cast were selected, in order to accord better with the remaining parts of the same fabric.

The castle is surrounded on the N. and W. sides by a deep ditch. The entrance gateway, antiently defended by a drawbridge and a portcullis, was built by Richard Fitzalan
in the reign of Edward I, and repaired and restored by one of his successors. This, with some of the walls and the keep wall, and butt of the inner wall of the keep of a circular stone tower 68 feet in diameter, and the most perfect in England. In the middle of it is the dungeon, a vault about 10 feet high, accessible by a flight of steps, and about 14 feet in diameter. The keep has been long tenanted by some of the large size and beautiful plumage, sent over from America, as a present to the late duke. Among the interior apartments of the castle may be mentioned the magnificent library, calculated to contain 10,000 books, and a vault from which was derived the male of a Gothic cathedral; the ornamental parts are in imitation of the cloisters at Gloucester, and St. George's, Windsor. It is 122 feet long, and 30 feet wide. The ceiling, columns, &c., are entirely of oak. The hall called "Barons' Hall," was begun in 1806; it is 70 feet by 34, and 36 feet high. The roof is of Spanish chestnut, curiously wrought, and the plan is taken from Westminster, Eltham, and Crosby Halls. There is at one end a window of stained glass, representing King John signing Magna Charta. In a series of thirteen stained glass windows are portrayed the figures of some of the barons from whom the late Duke was descended; and there are portraits of his family. In the dining-room is a handsome stained glass window, representing the late duke and duchess as King Solomon and the Queen of Sheba at a banquet; and a painting by Le Brun, of Adam and Eve in Paradise, in imitation of Inness' "Resurrection," &c.

The park is very extensive and finely wooded, including a great variety of picturesque scenery. In the Museum Rusticum, i. 85, we are informed, that the country round Arundel was annually visited by the baron and baroness, and their officers. The mayor is chosen annually at the court leet of the lord of the manor, and is a justice of the peace within the borough. The town has been represented in parliaments ever since 1563, and the electors of the borough was in the inhabitants paying scot and lot; and up to the passing of the Reform Bill they returned two members. The Duke of Norfolk having fixed his residence at the castle, and made considerable alterations in the town, required the power of influencing the return of both members. By the Reform Bill the number of representatives was reduced to one; but the boundaries of the borough (which are coincident with those of the parish) remained unaltered, those of the county containing five parishes, and those of the borough, in their report, to add the parishes of Leonminster and Little Hampton, which would have swelled the population to 5639 persons. The proposal of the commissioners met, however, with a remonstrance from the House of Commons, which was appointed to consider their report, and a surveyor sent down from London to make a fresh examination. Upon his report the house acted, and abstained from any alteration in the boundary. The living is a discharged vicarage, in the diocese of Chichester. Arundel is the seat of a deanery, and gives name to one of the rapes* into which Sussex is divided. This division is of Saxon origin, and the name is peculiar to Sussex.

The river Arun, on which the town stands, rises in St. Leonard's Forest, in the northern part of the county. Its course is not less than forty miles. It is famous for the grey mullets (which, in the summer, come up to Arundel in large schools in quest of a prey more suitable to their feeding on which renders them a great delicacy); and also for eels.

See Beauties of England and Wales; Neale's Views of the Seats of Noblemen and Gentlemen; Pennant's Tour from London to the Isle of Wight; Rickman's Gothic Architecture; Dallaway's History of the Western Division of Sussex.

ARUNDEL MARBLES. Certain pieces of sculpture, containing inscriptions of ancient statesmen, butts, mutilated figures, &c., remains of a more extensive collection, formed in the early part of the seventeenth century by Thomas Howard, EARL OF ARUNDEL, and presented, at the suggestion of John Evelyn, in 1667, to the University of Oxford by Mr. Henry Howard (afterwards Duke of Norfolk), the Earl of Arundel's grandson.

By Thomas Howard, Earl of Arundel and Surrey, the founder of this collection, was the only son of Philip, first Earl of Arundel of his family, by Anne, sister and co-heir of Thomas, the last Lord Duke of Gilsenland. The year of his birth is fixed by Sir Edward Walker, in his Historical Discourses, to the year 1574, and he was derived from the male house of the earls of Arundel. He was under the eye of his mother, with whom he lived, in the latter years of Elizabeth's reign, in privacy. He had at that time, by courtesy, the title of Lord Maitravers, a barony which had been derived from the barony of Maitravers, in the county of Kent, by one Fitzalan.

In 1605, soon after James's accession, he was restored in blood by act of parliament, and to such honours as he had lost by his father's attainder, as well as to the earldom of Arundel and Surrey, and the barony of Maitravers, which had been forfeited by the attainder of his grandfather, Thomas, third Duke of Norfolk. The dukedom itself was detained from him. Lodge conjectures that the Earl of Suffolke, Lord Arundel's uncle, who was then in favour, might have prevented that grace, with the hope of obtaining a revival of it in his own line, in the event of the young earl's death without issue.

When Lord Arundel came of age, he married Alatheia, third daughter and co-heir of Gilbert Talbot, Earl of Shrewsbury; a match of great advantage, as her two elder sisters, the countesses of Pembroke and Kent, dying childless, she ultimately inherited the most part of her father's noble revenues.

In 1607 the Earl of Arundel was sworn of the privy council; and on the 17th of June that year, the king stood godfather in person to his first-born son. He soon after travelled into France and Italy, a journey which his untoward and melancholy end unhappily prevented; and during his stay in those countries there were so many opportunities for the fine arts by which he was afterwards distinguished.

He remained abroad till 1611, and on his return was made K.G. The marriage of the Princess Elizabeth to the Elector Palatine, after the death of his grandfather, is reported to escort them to their dominions. Finding himself once more on the continent, he went again into Italy, and at that time began to form his celebrated collection. When he returned to England in 1614, the monks of the Abbey of Westminster were in the hands of the Church of England; for he had been a Roman Catholic in the strictest austerities of that persuasion. In 1621, upon Bacon's removal, he was made one of the commissioners for holding the great seal; and, in the same year, appointed, or rather restored, to the place of Earl Marshal of England.

King Charles I, upon his accession, continued him in this last office, and showed him several other indications of favour; but the Lord Maitravers, having married the Lady Elizabeth Stuart, sister of the Duke of Lenox, who was related to Charles, the king showed his resentment by an act of violence, which he himself committed. However, in 1625, the king's intention to marry this lady to Lord Lorne, the son of the Earl of Argyle, and so to reconcile the ancient feud between those two powerful Scottish houses. Lord Arundel was committed, together with his lady, to the Tower, solely by the authority of a royal warrant, in which his offence was not stated. The Lords, however, continued firm in his defence, and after a contest which lasted nearly three months, he was set at liberty on June 8, 1626.

After the assassination of the Duke of Buckingham, the Earl of Arundel, who had been the duke's enemy, came again to court, and soon acquired a considerable share of favour and confidence. In 1632 he was appointed commissioner to examine into the extravagances of the King, was elected a member of the House of Commons, and acted in courts of justice and public offices, and in 1633 attended the king at his coronation in Scotland; in the same year he was appointed ambassador extraordinary to the States general, and was made chamberlain of the crown of North of Trew. But his most important public service about that period was in an embassy, in 1636, to the Emperor Ferdinand II. and the Imperial Diet, on the subject of the restoration of the papal states, a post to which he was several times appointed, and was the only minister of the king's nephew; a measure which the king had to entirely at heart, that he could not have given a stronger proof of his confidence in the earl's wisdom and fidelity, than by intrusting it to his management. The mission, however, proved a failure, and Charles, having passed the winter of 1636-37 in Germany, during which he expended not less than 40,000L. from his own private fortune in augmenting his already

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When Lord Arundel determined to collect a gallery of statuary, he retained two men of letters for that purpose. The well-known Sir Thomas Elyot was sent to Rome, and Mr. (afterwards Sir William) Petty was despatched to study the antiquities of Greece and the Morea. In the islands of Paros and Delos, Petty's indefatigable researches were rewarded with ample success, when, on his voyage to Smyrna, he was shipwrecked on the coast of Asia near Samos, and escaped only with his life. At Smyrna he acquired many marbles of great value, particularly the celebrated Parian Chronicle. Still the jealousy of Villiers was excited, by interrupting Lord Arundel's pursuits, and the delight of his return was marred by the sad news that Sir Thomas Wyatt, the ambassador at the Porte, and consequently obedient to the minister, was directed to purchase beyond Petty's ability, and to withhold him every assistance in his diplomatic capacity which might be necessary for the completion of his labours.

Lord Arundel having assembled in his gallery various acquisitions from Greece and Rome, adopted the following arrangement of his marbles: the statues and busts were placed in the gallery; the inscribed marbles were inserted into the wall of the garden of Arundel House; and the inferior and mutilated statues decorated the garden itself.

We learn from catalogues, that the Arundelian collection, when entire, contained 37 statues, 128 busts, and 250 inscribed marbles, as well as vases, altars, and fragments, and the inestimable gems.

Pescham, in his Compleat Gentleman (the second edition of which was published in 1634), says, 'I cannot but observe, that Sir Thomas Howard, lord high marshall of England, fetched from the East Indies, for his noble patronage of arts and antient learning, as for his birth and place; to whose liberal charges and magnificence this angle of the world owes the first sight of Greek and Roman statues, whose admired presence he began to honour the gardens and galleries of Arundel House, and hath ever since continued to transplant old Greece into England.'

In 1642, when Lord Arundel left his country, Lord Oxford says he transported himself and his collection to Antwerp: Dallaway says (what was no doubt the truth) that this noble collection, pictures, and curiosities, only remained there. In the general confiscation made by the parliament, the pictures and statues remaining at Arundel House were in some measure included. Many were obtained by Don Alonzo de Cardenas, the Spanish ambassador to Cromwell, and sent into Spain, with the wrecks of the royal collection.

When Lord Arundel died, he divided his personal estate between his eldest and second surviving sons, Henry Frederick Lord Maltravers, and William, afterwards Viscount Stafford. Henry, second son of the former and sixth Duke of Norfolk, was born to the eldest son in 1749, and was influenced by the previous recommendations of Selden as well as Evelyn, gave a part of his moiety (the inscribed marbles) to the University of Oxford; the remainder devolved to his son Henry, the seventh duke, and were afterwards mostly possessed by his divorced wife.

Arundel House and gardens were converted into streets about the year 1678, when it was determined to dispose of the statues by sale. It was proposed by the agents to sell the whole collectively, but no purchaser could be found. A division was in consequence made. One portion, consisting principally of busts, was purchased by Lord Pembroke; these are now at Wilton. A second was purchased by Sir Robert Walpole, and a third was purchased by Lord Craven, who removed them to his seat at Easton Neston in Northamptonshire, where such as were capable of being repaired had their defects amended and supplied by one Gueff, an artist who misconceived the character and attitude of every statue he attempted to model, and the greater number of those which he was permitted to touch. Henrietta Louisa, countess dowager of Pomfret, in 1755, transferred these marbles also to the University of Oxford, and was the first to purchase those which Sir Robert Walpole had purchased from Lord Arundel, and encouraged by Villiers, who was glad to make the king a competitor in purchases, that Charles I. was originally induced to study and encourage the arts.
Cuper's Gardens. Here they continued till about the year 1717, when Mr. John Freeman, of Fawley Court, near Henley, in Oxfordshire, and Mr. Edmund Waller, of Beaconsfield, in Buckinghamshire, invented them, after observing something masterly in the designs and drapery of several, and that they were fragments of very curious pieces of sculpture, agreed for the purchase of them at the price of 75s. each to Mr. Freeman, and the other to Fawley Court. A few statues and broken fragments were given to a Mr. Arundel, a relation of the Duke of Norfolk, who rented a waste piece of ground on the opposite shore of the river, which afterwards became a timber-yard; one or two of these were also given to the Earl of Furlington, and went to Chiswick House. A few elegant remains were carried to Mrs. Temple's seat at Moor Park, near Farnham, in Surrey. Various other fragments, which were not thought worth removing, were built in the rubbish and foundations of the houses in the lower parts of Norfolk Street, and other buildings on the gardens. Several of these, including a few trunks of statues, dug up at a later time, were sent down to the Duke of Norfolk's seat at Workseap Manor. The divorced Duchess of Norfolk, by whom the busts and statues were sold, also possessed the cameos and intaglios, and bequeathed them, at her death, to her second husband, Sir Charles Spencer, of Houghton, Norfolk. Several intaglios, who valued them at 10,000l., offered them, about 1755, for that price to the curators of the British Museum, who were not in a situation to bestow so large a sum upon the purchase of such small objects. They hesitated, however, upon her marriage with Lord Charles Spencer, from whom they passed to his brother the Duke of Marlborough; and are now known by the name of the Marlborough Gems.

Sir William Howard, when afterwards Lord Stafford, succeeded to a house built for his mother, the Countess of Arundel, by Nicholas Stone, in 1638. It stood near Buckingham Gate, and was called Tart Hall. The second share of Lord Arundel's curiosities was deposited there, and produced statues in 1720, 88.51, 9. 116th, and the house was soon after levelled with the ground. This information appears upon the minutes of the Society of Antiquaries. A single article, an ebony cabinet, painted by Polenberg and Van Bassen, was purchased by the Earl of Oxford for 310l. Dr. Mead bought at this sale Lord Arundel's favourite bronze head of Homer, which is introduced into his portrait by Vandyke; at Dr. Mead's sale it was purchased for 136l. by Lord Exeter, who gave it to the British Museum, where it is now considered as a head of Pindar. Lord Orford says, the coins and medals of the Arundel collection came into the possession of Thomas, Earl of Winchelsea, and in 1696 was sold by his executors to Mr. Thomas.

The greater part of the Greek inscriptions in the Arundel Collection now at Oxford were obtained, as has been already noticed, at Smyrna, where Gassendi says the celebrated Peiresc, who was engaged in similar pursuits, had first discussed them with the second son of the second son of Peiresc's factor, had sold fifty crowns for the curiosities, but the Turks having seized on Samson and his collection, with a view to obtain a higher price, the Earl of Arundel commissioned Mr. Petz to redeem the whole. They arrived in England in 1627, soon after which, at the suggestion of Sir Robert Cotton, they were carefully examined by the learned Selden, in conjunction with two other eminent scholars, Mr. Ussher and Mr. Boyle. In 1664, publishing his Monument, Monum, a thin quarto volume, in which twenty-nine Greek and ten Latin inscriptions of this collection are deciphered and illustrated. The Arundel inscriptions were, at first, let into the wall which surrounds the Sheldonian theatre, each marked with the initial of the name of Howard. They were, however, soon increased by the accession of Selden's private collection, and some other donations; so that the whole amounted to 150 inscribed marble, including tables, altars, dedications, alabaster plaques, &c. Certain letters of the old edition of the whole was undertaken, at the desire of Dean Fell, by Mr. Humphrey Prideaux, then student of Christ Church, but afterwards dean of Norwich, which appeared under the title of Marmora Arundeliana, Seldeniana, and Vindiciae Literae Graecae; fol. 1676. They were edited with great care, and illustrated by the annotations of the editor, Selden, Lydiat, and others. This work was re-published fifty-six years afterwards by Michael Ma气质, under the title of Marmora Arundeliana et Seldeniana, et aliorumque Academiae Oxoniensis donorum; cum parvis Commentariis et Indice, Secunda Edito, fol. Lond. 1732, with great augmentations as to comment. An Ap- pendix, in Dutch, consisting of some of these, which was given to the University, was published in 1733, fol. In 1763, the Marmora Oxoniensis were again published in a new and splendid form, under the auspices of the University, by Dr. Richard Chandler of Magdalen College; including the ancient inscriptions preserved by Sir George Wheeler and Messieurs Daukes, Bouverie, and Wood, during their travels, some of which Dr. Richard Rawlinson possessed, and a few others; with engravings of statues, busts, and other curiosities, to the number of 173 tetrads. They are prolonged to that part of the Arundel Collection which the countess dowager of Pomfret had given to the University. The Greek inscriptions of this collection, Ad Chandler exemplar editi, were sent only published at Oxford in 1791, in a small octavo volume.

The Arundel and Pomfret marbles are at present preserved at Oxford in two rooms belonging to the public schools, beneath the picture gallery. Of the Arundel portion, that which the University possesses at the head of its collection is the Greek inscription known by the name of the Parian Chronicle, so called from the supposition of its having been made in the isle of Paros about B.C. 263. Another inscription, presented by Sir George Wheeler, the profane between Smyrna and Magnesia, for the protection of Seleucus Callinicus, engraved on a pillar in the temple of Venus Stratonicia, at Smyrna, about B.C. 244.

Among the marble inscriptions of the Pomfret portion are the colossal torso (for that portion only is antique) of a Minerva galatea, restored as a statue by Gueff, a Venus Vestita, or Leda; Terpsichore; a young Hercules; an Athlete, which has been called Antinous; a female statue, unrestored, of early Greek work; and three statues of senators, one of which is usually considered as Cicero. This last was etched by Woolridge.

Some of the statues in this collection, which have been restored, as far as the ancient portraits go, have no positive attributes of the characters of gods, heroes, &c., which Gueff, who restored them, made them represent. (See Dugdale's Barrow, tom. ii. p. 277; Lodge's Portraits of Illustrious Personages; Selden's Marmora Arundeliana, and the Marmora Oxoniensis, of Dr. Prideaux, Maittaire, and Dr. Chandler; Gassendi's Life of Peiresc; Gough's British Topogr., vol. ii. p. 127; Lord Orford's Anecd. of Painting, ed. 1786, vol. ii. p. 124; and Dallaway's Anecd. of the Ants in England.)

ARUNDO, a genus of grasses, in which a number of useful species was once comprehended; but in consequence of the altered views of botanists regarding the limits of the genus, it is now confined to a few species, and the species most nearly agreeing with it. These are grasses of considerable size, sometimes acquiring a woody stem, and found only in the warmer parts of the world. Mr. Kunth defines the genus, as now limited, by the following characteristics:—Spikes elongated; the glumes of the Sammonia appearing to five flowers, and which are distant from each other, arranged in two ranks, hermaphrodite, the uppermost being withered; glumes two, sharp-pointed, channelled, and keeled, nearly equal, membranous, as long as the flowers, and at some distance from each other; paleae two, membranous; the lowest slit at the end, with a very short beard between the sides of the slit, covered externally, especially at the lower end and rachis, with a very long spine. Arundo Donax, native of the south of Europe, the Caucasus, Egypt, and Siberia, is one of the largest grasses that we have in cultivation; it is not unusual to see it, in rich soil, nine or ten feet high, with leaves as broad and as long as the blade of a small arrow. A beautifully variegated variety is that which is usually seen in gardens.

Arundo arenaria, the sea-reed, or marram-grass, a dwarf plant which pierces the sand-banks on the shores of the Mediterranean, in Europe, and is, in the east, driven on the inroads of the ocean, differs a little from the exact character of Arundo, and is called by modern botanists Ammophila arenaria. It is a very rigid plant, with flat, hard, thick, and flat blades, and a stem two or three feet high, terminated by a dense tuft of flowers.

Arundo phragmites, the common reed, now forms the genus Phragmites, which see. [ARUSPEX. [See HARUSPEX.]

ARUSPEX.
ARVA, the most northern circle of the kingdom of Hungary, and one of the thirteen which compose the province of the Citerior-Danube. It is situated between the 49th and 50th degrees of N. latitude, and bounded on the east, north, and north-west by Galicia. It has a surface of 769 square miles, and contains five market-towns and ninety-two villages, and 87,000 inhabitants, of whom 1200 are Jews. It occupies higher ground than any other circle in Hungary, of which it is one of the most unproductive portions, being in all directions beset by the great Carpathian range, which forms its northern frontier. Of the fifty-two rivers and rivulets, which rise in this circle, the principal are the White and Black Arvas; the former flows into the latter, which has a fall of eighty-four feet in every five miles, and consequent a very rapid current. Arva produces little grain besides oats, on which the inhabitants wholly depend for their bread; but its soil is extremely favourable for the cultivation of potatoes, which are esteemed the finest flaxseed in all the kingdom; and sufficient flax is grown to render linen an article of export. Its chief resource is its extensive forests, which afford large supplies of timber and fuel, and abound in bears, wolves, foxes, wild cats, &c. The whole population, excepting about 100 Jews, is of Bohemian-Slavonic, or Slowachian extraction. The capital of the district, Aldo-Kubin, is situated in the S.E. part of the circle, on the left bank of the Arva, and has 1100 inhabitants. It lies in 49° 14' N. lat., and 19° 31' E. long. It has a Catholic and a Lutheran church, as well as a synagogue.

ARVE, a river which rises in the mountains of Savoy, flows to the N.W., and falls into the Rhône just below Geneva. Its whole course is about sixty miles.

The source of the Arve is on the Col de Balme, at the N.E. extremity of the valley of Chamouni; but its waters are chiefly derived from the glaciers which cover the northern face of the chain of Mont Blanc. This circumstance causes a difference in the temperature of the river, at different distances from its source, the water growing warmer the farther it flows; and leads also to a daily alternation in the temperature at the same place. The melting of the snow goes on faster during the day, and so produces a more abundant flow of water, which is less affected by the warmth of the atmosphere than when the current is smaller, and, besides, this water traverses the lower country during the colder part of the night. These two causes produce a sensible difference in the temperature of the river near the mouth. From day-break in the month of August the waters near the mouth have been observed to grow colder till nine or ten o'clock in the morning (the difference being about 3° of Reaumur, or 4° 5 of Fahrenheit); the alteration is effected by the arrival at this spot of the waters formed the preceding day by the melting of the snow. From nine or ten in the morning the temperature rises till ten at night, and then, after remaining stationary for a time, it falls again.

The current of the Arve is so rapid, that, for some time after it enters the Rhône, its waters do not mingle with those of that river; and at times, so great has been its violence, that it has impeded the course of the Rhône, caused the waters of the latter to flow back into the lake of Geneva, and given to the water-wheels of the mills on its banks a direction contrary to that in which they commonly move. (Encyclopédie Méthodique.)

ARVICOLA, in zoology, a genus of Rodentia. [See Campagnol.]

ARZAMAS, the chief town of a circle in the Russian province of Nijni or Nisam. Novgorod, lies at the confluence of the Arys and Tseha, seventy-two miles south of N. Novgorod, the principal capital. Though the population scarcely exceeds 5000 souls, the town contains twenty churches, besides a monastery and convent. It is dirty and ill-built; the inhabitants are, however, an industrious and thriving race of men, and independently of manufacturing large quantities of soap, Russian leather, and silver and iron wares, are extensively concerned in weaving and dyting the karaginov, a Russian robe, which is a favourite with the Russian women. They likewise export linen, sailcloth, and other domestic products to Moscow and St. Petersburg; and the crown has a large manufactory of potash in the town. It contains between 1400 and 1500 houses, and has an area of 5756 acres, and 401/2 E. long. Azam is connected with the small town of Vesna by means of a bridge across the Tseha, and their united population amounts to between 7000 and 8000.

As, among the antient Romans, was a weight, consisting of twelve unciae or ounces; it was also called libra, libella, and pondito, or the pound. Pitiusus (Lexicon Antiq. Rom.) gives its etymology from the Greek ionic, used in the Doric dialect for ionic, signifying an integer or whole, one entire thing; but we can find no authority for this word ionic. Others, as we learn from Budaeus (De Asse et partibus ejus, lib. v. 8vo. Lugd. 1551, p. 146), have more correctly considered it to be equivalent to As, a piece of copper or brass. (Varro L.L. v. 36, Spengel.)

As, Asia, or Assarion (Eckhel, Doctrina Num. Vet. tom. v. p. 2) was likewise the name of a Roman coin of copper, or rather of mixed metal, which varied both in weight and composition at different periods of the Common-wealth; but which originally actually weighed a pound, whence it was called As libralis, and sometimes also As grave.

The first coinage of this description, according to Pliny (lib. xviii. c. 3; xxiii. c. 12), took place in the reign of Sertius Tullius, which, if Sir Isaac Newton's chronology of Rome is adopted, would be about the year n.c. 460, or 587 on other authority. The first Ases of Tullius had the figure of a bull, ram, boar, or sow upon them. (Varro L. L. v. 36, Spengel.) Plutarch, (Poliolus, edit. Bryan. tom. i. p. 226) asserts that the most antient Asses were so marked. This, in fact, according to the two last writers, was the origin of the term pecuris, as used for money, a word derived from pecus, cattle; and also of the term pecunia. The next in point of antiquity to the As which bore the figure of an animal, is considered by Pinkerton to be the As which was stamped with the two-faced head of Janus on one
side, and the prow of a ship on the other. See Pinkerton's Essay on Medals, vol. i. p. 100, who adopts his opinion of this being the second A as in point of antiquity, from a manuscript Dissertation on the Etruscan and Roman early Coins, written by the late Dr. Charles Combe. Ovid, in his Fasti, expressly alludes to the A as thus marked; and it is described by Pliny (xxxiii. 3). The head of Janus was usually so accompanied, because, according to an old fable, Saturn arrived in Italy by sea.

- Multa quelidem difficili sed cur navisies in are
 Altera signata est, altera forma bipora?
 Nonnume me divinitis posses in imaginem, dixit,
 Nis retus ipsa dies extensaest opus.
 Causa resip superbis; Tuscan rate vinti in annum
 Anse pecuratis felicis orbis Deus.

Ov. Fasti, lib. i. 299—334.

The figures on this coin will explain the expression used by the Roman boys in tossing up—capita aut navim, 'heads or ship.' (Macrob. Sat. i. 7.)

The earliest Asses were cast, probably in imitation of the Etruscan coins, which the Romans, in this instance, appear to have copied. In the British Museum there are even four Asses united together, as they were taken from the mould or matrix, in which many were cast at once. In most of the Asses preserved in our cabinets, the edge shows evidently where they were severed from each other, and where the piece at the mouth of the mould was cut off. From being cast, it will be judged that they are not very correctly sized. As the bull in weight, the smaller divisions were not cast, but struck.

According to Pliny, the A, continued of its original weight till the first Punic war, when, the treasury of the state being exhausted, it was reduced to two ounces. This, however, is improbable, and is confuted by the coins themselves; since we find Asses of all weights, from the pound downward to Pliny's two ounces. The A as must, therefore, he says, have gradually diminished to ten ounces, to eight, to six, to four; and when the size was so much reduced, still more gradual diminishments must have taken place to three, and to two ounces. One or two of the pieces which remain might even imply that the decrease was more slow, to eleven, to ten, to nine, &c., but it is to be observed that none of those were ever correctly adjusted as to size, so that the marks upon them only, not their comparative magnitude, distinguish the divisions.

The middle of the first Punic war being about the year of Rome 562, or B.C. 250, supposing Pliny to be correct, would be the time of the reduction of the A to two ounces. Pliny adds, that in the second Punic war, when Q. Fabius was dictator, and the Romans were pressed by Hannibal, the A was further reduced to one ounce. This event is ascribed to the 537th year of Rome, or B.C. 215, being thirty-six years after the former change. He adds, again, that, by the Papirian law, Asses of half an ounce were coined. Met. is the word which Pliny uses to indicate the time of this change. A. Papirius Turdus, who was tribune B.C. 178, is suggested by Pighius (ii. 343) as possibly the author of this law; but Eckhel (Doctr. Num. Vet. vol. v. p. 5) considers the time uncertain. This weight of the A, however, continued till Pliny's time, and long after.

Pinkerton offers the following sketch of a plan to determine the ages of the different sorts of Asses from their weight:—The A libralis, coined by Tullus, with the figures of oxen, &c. about 167 years after Rome was built, according to Sir Isaac Newton, or B.C. 460; A libralis, with Janus and prow, 400; the A of ten ounces, 300; eight, 298; six, 285; four, 278; three, 269; two, 258; according to Pliny, 230; one, also from Pliny, 214. But this scheme is conjectural, at least down to B.C. 250, and may be considered as intended rather for the amusement of the collector, than as instruction to the sober inquirer.

The A libralis with the head of Janus is the most common form now found of the A, previous to its being reduced to two ounces; a circumstance which shows that form to have been of long duration.

The exact period when the parts of the A were first given, in their proportions of weight and value, is not now ascertainable; but the best authors on numismatic science agree that the time was not very far removed from that of the first coinage of the A.

The coined divisions of the A were the semis, quinquer, triens, quadrans or teruncius, sextans, and uncia. There were other divisions of the A by weight, which it may be proper to enumerate concisely. There were the denarius of eleven ounces, the dextans of ten, the dodrans of nine, the bes of eight, the septunx of seven, the sesuncius of an ounce and a half, and the semuncia of half an ounce. But none of these have been found in a coined form in numismatic cabinets; they are therefore universally considered to have been nominal sums. Indeed it is clear they would not be wanted, for $6 + 5 = 11; 6 + 4 = 10; 6 + 3 = 9$; so that these nominal sums were made up of the real coins by adding them.

The Semis, Semissis, or Semi-Aś, half the A, or six uncia, was of various types, but always marked with an S. The one here engraved represents a female head on one side, with a stripli behind, or perhaps a hook for reaping or other agricultural purposes, and a head of Pallas on the other: the S, at length, occurs on both sides. Mionnet (De la Rareté et du Prix des Médailles Romaines, tom. i. p. 5); and Ackerman, in his Cat. of Roman and undated Roman Coins, vol. i. pp. 6, 7) have enumerated many different varieties. See also Rasche (Lexicon Rei Num. v. Semissis).

The Quinquer, the division of five ounces or portions of the A, is of very rare occurrence. All the other portions of the A have been copied for the present work from original coins in the British Museum; but the Quinquer, it is believed, exists in no cabinet at present in this country.

Our present reproduction of it has been copied from a work entitled De Nummis atque aequis uncialibus Epitola, by the Cardinal de Zelada, 4to. Rom. 1775, a volume

* Horace (Ars Poet. 1. 325) says, the Roman youth learn to divide the A into a hundred parts.

* Romani praetor longius rationibus Aseum dicunt in partes centum dividere.

Possibly this passage has a reference to a centesimal division of the A, then in use.
The Quinexx here given represents, on one side, a bearded head; and, on the other, a buckler, or shield, bearing five globules on the dexter half, which indicate its value. Another type is said to represent a sort of cross on both sides; and a third kind has the head of Apollo, with the Dioscuri on horseback, on the reverse, and the word ROMA; both these also bear the globules. The last-mentioned type is preserved in the Imperial Cabinet at Vienna.

It is possible, however, that this which we have engraved may not be a genuine Roman Quinexx; other cities in Italy and Magna Gracia had their own Asses, and their divisions, marked in the same manner as those of Rome herself. (Compare Eckhel, ut supr. p. 11—13.) These are usually called, in contradistinction, Italian Asses. Such were those of Velitri, Tuderis, Luceria, Populonia, Panormus, Pestum, &c.

The Triens was the third of the As, or piece of four unciae. The type here engraved bears a dolphin on one side with the striigil above; on the other is a thunderbolt.

Four globules, or pellets, to indicate its value, occur on both sides. Other types will be found enumerated in Monnet (ut supr. pp. 7, 8); and Akerman (pp. 16, 11). Eckhel says, the head of Pallas was very frequent upon the Trientes (Ducr. Vet. Num. tom. v. p. 15). Pliny says (xxvii. 3) that both the Triens and the Quadrans bore the type of a ship.

The Quadrans was the fourth of the As, or piece of three unciae. The types of this were various also (Rasche, Lex. Rei Num. v. Quadrans); but the value of the coin was uniformly denoted by three globules. On the Quadrans here represented, an open hand and striigil occur on both sides.
Others have a dolphin, grains of corn, a star, heads of Hercules, Ceres, &c. on the obverse. The Sextans was the sixth of the As, or piece of two ounces. The coin here engraved

[bears on one side a caduceus and atrigil, on the other a cockle shell. The value is denoted on each side by two globules. On some Sextantes the value is designated on one side by a single globe. On the Uncia, twelfth of the As, or piece of one ounce, is marked by a single globe. The type we have selected]

As the As fell in weight, larger denominations of coin were struck, bearing names relative to the As. The As was latterly marked I. The Dupondius, or double As, was marked II. The Treissi III. The Quadrus IV. There were even Decenses, or pieces of ten Asses, in copper, marked X. Olivier mentions one with his own cabinet weighing upwards of twenty-five Roman ounces, which must have been cast when the As was about three ounces; for, as has been mentioned, they are far from being correctly sized. In the Museum Etruscanum is a Decus of forty Roman ounces, cast when the As was four ounces. The Denarius, Quinarus, and Sestertius were silver coins. According to Pliny, when the As was reduced to one uncia, or ounce, in the second Punic war, the Denarius, which was originally equal to 10, the Quinarus to 5, and the Sestertius to 24 Asses, were respectively made equivalent to 16, 8, and 4 Asses. On this subject see Sestertius.

Notwithstanding that the As fell, it still continued to be called libra; and in fines of estates, and in other old customs, was, nevertheless, held to be a pound weight of copper. See Cornutus on Persius: that annator lived in the reign of Domitian. The word As was also used in accounts for the whole of any heritage, &c., to late times. Heres ex asse was the phrase used by the jurists for an heir to a whole estate. (In decem, &c. v. As.) It is thus used by Martial (vi. 63), and elsewhere. The word As, indeed, with its subdivisions and multiples, was used generally as the representative of number, both in defining measures of length, the proportions of an inheritance, &c.

The Asses drawn for this article, from specimens in the British Museum, have been carefully weighed. A comparison of the weights will show that the parts do not correspond accurately with one another, or with the integer As. Our specimens may probably not all belong to one epoch, nor all to the city of Rome.

ASAM, or TAEKA, a country of Asia, commonly included among the countries belonging to India beyond the Ganges, because it lies to the east of them; it should, however, be considered as an appendage of India on the west side of the Ganges, as the only easy access to it from Bengal is along the Brahmapootra. Asam is a valley of great extent, stretching from the meridian of 90° 30' E. to that of 95° 30', or upwards of 440 miles, between two elevated mountain-ranges; the slopes of which, as far as they belong to this valley, advance on the north to the parallel of 28° 30' N. lat. and on the south to 21.5° N. lat.

Along the north side of this valley, the most eastern chain of the Himalaya mountains extends. Following the boundaries of India within the Ganges, this gigantic mountain-range in the direction from N. W. to S. E. or W. N. W. to E. E. N., but near 28° N. lat. 95° 30' E. long., a change takes place. At this point of change near Tassisuud, the capital of Bhoutan, stands the Chamalari, one of the highest pinnacles of the Himalaya-range, which, being visible from a distance of 180 miles, must attain a height of at least 35,000 to 26,000 feet above the level of the sea. From the Chamalari, the range extends nearly due east for about 3° of long., but near the meridian of 92° 30' it bends southwardly, and little by little continues up to the source of the Brahmapootra, where one of its pinnacles is called Thathutheya. This chain, which, with its numerous ridges, occupies in breadth probably 2° of lat., and perhaps in some places much more, contains a great number of peaks covered with snow higher than the perpendiculars of 90° and 93°, and of 94° and 95°. Toward the source of the Brahmapootra it seems to decrease in height, and here it is connected with that extensive mountain-range which contains the sources of all the large rivers that drain the peninsula beyond the Ganges and the southern provinces of China, and which has not yet been explored by Europeans. The mountains from which the Brahmapootra rises, lying between 95° and 99° E. long., may still be considered as belonging to the Himalaya range, and as forming the most eastern extremity of that extensive chain. The height of these mountains is not precisely known, but probably it is not much short of 20,000 feet; they bound the valley of Asam on the east. The mountain-range which extends along the southern side of the valley is much less elevated, and varies in height. Where it skirts the upper course of the Brahmapootra and its numerous sources, it may attain an elevation of from 15,000 to 14,000 feet, and may be compared in height, if not in extent, to the Alps of Switzerland. Farther to the south-west, where it takes the name of Patkai mountains, it seems to be much lower and more accessible; and to the west of the Patkais are the Naga mountains, still lower than the former, and extending to about 93° 30', where they are succeeded by the Garrow hills, which rarely rise to more than 6000 feet, and terminate the valley of Asam on the west, opposite the mountain-ranges which surround the southern declivity of the Chins. Between these hills and the Patkais the Garrow hills lies the wide opening by which the valley of Asam is connected with the plains extending along the Ganges. Asam, with the bordering districts, including all the countries from the plains of Assam to the foot of the sacred Brahmapootra on the east, and from the crest of the Himalaya-range on the north, to the chain of mountains separating on the south the sources of the rivers contributing to the Brahmapootra from those flowing in the opposite direction, comprehends an area of about 70,000 square miles, and exceeds the reputed area of England and Wales by about 12,000 square miles. But about one half of its surface is occupied by the effects of the Himalaya mountains, which are inhabited by independent nations, or subject to the Deb Raja, or sovereign of Bhoutan; the nations residing in the mountains which skirt the valley on the south are also in a state bordering on absolute independence. Only the level and in some places hilly country which extends along the banks of the Brahmapootra, between 95° and 99° E. long., with an average breadth of from forty to sixty miles, forms what may be properly called the kingdom of Asam, which boundaries may comprehend an area of from 24,000 to 24,000 square miles, or less than half the surface of England.

The Brahmapootra, whose sources however have not yet been visited by any European, rises in the Himalaya range, or some mountains connected with it, between the parallels of 30° and 28° N. lat., and the meridians of 98° and 96° E. long., and the upper part of its course is first from N. E. to S. W., and then from S. E. to N. W., between high mountains, in a narrow valley, till changing its direction to nearly due south, it passes the narrow valley between such high mountains, and afterwards leaves the mountain-region and enters the plains of Asam, between 96° and 97° E. long. The general direction of its course in the plain is nearly due west up to the
mouth of the Dihong, which joins it from the north between 96° and 97°. From 97° 25' E. and from there till it leaves Asam at Goyalpara (Goalpara) the river is called Lohit, and runs for about 120 miles nearly due south-west, and afterwards to the south of west. Before it takes the latter direction it divides into two branches, which afterwards re-join and makes a bend to the south, running eastwards twenty miles in length, with an average breadth of from four to five. After its branches have re-united, the river, running W. by S. for upwards of eighty miles, divides again into two branches, one of which forms a larger island, extending, according to report, five days' journey in length and one in breadth, which, however, seems not to be distinguished by any peculiar name, and terminates at no great distance to the east of Gowalalat (Gowlat, or Gowlalat) on the river Goyalpara. Having entered Bengal at Goyalpara, it bears the name of Brahmapootra to its junction with the eastern branch of the Ganges, after which the united river is called Meguna. In the valley of Asam it may run upwards of five hundred miles, and is navigable for vessels of considerable burden, or for large boats, as far as Sonpur, twelve miles above Sadiya, or about the 96th meridian.

The tributary rivers which descend from the mountains on the north and south sides of the valley are only navigable as far as their courses lie in the plains, and only in the rainy season, and for a short time afterwards. None of those which join the Brahmapootra from the south have a long course, or are navigable, as the Bilu (Great Dihing), the D.Diru (Great Dihing), and the Deyong run little more than a hundred or a hundred and twenty miles. But many of those which issue from the Himalaya range are very considerable and navigable, though subject to considerable variation of level. The Dihong, which joins the Brahmapootra between 95° and 96° of longitude, and is without reason supposed to be the same river which in the table of Tibet is called the Samjoo or Yarou-Zango-tsun, is a remote branch of the river of the same name, as it is represented in some maps. [See Brahmapootra.] Farther to the west it is joined by another large river, the Suban Shiri, whose sources, however, like those of the Manas or Bonsah, which falls into it near Goypala, are in the European mountains.

Asam, though not situated within the tropics, partsakes of the tropical climate, the seasons being distinguished by the abundance of rain, or the continuance of dry weather. Three or four months of the year, or from the 15th of October to the month of February, may be calculated on as clear and dry, the sky during all this period being free from clouds; but the remainder of the year is perfectly uncertain. The heavy rains set in about the 15th of June, and continue for about four months. Under these circumstances, with the extension of the valley, the extent of the valley is inundated. These inundations are chiefly caused by the quantity of water brought down by the rivers from the northern mountains, which is so immense that the width of the Brahmapootra is increased, but even the channels of the southern rivers up to the place where they issue from the mountains; these latter rivers themselves contribute little to the inundation. When the inundations begin to decrease, the climate is for some time unhealthy, especially for foreigners, but otherwise it seems not to be worse than the climate of Bengal. At the time of the inundation the inhabited places would be isolated, if they were not connected by causeways, eight feet high and about eighteen feet broad. These causeways are almost the only lasting monuments of human industry in this country, but they have in the late unsettled times partly gone to decay.

The soil all over the valley, except some hilly districts, is alluvial, and the result of the annual inundations: it is perhaps not exceeded in fertility by that of any other country, and would doubtless maintain twenty and perhaps a hundred times the number of its present inhabitants, were it not for the ravages of war and want. The positions of the valley between the two very extensive mountain ranges, inhabited by warlike and barbarous mountaineers, expose its inhabitants to the continual incursions of their neighbours, as to the inhabitants of the plains are obliged to pay an annual tribute, and persons are sent down every season to collect it. In other places, especially along the upper Brahmapootra, the mountaineers, as the Khasis and the Khamis, have driven out the Asams, and settled in the plains. To these causes it must be attributed, that only a very small portion of this fine valley, certainly not more than a hundredth part, is under cultivation. But since about 1826 the English have undertaken to protect the inhabitants of the lowlands; and as they have shown the mountaineers their superiority in arms in different encounters, a speedy change may soon be expected.

The rural economy of Asam resembles that of Bengal, three-fourths of the cultivated land being appropriated to the production of rice, which yields annually two abundant crops; but they are not always sufficient to save the inhabitants from distress. The manures of the rice crop are not extensively cultivated, and chiefly used for making oil; the quantity of sesamum raised is considerable. Wheat, barley, and millet, though they succeed well in the more rainy parts of the province, are not produced in great quantity. The cypress cañon was formerly only cultivated for the rearing of lac insect, but now it is grown for its pulse, other plants being employed as food for the insect. The most common pulse is the hairy-podded kidney-bean. Black pepper is indigenous, and large quantities of it are gathered without cultivation. Other vegetables, such as long chilies, are raised, with choyies, ginger, turmeric, capsicum, onions, and garlic. Coconuts are rare, and no palm-wine is made; but oranges abound, and are indigenous in the neighbourhood of Sadiya; the fruit is acid, but not disagreeable, and the pulp of a pale yellow, like that of the lime. Cotton is only cultivated by the mountaineers in the southern hills, but silk is produced in great quantities, and seems to succeed best in the more arid parts of the country. The morinda or munga is also raised, of which that feeds on mulberry-leaves is not very common. One kind, called muga, which is more abundant, lives on a species of laurus in the open air, and its leaves are used for the yellow dyeing of the ginnings of the dry season of a red, and again towards the end of the spring of a white colour. The white is reckoned the best, and entirely used by the rich people of the country. The worms which give the silk called mendongari are reared on a tree, the botanical character of which has not yet been determined, but which is planted for that purpose. The worst kind of silk, called erend, is reared on the ricinus in large quantities, especially about Runpoor.

The boiling of the water is of the valley, both of that of the contiguous hill, has not been examined by any botanist. The tea-tree is said to grow in the vicinity of Sadiya, and the gum-epcar tree in the Naga hills. The caoutchouc tree is indigenous throughout the country. The sugar-cane succeeds well, but is only cultivated for eating. Betel-leaf, areca-nut, opium, and tobacco, are plentifully produced in every district, and even in the mountains, which in some parts are covered with timber trees.

The elephants and bears are also indigenous, but only for the plough, as the inhabitants do not eat beef. Horses are not numerous, and asans are not reared at all, which is also the case in some other parts of the peninsula beyond the Ganges. The buffalo are not rare, and covered with hair; Sadiya is a great producing locality; goats are not numerous, but poultry abounds in every district.

The buffalo is found also in a wild state. The elephant and bear are only met with in the forests and mountains of the eastern and southern districts, but deer, tigers, and leopards abound in the numerous tiger jungles. In some parts the small black long-armed apes are frequent, and in some rivers otters and river-turtles of a very large size. Fish and ducks are everywhere plentiful; the mountain was is brought down in considerable quantity.

Little is known of the metallic wealth of this country. Gold is found in and collected from the rivers flowing from the north, and a gold mine is said to exist at the junction of the Deyong with the Brahmapootra, about thirty-two miles in a direct line east from Gowahat. Iron mines are found in the Naga mountains, and coal has been discovered in some of the lower hills; among which also salt-springs are found.

Garnets, seven-tenths of an inch in diameter, are found in syenitic granite rock, in the mountains near the sources of the Brahmapootra.

Asam is divided into three provinces, Camroo, Asam Proper, and Sadiya, of which the first occupies the western districts, from the boundary of Bengal to the 93rd meridian; Asam Proper is in the middle, and extends to the junction of the Brahmapootra with the Dihong; Sadiya is on the east of the Naga hills, and contains the sources of the sacred river. Asam Proper contains the best-cultivated districts, and the
few places which deserve to be called towns; Jorhat, the residence of the sovereign or rajah, and Runagpur, the most industrial and commercial capital of the district, are the only settlements of any importance, and these are entirely abandoned. In place of them exhibit a collection of huts, and contain no shops, the inhabitants of the country supplying all their necessities by domestic industry.

The Assamese, or inhabitants of the plains, are doubtless of Hindu extraction, which appears from their physical constitution, their language, and their religion. The language differs so little from the Bengalee, that the latter has lately been adopted, as the common medium of instruction in their schools. Their religion is Brahmanism, but many of the inhabitants belong to impure tribes. In the parts adjacent to Bengal, there are many Mohamedans, but their religion has degenerated into a heathen superstition.

The better classes dress pretty well; the women are always clothed in silk, and even three-fourths of the male population, especially of the middling classes. Cotton, not being grown in the country, is only used by the rich people, and mostly imported from Dacca, in Bengal. Their habitations are miserable contructions, consisting only of thatched huts, with walls of bamboo-mats, and supported by posts of sand (the Stones Roberts, a valuable timber tree), the arched roofs and mud floors. Each apartment forms a separate hut. In such huts are lodged the king and the nobility, as well as the poorest man in the country.

The laborer has been surveyed and found skilful in weaving silk cloth, even in this respect they have still much to learn from their neighbours in Bengal; and it seems that they know how to profit by the opportunity now offered to them, some spinning and weaving being done.

These people have also made some progress in working iron, which is brought from the southern mountains, and in making ornaments of ivory.

The east frontier is considered as the only proprietor of the land, and the cultivators, who are called pyhes, have only a temporary interest. For the privilege of cultivating the soil and enjoying its fruits, they are bound to work four months of the year for the king, or to pay him a compensation. It would seem that this constitutes the only tax they have to pay.

The mountain people, who inhabit the ranges to the north, east and south of the valley, are mostly Buddhists, and some of the valleys occupied by them are better cultivated than the plain, chiefly perhaps from not being exposed to hostile invasions. They do not raise much rice, but great quantities of Indian corn, and a small grain named bexasia. They cultivate also yams, mustard, pepper, cotton, and toacco, with a great number of animals, especially of the cow kind; for besides the cattle, which are proper to their hills, they keep the small oxen of Assam proper, and the chowry-tailed cattle of Tibet. Swine, as well as dogs, are numerous among them. In the latter part of the year, these mountain nations are especially much larger and more convenient than those of the inhabitants of the plains. These mountain people speak languages altogether differing from that of the Assamese, and which do not appear to have much affinity to one another.

The Miras occupy the hilly country on both sides of the river Shiri, and partly also the plain; the valleys in the Himalaya range, lying further west, are subject to the Deb Rajas, or sovereign of Bhotan, and on the east of the Miras the mountains on both sides of the Dihong are inhabited by the Abors, whose neighbours on the east are the Me-hims, up to the source of the Brahmapoora. The heights skirting the west end of the south range, are occupied by the powerful and populous tribe of the Sinhlos; and the adjacent low country is inhabited by the Khamis up to Sadaya. The small tribes of the Mowamasias, or Mowamasias, or Sina tributary of the Brahmapoora, are by far the greatest extent of the southern range, and extend to the Assam and Garvus, on the boundary of Bengal.

We shall not enter into a detail of the manners and customs of these savage nations, but we cannot help noticing the very singular coincidence of the political institutions of the Abors with those of the inhabitants of the Alps in the country of the Grisons. Every village forms a democratic republic, and is governed by the laws enacted by all the inhabitants in a formal meeting. This meeting is called Raj, which evidently signifies the sovereignty. It is held in the morning, and every male inhabitant has an equal vote. It appears, though it is not acknowledged by them, that among the Abors, as among the Grisons, some few, either by their superior wealth, hereditary reputation, or real ability, exert a very strong influence over the rest, and can readily sway them to any measure they like. The Raj, however, is extremely jealous, and very vigilant in preserving their democratical rights. Hence they have laws which make an effectual barrier to the burdens of the people. The middle of the village is the morong, a large building, which serves as a hall of audience and debate, as a place of reception for strangers, and as a dwelling for the bachelors of the village generally. It is also called the aid of the community for the construction of a separate house. Their orators seem to have studied rhetoric and to have considered its effects on the minds of their countrymen; they speak in a remarkably emphatic style, dwelling upon each word and syllable, and fond of holding their palavers, at which they are heard with the utmost patience and without any interruption, and in this particular they are certainly much superior to many more civilized nations. If in an affair of importance the assistance of their neighbours is required, they send ambassadors to the other republics, who are charged to make proposals or to accept what has been proposed by another community.

Before Assam was visited by Europeans, the number of its inhabitants was thought to amount to a million or even a million and a half; but now that most of its districts have been surveyed, it is certain that the population exceeds more than 150,000 or 200,000. But this estimate seems rather too low, when we consider the great extent of the country, though it is true that very large tracts are covered with jungles, and show no signs of cultivation nor any traces of inhabitants.

The ancient history of Assam is entirely fabulous. It seems for a long time to have been under the sway of sovereigns of Hindu origin, and have undergone many revolutions. In the seventh century B.C.,king of Hindustan sent a numerous army to subject Assam: the conquest succeeded almost without any resistance on the part of the inhabitants and their sovereign, and was recorded in the annals of Assam in the year 527. The conqueror had the rains set in than the whole army was destroyed by disease, and by the Assamese, who returned from the mountain fastnesses, to which, at the time of the invasion, they had retired for security. Very few of this Indian army returned to Hindustan and Bengal. In modern times the continual disorders and intrigues in the royal family brought it under the domination of the Burmese, who are said to have treated the people and the sovereign with much severity. The Burmese were expelled almost without a struggle by the English in 1824, and obliged by the peace of 1826 to leave this country and its sovereignty under the protection of the East India Company.

The commerce of Assam is of very little importance. The mountains which surround it on all sides, except on the west, are of such a description as to preclude almost entirely the possibility of conveying commodities to the contiguous countries. The attempts made by the English to penetrate the Himalaya range and to enter Tibet from this side have hitherto not succeeded, nor have they yet discovered a route leading to that country, though it is certain that such a route must exist, as the mountain people, especially the Abors, are dressed in cloths of Tibet woollen, and possess other articles of the manufactures of that country. It is, however, known that to the north of the Brahmapoora there is a route which is said to be the pass leading to the country of the Mishims, and this pass conducts to a country inhabited by a nation called the Lamas. But it is a journey of twenty days from the river, through an extremely mountainous region, to the village of the Si, to the source of the Brahmapoora, to be an enterprising and commercial tribe. They cross this range, and likewise the mountains which surround the sources of the Brahmapoora, and bring articles of Tibetan manufacture to the Khotanais inhabiting the upper course of the Brahmapoora. Two mountain passes lead from the valley of the Brahmapoora eastward to the Irawaddy; but they pass through a sterile mountain region, in which, for ten days' journey, no habitation is seen. From this last pass the river descends and descends into the valley of the Ky-an-du-syn river in the Burmese empire, and this road is even passable for beasts of burden; but since Assam has been withdrawn

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These dimensions differ from those given in Browne Willis's Survey of St. Asaph, and in the Beauties of England and Wales, especially in the length assigned to the choir, which has been very much enlarged, while the length from the west door to the choir has been diminished. The altar is supposed to have been in its present place in the spring of the year 1833; and the space taken into the choir is that between the arches which support the square embattled tower, 34 feet 8 inches in length, by 29 feet 9 inches in width. A new organ was put up at the same time. The choir has three steps, but no side aisles.

The nave and transepts are of the age when the decorated style of English architecture prevailed, which was, according to Rickman (Essay on Gothic Architecture), during the reigns of Edward III. and IV., 1310-1377; but this style must have been in use before, as we have seen that the walls were raised in 1284. The architecture of these parts contains some singularities and beauties, among which may be reckoned the west window, and the painted window at the east end of the choir, from a picture by Albano, representing our Saviour about twelve years old, surrounded by angels, and the various instruments of torture, such as the cross, the nails, and crown of thorns. The belfry windows appear to have been altered. The piers and arches of the nave, as also the western door, have plain but bold mouldings. The clerestory windows of this part are small square apertures with portions of tracery, which appears to be ancient. The west door has five arches, each for the nave, and some for the transepts, are of decorated character. The choir, which, as noticed above, was nearly rebuilt in the time of Bishop Shipley, is an attempted imitation of antient work, but has no real resemblance to any style, though apparently intended to imitate Romanesque architecture, and some other parts have partially undergone a similar renewal to that of the choir. A portion of the transepts is cut off to form the chapter-house and vestry, and there are neither additional buildings, nor, according to Rickman, any other remains of Bishop Shipley and some of his successors, and the east windows of the nave and transepts remain as they were in the reign of Edward III., are not unlike those of the nave and transepts of Lincoln, and are graceful, and the windows of the Transept are much like those of the choir.

The see of St. Asaph is said to have been founded by Kentigern, and many Scotch historians call him St. Mungo, who was bishop of Glasgow. Having been driven from his see about the middle of the sixth century, he took refuge in North Wales, established a monastery, and erected a bishopric near the river Elwy. Upon his return to Glasgow, he left this charge to his disciple Asaph or Hassab, a native of Wales, from whom the cathedral and the diocese got their designation. In the wars between the English and Welsh, in which the frontier situation of St. Asaph was very disadvantageous to it, the early records of the see perished, and there is a long hiatus in the list of bishops. In modern times the bishopric has been held by men of eminence for talent, piety, and learning. Among these may be mentioned Bishop Lloyd, one of the seven commissioners to the Tower by James II., Bishops Beveridge, Tanner, Shipley, and Horsley.

The bishop's revenue was valued in 26 Hen. VIII. at 202. 10s. 6d. in the whole, as late as 1671, and it is clear. We have no data for ascertaining its present value.

The diocese comprehends Flintshire, Denbighshire, and Montgomeryshire (with the exception of a few parishes), and parts of Merionethshire and Shropshire. There were seven, at the beginning of the present century, 130 benefices, viz.:

- 65 rectories,
- 3 vicarages,
- 12 perpetual curacies,
- 12 parish churches,
- 14 chapels,
- 130

From the dominion of the court of Ava, all intercourse with that country seems to have ceased. Two passes across the Garrow Hills connect Camrup with Sillhot, a province of Bengal, and one of these passes near the sanitarium (or invalid station) of Churana Punje. The commercial intercourse between the people of Bengal and Asaph is confined to that with Bengal, which is indeed of very little importance. Asaph exports the coarsest kinds of silk, but not in great quantity, and receives in return salt and cotton goods made at Dacca; having few things to give in exchange. It was once proposed to pay some of these imported commodities in gold. (Buchanam, Bedford, Newville, and Wilcox, in the Asiatic Researches; Asiatic Journal; Map of India East of the Ganges by Berghaus.)

Asaph stands on the slope of a small hill between the rivers Clwyd and Elwy, of which the former is to the east of the city and at some distance; the latter (a turbulent stream, which falls into the Clwyd a little farther down) is close to the western side of the city, at the bottom of the grounds of the bishop's palace. From its situation on the banks of this stream, St. Asaph had formerly the title of Llan Elwy, or the town or city of Elwy. The main street of the city, which is built with tolerable uniformity, runs up the slope of the hill from the town to the castle and the cathedral, which is on the summit of the hill. There has been some increase of building on the west side of the town on the Holyhead road, and on the north side, or rather north-west, where a road runs parallel to the course of the River Clwyd, and the church of St. Asaph, altogether a very small; the whole parish, which is extensive, having in 1831 only 3144 inhabitants. There is not any particular branch of trade or manufacture established here; the town contains very few good houses; and, excepting the cathedral, there is little in it to claim attention. There is a parish church at the bottom of the hill near the bridge; and the bishop has a palace, large and convenient though not magnificent, in the Bishop's Burrow. There is no trace of any but the older plans and drawings of the cathedral, which we have seen, represent the chapter-house as built out from the north side of the choir, and having a door opening into it from the choir. The buttresses about the church are very few. The tower is ninety-three feet high, and commands a fine view of the rich and extensive vale of Clwyd. It has only one bell in it, though there are frames for eight. It is built of squared stone, of which some is red, intermixed with a harder sort of brown or grey colour. The stone used in the choir, and in most of the windows of the church, is soft, red, and moulderino. None of the monuments call for notice except one, supposed to be that of Bishop David Owen (died 1412), which is attended only by the chancel of the latter; it is erect and lately erected by subscription to the memory of Dean Shipley; and a third, a heavy pile, erected to the memory of Bishop Luxmoore.

The cathedral is small, but plain and neat. The original structure was of wood, but was replaced by a building of stone. This having been, in 1282, burnt by the English in the first攻克, an attempt was made to see the church from St. Asaph, then an open and defended village, to Rhuddlan or Rhuddlan, which was fortified. From some cause or other, not well ascertained, the attempt failed, and the church was entirely destroyed; and this may be considered as the present edifice, for the church remained over since. In 1402 the cathedral was burnt by Owen Glyndwr, and only the walls left standing. After Bishop Lennard nearly eighty years in ruins, it was restored by Bishop Redman, who repaired the walls and put on a new roof. Further improvements or repairs were made by Bishop Owens, who filled the see in the time of Charles I.; but the predominance of the puritan party put a stop to them, and subjected the cathedral to its furniture to some injury. Further repairs were made by Bishops Flemington and Barrow, who succeeded in the task after the Restoration (especially by the latter), and by Bishops Fleetwood (from 1708 to 1717) and Dr. (from 1714 to 1728). The choir was rebuilt in the time of Bishop Shipley (who was bishop from 1759 to 1787), out of a fund vested in the dean and chapter for the purpose.

This edifice stands on the south side of the main street of the city, in a churchyard of sufficient size to afford a good view of each side. It is a plain cross church, with a square embattled tower in the centre, having a square tower staircase at the north-eastern angle. The dimensions are as follows:

- Length of the church from E. to W. 178 ft. in. 84 ft.
- From the west door to the choir 93 ft.
- Breadth of the nave and aisles 58 ft.
- Height of the nave from the pavement to the ceiling 28 ft.

- 35 rectories,
- 4 vicarages,
- 12 perpetual curacies,
- 12 churches,
all of which, except seven, are, together with the deaneey, in the gift of the bishop. It is divided into eight deaneries, viz., Rhos, Tegengle, Bromfield and Yale, Marchia, Penllyn and Ideron, Pool, Caedwen, and Cyfelliog and Mowddyl. The church is the most ancient church in the town, though it has been enlarged. It was built by a dean (who has a house west of the town beyond the river Elwy), six prebendaries, seven canons curial, four vicars choral, an organist, six lay clerks, and six choristers. The archdeaconry has been held in commendam since 1273, for the better maintenance of the latter.

The parish church is a small building, of two aisles parallel to each other, and has no steeple. It is a market, on Friday; and four fairs in the year, on Tuesday in Easter week, July 15, October 16, and December 26. The petty sessions for the division of Rhuddlan are held here. There is an almshouse for eight poor widows, founded by Bishop Barrow (unlike to the celebrated Dr. Isaac Barrow), a prelate of eminent benevolence and goodness; and an endowed school for boys.

The parish is large, and contains many townships. It extends into Denbighshire, and is five miles from east to west, and four from north to south. By the late reform bill St. Asaph has been added as a contributory borough to Flint. The boundary of the borough comprehends a considerable portion of land beyond the town, but is not by any means so extensive as the parish. The number of houses varies at ten years and upward yearly value, within the limits, is ninety-three.

The country around the city is very beautiful. Within the parish is Caepil Fynnon Vair (Chapel of our Lady's Well), a well near which is a fountain into which it takes its name, once much resorted to by devoutes.

From the name of the eminence on which the city stands, Beryn Paulin, it has been conjectured that the Roman general Suevonius Paulinus encamped here on his way to Anglesey. [See ASQUITH.] (Browne Willis's Survey of St. Asaph; Pennant's Tour in Wales; Bingley's Tour round North Wales; Rickman's Essay on Gothic Architecture, &c.)

ASARUM (on botany), a genus of plants, belonging to the family of the Aristolochiaceae, distinguished by having the calyx bell-shaped and three-lobed; the stamina placed upon the ovary, the anthers adnate to the middle of the filaments, the style short, stigma stellate, and six-lobed; the fruit capsular, and six-celled. The A. europaea is known by having two obtuse kidney-shaped leaves on each stem. It is a perennial plant, found in woods in different parts of Britain. The root, which is employed under the name of the mace, possesses probably the same virtue as the mace of China, of a bitter principle, called asarin, which is combined with gallocatechic acid. To these it is indebted for its action on the human system. Taken into the stomach in a state of very fine powder it has the property of increasing the appetite in cachexia, and generally of promoting purges. It was formerly employed as an emetic instead of ipecacuanha; but, from the violence of its effects, it is now properly laid aside in medical practice; it is still, however, used in veterinary medicine, to vomit and purge. The fine powder applied to the nostril causes sneezing, and a flow of mucus from the membrane which lines those parts. It is therefore extensively employed as an erethic, and is the basis, or chief ingredient, of many cephalic snuffs. It is used in chronic inflammations and some other diseases of the eye, and in headaches. Where these last arise from disorders of the digestive function, such means can be of no avail: where they are connected with congestion or fulness of the brain, the beneficial effects from the Schneidnerian membrane may give temporary relief in the same way as a few drops of blood, flowing spontaneously from the nose, or obtained by puncturing the membrane. When taken into the stomach in considerable quantities, it is very emetic.

ASBESTUS must be considered, in mineralogy, rather as a term implying a peculiar form sometimes assumed by several minerals, than as a name denoting a particular substance, and included by the chemists under the category of those minerals, such as actinolite, tremolite, &c., which occur in long capillary crystals, placed side by side in parallel position, and thus giving rise to a fibrous mass. As might be expected, the conditions of asbestus are fulfilled in various degrees, and there are accordingly various kinds of asbestus. Those varieties of the fibres of which are very delicate and regularly arranged, are called amianthus, a Greek term signifying unpolished, unstable: the individual crystals are here readily separated from each other, are very flexible, and elastic, and have a white or greenish colour with a fine silky lustre. Though a single fibre is readily fused into a red mass, or varnished, it produces no ordinary flame, so that when woven it produces a fire-proof cloth; and hence the name from the Greek dibepoios, in the sense of indestructible. The most beautiful specimens have been found in the Tarentaiene in Savoy; but Coriscia must be considered as the best locality. It is also found in Cornwall at St. Neverne: likewise in several parts of Scotland. It occurs also in the United States of America, where it is sometimes used as a wick for an oil lamp.

Those varieties in which the crystals are coarser, with scarcely any flexibility, are called common asbestus. It is generally of a dull green, and sometimes a pearly lustre, and readily fuses before the blow-pipe flame. It occurs more frequently than amianthus, and is usually found in veins traversing serpentine.

There are three other varieties, known by the names of mountain feater, mountain wood, and mountain cork, which differ from the common asbestus by the fibres interlacing each other. The two first have received their name from their appearance; the third from its extreme lightness, and from its swimming in water. They have been found in Scotland.

ASCALABOTES, in zoology, a genus of reptiles. [See GECKO.]

ASCALON ('Ascalon'), a town of Palestine, on the shore of the Mediterranean, about twelve miles north of Jaffa: it was one of the 'fenced cities' of the Philistines, but shortly after the death of Joshua it fell into the hands of the tribe of Judah; it was afterwards successively under the Assyrians, Persians, Greeks, and Romans.

There was a celebrated temple of the Heavenly Venus (Ophionis "Aphrodisia") at Ascalon, which Herodotus (l. 105) mentions as having been plundered by the Scythians B.C. 630. Forty rose-granite columns, belonging to an ancient temple, in the Greek style, are still standing, with capitals and friezes of the most beautiful marble. This temple is said to have been dedicated to the goddess of love; it was one of the chief temples of the Philistines. There are also the remains of a Roman amphitheatre at Ascalon, Antiochus, the academian and the master of Cicero, was a native of this place. In the early ages of Christianity, Asca-

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ASCALABOTES, in zoology, a genus of reptiles. [See GECKO.]
SIGNAL DIFFERENCE, astronomical terms, of which the two latter are nearly out of use, while the term right ascension is preserved, in a somewhat different signification, from its original meaning, to denote one of the angles by means of which the position of a star is ascertained.

If we suppose a person at the equator, looking directly towards the east, and raising his arms on each side till they are horizontal, his fingers will then point towards the two poles (which, at the equator, are in the horizon), and a line drawn through his arms will be a part of the axis on which the heavens appear to turn. Every star will rise vertically, that is, if the diurnal motion were quick enough to justifying the phrase, would appear to shoot above the horizon directly upwards. The great circle of the heavens which his eye traces out as he raises his head without turning to right or left, is the equator, and the same parallel of the equator the star will cross, for every star. If there be a remarkable star in the equator, from the rising of which the spectator chooses to begin his astronomical day, he will know the time of rising of any star as soon as he knows how far the point of the equator which rises with it is from the star at whose rising he begins to count the twenty-four hours.

Suppose, for example, it is 60°; then, since the whole 360° of the equator rise in twenty-four hours, 60 of them will rise in four hours, or the star will rise at four o'clock of his astronomical day.

Let O be the spectator, N and S the north and south poles, E the east point of the horizon, EZ part of the equator, and A the star. Through the north and south poles and A, draw N A S B. Then if Q be the star at the rising of which the astronomical day begins, the number of degrees in QT is the right ascension of the star.

Instead of the horizon N E S, any other circle may be substituted which passes through N and S; for example, the meridian N Z S. For, draw any circle through N and S, then the diurnal motion will bring A and T upon that circle at the same moment, and Q and T will pass that circle one after the other with the same interval as occurred between their times of passing E, or their times of rising.

Substituting the meridian (which always passes through the poles) for the horizon, this method of reckoning may be used in any latitude. For the same point of the equator always comes upon every meridian with the same star; but, instead of using a star in the equator as the point from which to reckon, the vernal equinox is preferred, or the point at which the sun's path crosses the equator when he ascends into the northern hemisphere. The distance of the point of the equator just mentioned from the vernal equinox, measured upon the equator according to the order of the signs, in degrees, minutes, and seconds, is the right ascension in space [see Angle] of the star. The same turned into time [see Angle] is the right ascension in time, and indicates the interval which elapses between the times when the equinox and star severally come on the meridian of the place. The whole time which a star takes to complete its diurnal revolution, or the sidereal day [see Day], it must be recollated, is not the common solar day, but about four minutes shorter.

The old term oblique ascension is an extension of the right ascension, as derived from our first illustration, to the oblique sphere, in which one pole is above the horizon, and the other below. Let P be the north pole, Z the zenith, E Q the equator, Q the vernal equinox. Let A be a star at its rising, and T the point of the equator which comes to the meridian with it (and would rise with it to a person at the equator). In the latitude represented in the figure, E is the point of the equator which rises with it, and Q E what is used to be called the oblique ascension: the right ascension is QT; and T E, the difference between the oblique and the right ascension, was called the ascensional difference,

but was principally applied to the sun, because when turned into time, it shows the time before or after six o'clock, of sunrise. The ascensional difference is found by the following formula:

\[ \sin \text{asc. diff.} = \tan \text{latitude} \times \tan \text{star's declination} \]

When the star's declination is north, from the right ascension take the ascensional difference; when south, to the right ascension add the ascensional difference: the result is the oblique ascension.

For the method of determining the right ascensions of the stars, see Transit Instrument, Equinox.

ASCENSION DAY, a festival of the Christian church, on which the ascension of Our Lord is believed by some authors to have been celebrated from the very first century of the Christian era. It has been held for ages on the Thursday next but one preceding Whit-sunday. (See Brady's Calendar of the Church, vol. i, p. 357.) It is also called Holy Thursday, a name by which it has been known in this country at least as far back as the time of King Alfred, in whose laws, it occurs. On June 25, by the Gregorian calendar, (the old name of this day), May 28, (the old name of this day), was held in great veneration, and, till within these few years, was annually, on that festival, bedecked with boughs, flowers, and garlands, and was encircled by a jovial band of young people, celebrating the day with song and dance.

It was upon Ascension Day, too, that the Doge or chief magistrate of Venice was formerly accustomed, by throwing a gold ring into its bosom, annually to espouse the Adriatic Sea; using the words Desposuimus te, Mare, in signum perpetui domini. — We espouse thee, O Sea, in testimony of our perpetual dominion over thee. — This practice, which is said to have originated in a grant from Pope Alexander III. to the Venetians, of power over the Adriatic Ocean as a man has power over his wife, ceased only with the government of the Doges.

ASCENSION ISLAND lies in the south Atlantic, between Africa and Brazil; the nearest land is the island of St. Matthew, 250 miles to the N.E. It is 655 miles to the N.W. of St. Helena, and 1450 from the coast of Africa. Its form is an oval, seven miles and a half long, and six wide. Like all the islands in the Atlantic, it is of volcanic origin, presenting a surface of rugged conical hills, of different sorts of lava, from 200 to 300 feet in height, some of them with perfect craters. At the eastern part of the island is a double-peaked mountain of glistening basaltic limestone, which rises to the height of 2616 feet, and from its comparatively verdant appearance has obtained the name of Green Mountain. The whole island is of a naked, desolate character, with a vast quantity of rocks lying upon each other in a very irregular way, with great chasms between them, and strewn with scoria, pumice, and other volcanic substances, so that one might as well walk over broken glass bottles. The sea-coast is alternately of a black nitrous lava,
and of white beaches, formed by the pulverization of coral and shells, with calcined stones as light as dust. There are, however, some populous villages, and one is situated on the little several plains divided into small spaces, and so remarkable as to appear like parcels of land cleared of stones, and separated by walls.

In 1813 the island of São de Nova Galedo in 1501, and is said to derive its present name from having been seen on Ascension Day. It was then entirely barren and uninhabited; not a shrub was seen; and the only vegetation which it produced was a number of grasses, ferns, purslane, a species of carnivorous, and a milky-fleas, and weu were the food of mice, land crabs, and some few insects on the island. It was also much frequented by sea-fowl, such as the frigate and tropic birds, terns, boobies, and gannet, with whose nests the labor of their owners is sufficient to have induced a number of unkindly man, they suffered themselves to be knocked down with sticks, or even laid hold of while sitting on their eggs. Turtle were found in great abundance, and the bay afforded a plentiful supply of fish—salmon, old wives, congers, eels, and rock-cod, in consequence of which the island was much frequented by homeward-bound vessels from the Cape of Good Hope and the East Indies; it was also a great resort for smuggling vessels from our American colonies, which used to meet the Indiamen here on their return home. It was long supposed to be without any stream or spring of fresh water whatever; but small springs have since been discovered, and have obtained the name of Dampier's Springs, from the English navigator being cast away here on his return from New Holland.

In 1815, during the confinement of Napoleon at St. Helena, the British government took possession of Ascension Island, and declared it a part of the British Empire, consisting of a naval lieutenant governor, with sixty officers, seamen, and marines, who fortified the island with seventeen guns, the greater number at English Road, where the erected barracks and storehouses of the compact laves (the pulverized coral on the beach forming excellent cement), and contrived to cultivate small gardens, and rear some live stock. A look-out station was established on Green Mountain, where a small spring was discovered which soon yielded an average daily supply of about 140 gallons.

In 1821, the establishment was changed to a major of the Royal Marines, as governor, with a staff of officers and a party of 200 privates, most of whom were artificers and labourers, with a number of liberated Africans. From the attention an intention garnison, the island is now in a state of progressive improvement as to its resources, natural and artificial. The Royal Marines have produced plantations on the neighboring hilly country, and have converted what was before a barren waste, into a fertile and pleasant country. This island may always be obtained sufficient for a squadron. Pasture- rapids are rapidly making its appearance; there is a moderate supply of cattle and sheep, which, with turkeys, guinea-fowl, and almost every description of live stock, thrive well; geese and ducks, however, succeed but indifferently, owing to the want of fresh-water streams and pools. The wild goats, to the number of about 600, are allowed to wander in herds, feeding on the herbage they can procure, amongst which are some aromatic herbs which give a peculiarly fine flavour to the mutton. During the season, which is between February and July, when the turtle come ashore for the purpose of depositing their eggs, parties are stationed on the beach, and the eggs are gathered and sent by the next season, which are afterwards kept in a large salt-water pond to be taken out at pleasure. Their general weight is from 400 to 700 pounds.

In 1832, the island was discovered which the island was overrun, a number of cats were introduced, which, however, multiplying and becoming wild, proved very destructive to the young fowls and rabbits, so that the garrison have been compelled to call to their assistance a colony of bull-terriers to clear the lands of the island. Guineafowl are very abundant, partridges, pigeons, and rabbits, from the Cape of Good Hope, with other species of game, have been imported, and the horse has lately been added to the list of their useful and domestic animals.

On the Green Mountain, above the height of 2000 feet, all sterility ceases; the soil is a rich mould, yielding sweet potatoes, Cape gooseberries, onions, carrots, peas, beans, cabbages, radishes, and in short, almost every species of agricultural and vegetable produce. It is remarkable that seventy acres under cultivation. In the valleys also, where the soil offers any prospect of success, spots are set apart for the cultivation of vegetables. Several kinds of fruit have been grown, such as the fig, orange, and peach. This island, which was once a desert cinder, now yields most fruitful and vegetable productions; and as the climate is exceedingly healthy, it is obvious that this establishment will repay the liberal attention that has been bestowed upon it by affording an eligible place for the production of stores and specie for the British squadron destined either for the coast of Africa or Brazil. Including civil officers, the expense of the establishment is 10,400l. per annum.

The anchorage through an open bay, is perfectly safe, and the island is never visited by gales of wind, but a heavy surf rolls on the beach, which sometimes interrupts the communication with the shore for days together. There is no regular tide, and the rise and fall is very trifling. On Green Mountain the annual range of Fahrenheit's thermometer is from 55° to 62°.

The fort is in 7° 56' N. lat., 14° 24' W. long. (Purdy's Atlantic Memoir, and various sources.)

ASCETICS (asētēs), a term applied to the pugilists, wrestlers, and other athletes, among the ancient Greeks, who prepared themselves by abstinence for their combats; subsequently, the term was extended to all those who practised fasting and other types of exertion for the sake of health or religious devotion. The Pythagorean and Stoic philosophers called them asketēs: it consisted in chastity, poverty, watchfulness, fasting, and retirement. The ascetics seem to have been an Eastern sect of Galen, but they were also practised by the Hylobilii or Allobii, Gymnosphists in Asia, and other sects in East-Africa, were ascetics, who like the present Sannyseas, Talapins, and Bonzes, in eastern Asia, exercised their ingenuity in devising new methods of self-suffering. For the Jewish ascetics, see the articles NASBRANS, ESSENCES. According to Eusebius (Hist. Eccl. ii. c. 23), James the Just, the brother of Jesus, was an ascetic at Jerusalem before the destruction of that city. The Christians were in the earlier centuries more or less under the influence of the above sects, and by ascetic austerities. In the second century, the Christians began to distinguish between the commands given to all believers and the evangelical advice which they supposed to be applicable to those only who aimed at the higher station of ascetics. The Christian ascetics were divided into asetinantes, or those who abstained from wine, meat, and agreeable food, and continentes, or those who, abstaining from matrimony, used to live in continence. They were the hermits and monks, which was regulated in the fourth century. [See HERMITS, MONKS.] (Du Fresne, General History of the Holy Land Latinized, &c. c. 2. De Resub. Christ. ante Const. M. p. 311, &c.; Deiling, Observations, t. iii. p. 646, &c. Del. Fel. Asetetes; Plato, De Republic. l. iii. p. 237, ed. Bip. tom. vi.; Pfitzner, Lyceum; Eschett Disser. l. iii. c. 12, on Askhetes. Grote, Mythengeschichte der Aegyptischen Welt, p. 138, seqq. 192. Petri in Erec und Grubes Encyclop.; Neander's Kirchengeschichte, b. i. abh. 2; Zimmermann on Solitude, pt. ii. chap. 3. On this religious rule, see the first book of the Church, &c. of the Monks of Christ. & c. De Mystic Church, &c. Bryant's Mythology, vols. 4 and 5 of the svo.)

ASCHAFFENBURG, a principality, on both sides of the Main, and in the western part of central Germany: it is bounded on the north by Bavaria; on the east by the Electorate of Saxony, and on the south by the Grand Duchy of Hesse, and on the E. by the Bavarian dominions, of which it forms a present portion, included in the circle of the Lower Main. It is 337 square miles in superficial extent, and, besides its two principal towns of Mentz. In 1803 it was made over to Archbishop Charles of Dalberg, episcopal Arch-Chancellor elect under Napoleon; three years afterwards it was annexed to the Grand Duchy of Frankfort; and in 1814 it was transferred to Bavaria. A treaty concluded on the 19th of June between that power and Austria, and in exchange for the greater part of the territory of Salzburg, and some minor dependencies. The
noble forests of the Spessart and Odenwald occupy a con-
siderable part of the eastern surface of this principality: the
former alone is nearly seventy miles in length, and occupies
an area of more than three thousand square miles. The
most northerly limit of Aschaffenburg and the territory of Würzburg:
the elevated ridge on which the forest stands is a subsidiary range of the
Rheintal Alps, and is rich in copper, cobalt, arsenic, lead, and iron. The Geyerberg (or Mount Helbig; Mount Ertl) near Alzey, which has an elevation of 1785 feet, is the high-
est point in the Spessart. The district of Aschaffenburg, in the
Bavarian circle of the Lower Rhine, which includes the
inhabitants of Aschaffenburg, whose municipal existence dates from the eighth cen-
tury at least. It is surrounded by walls on all sides but that
towards the river, which is irregularly built up, and the streets are
mostly narrow, steep, and crooked. The pride of its inha-
bitants is the Johanniskirche, a handsome palace, forming
is a large and regular square, with towers to each face; it
crowns the highest ground in the town, lies close upon
the old and new market, and is the seat of the chapter of the church of
Mentz during the years 1605 and 1614. He and his
successors used it as their hunting-seat, and it is still the
occasional residence of the crown-prince of Bavaria. At
translating, pictures, engravings, collection of ecclesiastical rarities brought from the
old collegiate church, besides an interesting series of models
in Ezekiel's Temple, and a collection of ancient and modern drawings and engravings.

ASCHAM, ROGER, was born in 1515, at Kirby Wiske, near North Allerton, in Yorkshire. His father was house-
keeper of the child of Sroope, and his mother, whose name was recorded, is said to
have belonged to a family of many considerable families. Roger, their third son, having
passed his first years under the care of his parents, was adopted into the family of Sir Anthony Wingfield, who
committed his education, with that of his own sons, to a
domestic tutor of the name of Bond; and afterwards, in 1530,
placed him at St. John's College, Cambridge, then
one of the most flourishing in the University.

The destruction of the Constantinopolitan empire had, probably, in this time, dispersed the Greek and their lan-
guage through Europe, though undoubtedly Greek was
known by a few individuals in western Europe long before
this time. But Greek now began to be taught in the Uni-
versities, and more especially at Cambridge, where a taste
for this study had been raised by Cheke and Smith. Immedi-
ately upon his admission into college, Ascham applied him-
to the study of that language; and, when he had
arrived at some proficiency, with a view to quicken his im-
petus, he had a tutor who had large knowledge in the

Ascham took his bachelor's degree in the month of
February, 1534, and on the 23rd of March following was
chosen fellow of his college; which election, says Dr. Rich-
son, he considered as a second birth, because it relieved
him from the necessity of longer dependence on the bounty
of Sir Anthony Wingfield, for whom he always retained a
grateful and affectionate remembrance.

In Wingfield's family, Ascham had been educated in the
documents of the Romish church; but new learning and new
unities of religion were gaining ground; he entered into the
controversy of the Day; and, gradually, his love for an academic life
confining him to his severer studies only. He was eminent for other accom-
plishments. He had learned to play on musical instru-
ments, and was one of the few who excelled in the mecha-
nical arts. He was one of the most skillful masters of the

He became M.A. in 1537, in his twenty-first year; and the
prize of his extraordinary talents, symbolized in the mem-
rose to eminence, and one of them, the name of William
Grindal, was made master of languages to the Lady
Elizabeth.

As yet, there was no established lecturer in Greek at Cam-
bridge: the University therefore appointed Ascham to read in the public schools, and paid him from the
public purse an honorand stipend; but a lecture being
founded by Henry VIII., Ascham quitted the schools, and
returned to explain Greek authors in his own college. He
was one of those who restored the pronunciation of Greek to
our own modern mode of utterance.

To divert himself after the fatigues of study, his favourite amusement was archery; in which he spent so much time that he was sometimes accused of neglecting his studies. This was not a dis-

Ascham, with this allowance and the enjoyment of his
fellowship, must have been at least easy in his circumstances.

In 1548, upon Grindal's death, Ascham was called to
court, to instruct the Lady Elizabeth in the knowledge of the
of learning the languages, a duty which he discharged for
two years, with great reputation to himself, and much
satisfaction to his illustrious pupil; but at length, on account
of some ill-judged and ill-founded whispers, Ascham took
such a distaste to some persons in the Lady Elizabeth's family, that he left her a little abruptly. Dr. Johnson says

On returning to the University he resumed his studies and the discharge of his office as public orator. His pension
had ceased upon the death of Henry VIII., but it was re-
stored by King Edward VI. Other pecuniary assistance
also reached him from lovers of learning, and he had a
small pension from Archbishop Lee.

In the summer of 1550 he took a journey into Yorkshire
to see his native place and old acquaintance, where he re-
ceived a letter from the king acquainting him that he was
appointed secretary to Sir Richard Morysine, then going
ambassador to the Emperor Charles V. In his return to
London, he paid that memorable visit to the Lady Jane
Grey, at her father's house at Brogdale in Leicestershire,
where he found her reading the 'Phaedon' of Plato in Greek;

His health was so long, end so uncustomed to resist
dis respect cannot easily forgive it, he probably felt the effects of his imprudence to his death. Middleton
says ' he took great and not unsuccessful pains to be reforming his manners, and had been all his life a

On the 9th of September following, he embarked with Sir William More at Miltzburg, in Germany, where he remained
three years, and wandered over a great part of that country,
making observations upon all that appeared deserving of his
notice. He made a short excursion into Italy, and men-
ucional, and was sent by Dr. Johnson to the University of

"He was desirous of visiting Trent while the council were sitting; but the scantiness of his purse defeated his curiosity. While he was abroad, Ascham wrote a short but curious tract, entitled "A Re-
port and Discourse of the Affairs in Germany", in which,
sows Dr. Johnson, 'he describes the dispositions and interests of the German princes like a man inquisitive and judicious, and ready to die and stand upon his head in the mass of general history, in a style which to the ears of that age was undoubtedly mellifluous, and which is now a very valuable specimen of genuine English.'

The same opportunities were accorded him not only in the management of public business, but in the direction of his private studies, which were for the most part in the Greek language. For four days in the week he explained three or four pages of Herodotus every morning, and more than two hundred verses of Sophocles or Euripides every afternoon.

He read with him likewise some of the orations of Demosthenes. On the other three, he copied the letters which the ambassador sent to England; and in the night filled with his own letters to his countrymen, but especially to private letters—many to his college—which showed that, in spite of the advantages of novelty and station, he sighed for his return to academical retirement.

While employed, his friends in England, in 1552, procured for him the post of Latin secretary to King Edward; but the King, in a short time, died; Morseyane was recalled; and Ascham, who came back with him, once more retreated to his fellowship. He had, however, better fortune in 1553, when, after the conversion to the Church of England, he was appointed to the notice of Gardiner, bishop of Winchester, and, though a protestant, his pension was doubled; and he was again instated in the office of Latin secretary, retaining at the same time his fellowship, and his post of public orator. Soon after his re-admission to the office of Latin secretary, he is said to have given an extraordinary specimen of abilities and diligence, by composing and transcribing, with his own hands, a Latin elegy, in three days, for the Duke of Oxford, who was then in love to whom the elegy was addressed.

He was patronised at this time by Cardinal Pole, who, though he wrote elegant Latin himself, sometimes made use of Mr. Ascham's pen.

On the 1st of June, 1554, Ascham married Mrs. Margaret Howe, a lady of good family, who, Chalmers says, brought him a considerable fortune; and of whom he has given an excellent character in one of his letters to his friend Pole.

On the death of Queen Mary, in 1558, having previously been reconciled to the Lady Elizabeth, now Queen, he was immediately distinguished by her; and from this time, until his death, he was constantly employed, and fully employed, in his two offices, one of secretary for the Latin tongue, and the other of tutor to her Majesty in the learned languages, reading some hours with her every day.

In 1559, Queen Elizabeth gave him the prebend of Waltham and the rectory of Yarwell. This appears to have been his only prebend in addition to his places. In 1563, he was invited by Sir Richard Sackville to write 'The Schoolmaster,' a treatise on education, upon an occasion that was at that time much talked of, expecting to recommend it to the notice of the Queen. The work, though begun with alacrity, in hopes of a considerable reward, was interrupted by the death of the patron, in 1556, and afterwards slowly and slowly finished, in the gloom of disappointment, under the pressure of distress.

But of the author's disinclination or dejection, there can be found no tokens in the work, which is conceived with great vigour, and finished with great accuracy; and perhaps, says Dr. Johnson, contains the best advice that was ever given for the study of languages. This treatise he completed, but did not publish. It lay unseen in his study, and was at last dedicated to Sir William Cecil by his widow in 1571. Some account of this work of Ascham's, and of his mode of teaching languages, is given by Mr. John Taylor, in his Essay on a System of Classical Instruction, London, 1829.

Some time before his death, Ascham was seized by a hectic disease, the most afflictive symptom of which was want of sleep. It was increased by night-studies, when trying to complete a Latin poem which he designed to present to the Queen on the new year; but, on the 23rd of December preceding, i.e. was attacked by an aguish disease, under which he lingered only seven days, and died Dec. 30, 1568. He was interred, on the 4th of January following, in the church of St. Sepulchre, by Newgate.

Although his wife is said to have brought a fortune to Ascham, it is said to have been out of the power of his descendants, leaving, as she expresses it, in the dedication of 'The Schoolmaster,' 'a widow and a great sort of orphan.'

There seems reason to believe that Ascham was impoverished. One of his failings is recorded to have been a propensity to quickness of temper and to the frequent giving of a contemptuous retort. As a scholar and a man, however, he died universally lamented; and it was observed of him, by those who knew his life, says, that when Queen Elizabeth heard the news of his death, she exclaimed 'she would rather have thrown ten thousand pounds into the sea, than have lost her Ascham.'

The only work of Ascham now extant is 'The Schoolmaster.'

1. Tozophilus, The Schole of Shoottinge, 4to. Lond. 1545; reprint. 4to. Lond. 1571; 4to. Lond. 1589, with a pref. by J. Warters; 12mo. Wrexham, 1788. 3. A Report and Discourse of the Archbishop of Canterbury, and the Empereor Charles his Court, 4to. Lond., 1651. After his death were printed, 2. The Scholemaster, or plain and profitable way of teaching Children, to understand, write, and SPEAK the Latin Tongue, 1551; reprint. 4to. Lond. 1589; revised by James Uther, 8vo. Oxon. 1714; 4to. 1748. 4. Apologia Doct. Vrri. R. A. pro Cama Dominica contra Missam et ejus pretiositas; in Academia olim Cantabri- giensis exercitationem gratiâ inveniata, &c., 8vo. Lond. 1577. 5. Familiarum Epistolarum Libri tres; addita sunt paucus guarum Rogeri Aschami Poenata; omnium collecta operis et studii B. G. Adjecta in fine eodem E. G. Osidos de Vita et Officiis Rogeri Aschami, et ejus dictationis eloquentia, 12mo. Lond., 1576, 1577, 1578, 1630; Hanwell, 1668, 8vo. Cold. Alb. 1611; the last and best edit. (with the omission of the Poems) by W. Elstob, 8vo. Oxon. 1703. Ascham's English works were published by the Rev. James Bennet, 4to. Lond. 1767, with a Life prefixed, by Mr. South. The preface is adapted by T. Hanly, 8vo. Lond. 1815. A few of Ascham's original letters are preserved among the Lansdown Manuscripts in the British Museum. (See the Latin Life of Ascham, subjoined to the following editions of his Letters, by Edw. Grant, Master of Westminster School, and John Hawkins, Master of All Hallows School; and the Memoirs of Ascham, Johnson's and S. Gunning's.)

ACHERSLEBEN, a circle in the south-eastern part of the Prussian province of Magdeburg, containing 1664 square miles, and, according to the census of 1851, 41,693 inhabitants. It possessed at that time 2866 houses, 6036 head of horned cattle, and 87,129 sheep and goats. Quedlinburg is its capital. It is an uncommonly fertile tract of level country, and rich in orchards and quantities of fruit seed. Achersleben was part of the bishopric of Halberstadt, which was secularised in 1648, and fell to the share of Brandenburg. Between the years 1807 and 1813 it was incorporated with the short-lived kingdom of Westphalia.

The town of this name lies within the circle, close to the confluence of the Wipper and Zins, and on the banks of the last-mentioned river: 54°46' N. lat. 11°27' E. long.; and 18 miles S. E. of Magdeburg. It is the former residence of the Elector of Anhalt, of which it was made master in the year 1319. The town is surrounded by walls, with five gates; and has three churches, as many hospitals, a gymnasium, and orphan asylum. The receipts of its inhabitants amount to 21,013 thalers, of whom are Lutherans, was, in 1831, 9398. It has very considerable manufactures of flannel, friezes, linens, earthware, &c. Achersleben was formerly a Hanse-town. The picturesque ruins of the ancient burgh of Ascham, the patrimonial seat of the house of Anhalt, are in its neighbourhood.

ASCidia, a genus of molluscous animals belonging to Cuvier's order of Aspaeae without shells. Saviaggi has considered these animals sufficiently important to constitute a class, under the name of Ascidea (Ascidia); while Lamarck has also formed them with others into a class, under the name of Tunicata (Tunicata). [See Mollusca.]

ASCLEPIADES. [See Asculapius.]

ASCLEPIADES. Among dicotyledonous plants there is a natural order which may be known from all others by the single-character of its grains of pollen, which are enclosed within a sort of bag which occupies the whole of the inside of each cell of the anther; and when it falls out sticks to glands of a peculiar character occupying the angles of the stigma. Independently of this circumstance, the bag and stigma adhere firmly together, and the fruit is a very juicy body, consisting of two carpels, which, when young, are parallel to each other, and united at the point, but when ripe are both on the same plane, pointing in different directions, and each containing a quantity of seeds, the end of which terminates in long down. To this order the name of asclepideans has been given, in
consequence of the genus asclepias being the largest which the order contains. It consists of shrubs or herbaceous plants, abounding in an acrid and usually milky juice, and found in their greatest abundance in tropical countries, rarely in cold latitudes. At the Cape of Good Hope they form a singular stunted deformed vegetation, in the form of the leafless succulent stapelias, the flowers of which are among the most fated productions of the vegetable kingdom. A great many species of asclepias inhabit North America, and for their beauty are frequently cultivated in Europe, especially the orange-coloured asclepias tuberosa. Their roots are acrid and stimulating, and usually emetic. Their flowers are curious horned processes, added to the corolla.

ASCLEPIADES. This name was common to a great number of persons, which has caused some confusion both in the antient and modern accounts of Asclepiades the physician, a name only we are going to mention.

Asclepiades was a native of Prusa in Bithynia, but the time of his birth is unknown, nor can we ascertain which of the three towns of Bithynia called Prusa claims the honour of his birth. He appears, when young, to have spent some time at Alexandria, and at Parium, on the Propontis; probably also at Athens, where, if the story told in Athenaeus (iv. p. 168) refers to him, he gained his living at first by grinding at a mill during the night, in order that he might attend the lectures on philosophy during the day. In Athens he appears to have been on terms of intimacy with Antiochus, the academican, the master of Cicero. It is not known in what year he came to Rome, but he lived there at least during the earlier part of Cicero's life; he was probably some years older than the Roman orator. He is said to have lived a great age, free from all disease, and to have died by accidentally falling down stairs.

The foundation of the healing system of Asclepiades was the doctrine of corpuscles, which he borrowed from Heracles of Pontus. His corpuscular elements, which he called onkêdοσ (ουκεθα), differed from the atoms of Epicurus: they were without form, but still divisible, and subject to change. From the collision of these corpuscles in space, from their fracture, and the accidental union of the fractured parts, arose visible bodies. Thus from a union of corpuscles arose the human form; and the motion of the corpuscles, which compose the body, in the spaces assigned to them, or their pores, produce health or sickness, according as the motion is proper and harmonious, or the reverse. On this arbitrary theory all his pathology was founded. It seems to be a natural consequence that he was little acquainted with anatomy, as Galen remarks: he had no exact notion of the difference between the veins and arteries, he was unacquainted with the use of the nerves, and he confounded them with the ligaments.

He is said to have been the first who divided diseases into acute and chronic, and to have considered them essentially different. Like his predecessors, he considered fever as an unnatural heat in all or most parts of the body, connected with a quick pulse, and he attributed it, as well as inflammation, to obstruction. When the larger corpuscles cause a more stubborn obstruction, more dangerous fevers arise; when the obstruction is caused by the finest particles fixing themselves in the pores, the fever is less violent. Accordingly, the character of intermittent fever is explained by the various size of the corpuscles, since it is the finest particles that cause obstruction in a quartan, the larger in a tertian, and the largest of all in a quotidian fever.

He observed the double-tertian fever which was so common in Rome, and is described by writers after him. [See Agis, vol. i. p. 223.] He distinguished very accurately between the violent or febrile dropsy, and the chronic one, unaccompanied with fever.

The practice of Asclepiades was in many respects good. He trusted more to dietetic means than to the use of medicines; and often recommended a change in the mode of living, in which he studiously attended to the most minute particulars. He disapproved of the frequent use of purges, and in place of the latter he recommended elysiers. Blood-letting he practised often, especially in inflammatory cases; but yet he considered that this practice was not equally useful in all cases. On the Hellespont, near his native country, it was often very serviceable, but in Rome and Athens frequently dangerous. He recommended cupping to be used with great caution.

He appears to have been more skilled in surgery in many cases, the gentle motion of the sick in a kind of hanging bed, and to him we must
ASC

The origin of Asculum is lost in the obscurity of the ante-
Roman ages. Its foundation has been attributed to the
Sabines, who sent a colony north of the Apennines, whose
name was thus corrupted. The site has been conjectured to
be derived from a species of oak called
in Latin asculum, and now by the natives echio, with
which the neighbouring mountains abound. Asculum was
the chief town of this district, and it has never been
considered as frequently efficacious in the cure of diseases.
The school which Asclepiades founded continued for
some time, and produced several writers, who diffused his
principles and practices with more or less exactness.
Asclepius, according to Pliny (xxvi. 3), was originally
a rhetorician; Cicero also (De Orat. i. 14) speaks of
his eloquence. Pliny treats him as an impudent quack,
who gained great practice by humouring the whims of his
patients, and prescribing such remedies as would be sure
to please. If we are inclined to view him as an adventurer
in the medical line, such as start up occasionally in modern
times, still, as much of his practice was very good and
safe, we may give him credit for being at least a clever
quack.

For further information on Asclepiades, see Sprinzel,
Versuch einer pragmatischen Geschichte der Arzneikunde,
2nd ed. Halle, 1796, pp. 6-27; and Bithynia Fragmena, by Gumppert, Weimar, 1794; Chr. F. Harless,

АСКАНТИАД.С.
The bust of Asclepiades is only presumed to be his on
the ground of the name occurring upon it, and from the im-
probability of its belonging to any other person of the same
name, all of whom were men of much less note than the
physician.

A(SCOLI, (Ayculum Picnum, a town in the Papal
State, in the province called La Marca, and in the adminis-
trative delegation of "Fermo ed Ascoli. It lies on the
right or southern bank of the Tronto, and between it and
the Castellana, just above in consequence of the two rivers,
in 42° 50' N. lat., and 13° 37' E. long. It is built on a rising
ground, commanding a fine and fertile plain, which is en-
closed by the Apennines, except on the eastern side, where
the river Tronto flows through a valley towards the Adriatic
Sea, from which Ascoli is distant seventeen miles.
The main ridge of the Apennines rises about ten miles west-
ward of Ascoli, forming the high summit called Monte
della Sibilla, 7212 feet high. The valley of the Tronto
celebrated for its fertility: it abounds in vines, olive, and
other fruit trees, and is studded with villages and country-
seated. The mouth of the Tronto, called Porto d'Ascoli, is
defended by a castle; and there is anchorage for small
vessels. Ascoli is a frontier town of the Papal State, being
only three miles from the boundary of the kingdom of
Naples, and fifteen miles N.W. of Teramo, the chief town of
Abruzzo Ultra II. A principal road leads from Ascoli to
Teramo, and thence to Sulmona and Naples. Another
road leads from Ascoli eastwards to the mouth of the
Tronto, and thence northwards along the Adriatic coast
to Fermo and Macerata, where it joins the high road from
Loreto to Rome. The Vno Salario was formerly the direct
road from Rome to Asculum; but after resting it ascended
the valley of the Velino, and crossed the Appennines
between the sources of that river and those of the
Tronto.

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Corinthisc columns with capitals of beautiful workmanship. Ascoli is surrounded by walls and towers, and has a castle.

It was once considered a strong place, on account of its stockade, but has not been of much value for centuries.

It is said to be a bishopric, and has a population of 12,000. Pope Nicholas IV. was a native of Ascoli. Francesco Stabili, commonly called 'Cecco d'Ascoli,' was also born here in 1257.

He was physician, philosopher, astrologer, and erudite, and his philosophy was marked by marked naturalism and ethics, in which there are some powerful passages; but the language is much inferior to that of Dante, whose contemporary Cecco was.

ASCOLANO is a town (or comune), a town of Ascoli, in the province of Ascoli, which sits on a hill near the river Carapella, in 42° 9' N. lat. and 15° 27' E. long., ten miles S.E. of Ascoli, and on the cross road from it to Venice.

It is a bishopric, and has a cathedral, and the title of Chirurgia is a Neoplatonist family. It is a small town, and we find that the whole diocese had not more than 8280 souls at the close of the last century.

Asculum was antiently one of the principal towns of Daunia. It is first mentioned in history on the occasion of the war of Pyrrhus, who fought a battle against the Romans in its neighbourhood. Having afterwards espoused the cause of Hannibal, its territory was given up to the Roman victors after the expulsion of the Carthaginians, and its inhabitants were called Asculaneans, being thus distinguished from those of Asculum Pecunum, who were called Asculani. Minatius Magnus, the ancestor of Velocius Punicus, was born at Asculum. The town was procedure of, called Paterici. Asculum was destroyed by Roger the Norman, but was afterwards restored. It is 66 miles E.N.E. of Naples.

ASCOCIUS, Q. PEDIANUS, one of the earliest com- mercial agents who is usually considered to have been a native of Padua, though the opinion rests on no surer ground than a passage of Silius Italicus (xii. 212) where he mentions a person of the same name as a native of this city. We are unable to fix the exact period of his birth and death; but possibly he is the person of note, who in the time of Decius, was sent by the Emperor to the city of Carthage, as an agent for the trade of Phœnicia, and there he died in the second year of the Cæsarean administration.

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mony, and became professor of anatomy at Pavia. He is regarded as the discoverer of the lacteal, or the set of vessels which absorb or suck up the nutritious portion of the food of animals, the chyle from the upper part of the intestinal tube, in order to convey it to the heart and lungs, so that it may become incorporated in the circulating fluid or blood. It is certain that, in 1582, he saw these vessels, and that he described them in a brand new descriptive way, and that the milk-like character of which is derived the name of lacteal, distinguished them from the other vessels, and demonstrated them in his lectures. But he was conducted by chance, and he did not secure any considerable increase of dominion was that which resulted from the conquest of the neighboring kingdom of Dinkira. Dupuis says that this conquest happened, according to the Moslem records, in the year of the Hejirah 1124, that is, A.D. 1719; and he quotes, in support of this account, the authority of the governor of Elmina, who wrote, remarks, in 1721, and who states that it had taken place but a few months previous. But Bosman, the second edition of an English translation of whose book appeared in London in 1721, appears to have written the letters of which it consists in the year 1701. In the first of them, he acknowledges the receipt of a letter from his correspondent in Europe, dated 1st September, 1690. His account of Dinkira and of its conquest by the king of Ashantee, or, as he writes the name, Asante, is in the sixth letter. He describes Dinkira as lying so far inland that it often took five days to go to it from Elmina, and ten from Ashantee (or near the source of the river); "and he adds, however, 'so much on account of its real distance from either place, as because of the badness of the roads.' The kingdom of Dinkira, which had hitherto existed, had now, however, eventually become so powerful, as to have gained the respect of all the neighboring nations, with the exception only of Asante and Akm, both of which were still superior to it in strength and wealth of resources. Dinkira, which held in subjection the three adjoining districts of Waassaw and Hassan, was the chief source from which the supply of gold was obtained. But a few months past, 'he writes, 'it was so entirely destroyed, that it lies at present desolate and deserted.' And as the authority of Boasman, or the other of Zay, the king of Asante, made him determine to march against his enemy. Boasman in the mean time died, but this produced no change in the resolution of the king of Ashantee. 'About the beginning of this year,' continues Bosman, 'being completely ready, he came with a terrible army into the field; and engaging the Dinkirans, who expected him, he defeated them, and after a sharp conflict, entirely defeated them. The negroes report, that in these two battles above a hundred thousand men were killed; of the negroes of Akm only, who came to the assistance of the Dinkirians, there are not a hundred who escaped. He intimates his belief, however, that the numbers of the enemy were greatly exaggerated. The plunder consequent upon this victory occupied the Ashantee fifteen days; and the booty collected by the king was said to amount to several thousand marks of gold. Dupuis says that the war with Dinkira is still remembered among the Ashantees. After the great battle, the body of King Bosman was disinterred by order of the avenging victor; the flesh was given to be devoured by serpents, the skull and thigh bones were preserved as trophies. These relics still remain at the court of the king of Ashantee, and are exhibited on certain holidays for popular insult.

The conquest of Dinkira, which is called Zay by Bosman, is named Sai Tootoo by Bowdich, and Sai Tooto by Dupuis. Zay, or Sai, or Sai, appears in fact to be the general title of the Ashantee kings. According to Bowdich, Sai Tooto was the conductor of what he calls the蓝图s of the Ashantees, and the founder of Conamassie, the capital of the empire. Dupuis denies that he built the town, but allows that he greatly increased its size, and transferred the seat of the government, which had previously been sometimes at Kitiwry, now called Konamassie, sometimes at Begua, to the south of it. The conquest of Dinkira gave so great an accession of territory and power to the Ashantee state, and so completely altered its relations to the surrounding powers, that Sai Tootoo, or Sai, was even bestowed the epithet the Great, may almost be considered as the founder of the present empire. The history of the country before his time is acknowledged to be legendary and
obscure. He is said to have been the first king by whom the Moslems, or Mohammedan inhabitants, were reduced to the same state of subjection with the heathen negroes, and compelled to serve in his armies. It was in his reign also, that a commercial intercourse with the Dutch settlements on the coast first introduced the Ashantees to an acquaintance with white men. Besides his conquest of Dinkaire, he carried his arms into the heart of several other of the neighbouring states. He reduced the king of Gaman to the condition of a tributary; entirely subdued the districts of Tofal, Quahou, and another of the ancient boundaries of the Tana Boke, and annexed them to the west of Coomassie; reduced the government of Akim to partial subjection, and ravaged Assin. 'In short,' concludes Mr. Dupuis, 'he created an empire, including tributaries and allies, which was chiefly of a feudal character. He possessed his first kingdom, but he was the founder of those kingdoms and principalities between the 6th and 9th degrees of N. latitude, and between the 4th degree of longitude west from the meridian of London, and the river Volta. The auxiliary kingdom of Banna was not the right arm of Ashantees in those days, and still is. The empire of Ashantees, however, was still separated from the coast by a tract of forty or fifty miles in breadth, occupied by the perfectly independent states of Asuin, Amoda, Ashante, Waga, Fantes, and Akwamu, not reduced, and along with Gaman, Bouromy, and Yobati, incorporated as integral parts of the empire. After suppressing a formidable rebellion which suddenly arose in the heart of the country, and his successor was Sai Ackwey, who after a reign made memorable by a most disastrous campaign with the powerful neighbouring state of Dahomey, lost his life in 1752, from a wound which he received in a war with Banna. His nephew Sai Neil, who also partook in the defeat, was appointed to succeed him till 1791. During his time, a rebellion of several of the recently subdued provinces brought the empire to the brink of dissolution; but it was eventually quelled, and the influence, if not the actual dominion, of Ashantees, even extended now, was towards the south-west, or in the direction of what is called the Ivory Coast. The reign of the next prince, Sai Quamina, was ushered in by a revolt of Asuin, Akim, and Aegham, which was, however, soon suppressed. But after some years, the leading Ashante chiefs combined and deposed their sovereign, who had rendered himself obnoxious by a scarcely concealed preference for the Moslem creed, which he wished to impose as the national religion. This event took place in 1797. The brother of the deposed king was elected to the vacant throne, under the title of Sai Apoki the Second. He reigned till the year 1800. He succeeded by his son, Sai Quamina, then a boy of seventeen years of age, the same by whom the throne was still filled when Mr. Bowdich and Mr. Dupuis were in the country. This, and the exception, perhaps, of that of Sai Tooto the Great, the import of which Quamina has been by far the most important in the annals of Ashantees. Only a few months after his accession, the young king gave proof of his military talents, by conducting a campaign against the united forces of the Moors, the Pagos, and the enemies of the state, and beating them with a decisive battle, in which, it is said, they lost not less than 100,000 men and prisoners. But this must surely be an exaggeration. A considerable accession of territory, and a period of tranquillity which lasted for more than thirty years, followed this success. The circumstances out of which new hostilities arose, eventually led also to the intercourse between Ashantees and England, which forms to us the most interesting fact of that interlude. It was in 1807, that an Ashante army first reached the coast where the European forts are. Down to this time, from the mention of the Ashantees by Bosman early in the 18th century, to the time that most of the forts on the coast have been visited by any person from Europe, and their very name had become almost forgotten. Mr. Meredith, who was then second officer in the English fort at Annamboe, has, in his Account of the Gold Coast, given an ample detail of the events which introduced them to the acquaintance of our countrymen, and corrections or explanations of some points in his narrative may be found in the pages of Mr. Dupuis, pp. 250-264. The repose from warlike operations which Ashantees had enjoyed from 1801, was broken in 1806 by a revolt of two of the tributary princes of Assin, who were joined by the Fantees, a nation occupying the tract along the coast from the forts of Cape Coast Castle and Annamboe are situated. The Fantees seem to have felt that their independence was endangered by the growing power of the Ashantees; and there is some reason to believe that in the formation of these two parties, encouraged a revolution, by which they hoped to prevent the further encroachments of the Ashantees. But the Fantees, notwithstanding the numbers of these two revolts, and the skilful way in which the field, were no match for the Ashantees either in braveness or in the art of war. They were beaten by their enemy in every encounter, and in May 1807, the king of Ashantees had established himself and his army at Abrah, not more than from or twenty miles from the town. The author indeed and made himself master of the Dutch stations of Cormantie and Fort Amsterdam. It was now thought prudent by Mr. White, the governor of Annamboe, to despatch a flag of truce to the negro monarch, with request to be informed what object he had in view in coming to the coast. Sai Quamina, who, Mr. Dupuis says, was fully persuaded that this proceeding was merely an expedient to gain time, and to induce him to desist from his designs, was not slow in sending his promises of assistance which his enemies had received from the English authorities, returned the haughty answer, that the governor should be told what his designs were when he should take the part of the townspeople, and receive their muskets. In another week, Aga, a town within a mile of Annamboe, fell into the hands of the invaders. On the 15th of June, the people of Annamboe went out in great force to repel the result of the latter, but in excellent order, after a short contest. But on the following day the enemy advanced upon the town, and soon carried everything before them. Mr. Dupuis states, on the information of the king himself, that it was not his object to destroy the forts, but only to effect an ascendency, and that he had no attempt upon that building till the guns had been turned against him, and that even then he did not wish to carry matters to extremity against the whites. That the English, in the latter, took the part of the townspeople, not received the old men, women, and children within the fort, but employing all its force to repel the assailants, is acknowledged on all hands. Indeed, in the state to which things had by this time been brought, they do not have acted otherwise. The result, however, proved most disastrous both to the Fantees and their European protectors. The contest lasted from eleven in the morning till six in the afternoon. The time that the town was in the hands of the English, including not less than 1000 persons, was never interrupted by attack. Its renewal, according to Mr. Dupuis, was only prevented by the arrival in the Ashante camp of a flag of truce from Governor White. This intimation of a truce for the day, the Ashantees, who had found refuge within the English fort. Even of these, many had been destroyed by the shot which fell among them in the open court where they were placed. The garrison itself suffered severely, and was reduced to the utmost extremity. It consisted only of the governor, Mr. Meredith, three other officers, four free mulattoes, and twenty other men of all descriptions. Two men having been killed, and six others wounded, by the enemy, or other causes; and being himself wounded early in the contest, the force that could be depended upon was, about noon, reduced to eight individuals, including officers. But about six o'clock the enemy retired, and took the town, the Ashantees having given no hostile attack. Its renewal, according to Mr. Dupuis, was only prevented by the arrival in the Ashante camp of a flag of truce from Governor White.

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ENGLISH, the other by the Ashantees. Finally, the king of Ashantee was made to acknowledge, not only that he had himself taken his sacred oath of allegiance and fidelity to the Crown of Great Britain, but that all his principal captains and counsellors had done the same. It can hardly be supposed that the full import of this declaration, according to European notions, can have been understood by the negro sovereign, who could, if so, have given an acknowledgment that formed no part of the treaty.

When Mr. Dupuis soon after returned to Cape Coast Castle, accompanied by several Ashantee chiefs, deputed by their sovereign, he found that the authorities there refused altogether to accede to the terms of this treaty. They rested their objections on the old ground, that the sovereignty of Fantee did not belong to right, but was derived from the king of Ashantee. In this view they were supported by Sir George Collier, who happened to be there in the Tartar^man-of-war, and who refused to convey the ambassadors to England. The first result of this was the great and momentous change in all dealings with the servants of the Company. Although a body of Ashantee forces, however, had taken and retained possession of the town of Cape Coast, they continued to refrain from any hostile movement in the beginning of the year 1821, the forts which had belonged to the African Company were taken by the English government into its own hands, and soon after, Sir Charles McCarthy was invested with the chief command of all the British forces on the western coast of Africa, from the river Gambia to the river Volta inclusive. When the new governor landed at Cape Coast Castle, in the early part of 1822, he found the place blockaded by the forces of the king of Ashantee.

After a few months Sir Charles began to organize bands of the Fantees into a sort of militia, and to form alliances with various tribes of that nation, and of other nations, in the neighborhood of the district, however, Mr. Dupuis asserts, remained steady to their allegiance to the king of Ashantee.

Sai Quamina appears to have died in the summer of 1823. His body was accompanied by a distinction of war against the English, whom he accused of the infractions of treaties, treachery, cruelty, &c. Soon after, a negro in the service of the garrison was seized by the Ashantees and put to death. It was now resolved by the English no longer to delay active hostilities. The first operations, conducted by Captain Laing, were crowned with success. In August, the Ashantees were completely defeated at Assecauma, in the Fantee territory, by a force composed partly of Ashantees, and partly of negroes, which had been commanded by this officer. Encouraged probably by this victory, in the beginning of the following year, Sir Charles McCarthy had the temerity to advance into the interior at the head of a small body of troops, consisting of about 1,000 men, and divided his entire force into four separate divisions. He was attacked on the 21st of January, near the river Pra or Praa, by the enemy, whose numbers are said to have amounted to 10,000 men. The result was a total defeat of the handful of troops under the governor's immediate command. Sir Charles himself was wounded and taken prisoner, and, with the exception of two, all the officers who were with him, were either killed or captured. This disastrous encounter, however, did not terminate the war. It continued for nearly three years, though with long intervals of cessation from hostilities; and was only brought to a close by a severe action fought near Acora, on the 7th of August, 1832. In consequence of this battle, the entire Ashantee army was completely defeated. Soon after this, the king submitted to pay 600 ounces of gold, and to send one of his sons and a nephew to be educated at the Castle, as the conditions of a peace.

The coast was the river Assine; but in the interior, the province of Gambie lies in great part beyond even the western-most branch of that river, and the great part of the territory of the Bara. The country north-east of Gambie are the Mending tribes, and the independent Moslem states of Kong and Enkassy.

Both Bowlich and Dupuis have given a mass of details respecting the internal geography of the kingdom, upon many of which, however, very little dependence can be placed. Indeed, Dupuis has enumerated a multitude of errors, some of them of the most serious magnitude, into which the author has fallen, and many of the information collected by Dupuis himself, again, was derived merely from the reports of persons with whom he conversed, whose statements, defective, he patched up in the best way he could.

The empire of Ashantee, Dupuis says, was popularly reckoned to be made up of no fewer than forty-seven different states, and this was before the annexation of the kingdom of Gambie. The chief of these have been mentioned in the preceding historical sketch. According to the map of Mr. Dupuis, the following are the maritime provinces, in the order in which they are placed from west to east—Amebe, Ahanta, Fantee, Inkran, Aquapim, and Adampa. To the south of Ahanta is Totala, and to the north of that Wossou. Further in the interior are, Dinkira, Akim, and Aquambo. Still beyond these are, Ashantee Proper, and Quahou; then Massy and Akeyah; then Gobogo, or the capital Ajorah; then the river Yobati. To the north of these is placed the kingdom of Hanno, which is independent, although usually in close alliance with Ashantee. Beyond Hanno are the Moslem states of Gobogo, Dwo, and the great state of Gbogbo, or the kingdom of Yobati.

The north of this is placed the kingdom of Gambie, which is independent, although usually in close alliance with Ashantee. Beyond Gambie are the Moslem states of Saambo and Gbogbo, and the independent state of Gbogbo, or the king of Gbogbo, Gbogbo. Gbogbo extends a considerable distance towards the north-east. Finally, to the west of all the abovementioned provinces is the kingdom of Gambie, as already stated, with its provinces of Assine, Sai, Sumah, and Awin, as they succeed one another from north to south.

The outline of the coast opposes to Ashantee will be more properly seen from a map by a distance from the principal town of the province of Gambie, the Gold Coast. Its general direction is from east to west, although from Cape Three Points in long. 24° 46' W., it trends on both sides considerably towards the north. The chief rivers which fall into this part of the Gulf of Guinea, are the Volta, or Aswada, the course of which, for nearly 200 miles before it reaches the sea, is almost due south; but the principal branch appears to rise from a mountain range considerably to the westward—the Pra, or Praa, from Chamh, one branch of which is formed by the Pra, from the east, while another passes near Coomasie, the capital, and here receiving the former, descends by a course almost due south to the sea, which it reaches about 26° 20' W., forming the mouth of the Pra, famous for its number of river ports; viz. the Anchore, (or Rio de Cobre, that is, in Portuguese, the Serpentine River), on the west side of Ahanta; and finally, the Assine, formed of the united waters of the Tenda and the Pra, which join about 6° 30' N. lat. The hilly portion of the country is in the east and north-east, in the provinces or states of Aquapim, Akim, Aquambo, and Akeyah; but there are no mountains of any considerable height.

The greater part of the country from the coast to as far as fifty or sixty miles to the north of Coomasie, is still a thick forest, through which travelling is impossible, except along the roads or roads which have been conducted with great labor and expense of time and money, through the city of Coomasie, according to the reckoning of Mr. Dupuis, stands nearly in 6° 51' N. lat., and in 2° 16' W. long., from Greenwich. Mr. Bowlich has given both a plan and a long description of the town, which may be considered to have been driven from the tract of country immediately adjacent to the sea; but if they have retained their conquests in other directions, the empire must still be of considerable extent. The republic appears to stretch, including Gambie, from about our first meridian to nearly the 5th degree of west longitude, or over a range of country not much short of 300 miles in length. Its breadth from south to north, when it reached the sea in the former direction, must have been at least as great.

The state next to Ashantee on the east is that of Dahomey, from which it is separated by the river Volta, otherwise named the Aswada. Its western boundary on the
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streets in all, as reckoned by Mr. Bowdich, was twenty-seven. The population of the town was estimated by the American census to be 100,000; but this is most probably an exaggeration.

Besides the eight great roads, which, according to Dupuis, lead from Coosamiss, there are numerous minor roads, and the most of them are merely narrow foot-paths, and the people of the town and its vicinity live in the villages on the line of some of the great roads. The inland tracts are greatly superior to those that lead down to the coast, an advantage which they owe both to the location of the country through which they are cut. From beyond Coosamiss down to the coast, as has been already observed, the soil is thickly covered either with loamy trees, or with brown and black soil, and the pastures which are traversed by the great roads in the upper country are open plains.

It would be quite idle to attempt to form any estimate of the numbers of the Ashantee population. Of the military force of the state, the most moderate account which Mr. Bowdich received was that it exceeded 200,000 men.

The men of Ashantee, according to this author, though very well made, are not so muscular as the Fantees. The women he thought in general handsomer than those of Fante. Among the higher classes both sexes are remarkable for the cleanliness of their persons; but the lower orders are for the most part very dirty.

The women of Ashantee are described as exceeding in their sagacity, and a partiality for literature with the mental characteristics of the Ashantees are their warlike ferocity and their love of blood. These passions have, as usual, deeply coloured their religious belief and observances. We must refer to the work of Mr. Bowdich for a full statement of the Ashantee religion, which is throughout a compound of the most absurd fables. The most horrid of the practices by which they express their devotional feelings are those in which they indulge at what are called the Yam and the Fatal customs, the former ceremony taking place in the early part of September, when the consummation of the Yam crop begins, and the latter taking place in the interior of the country, alternately on a greater and smaller scale, every three weeks. On all these occasions human blood flows in torrents. The sacrifices are described as exceeding in their singularity, and a character even those that take place at the neighbouring court of Dohomey, with the description of which the European public has been longer familiar.

The government of Ashantee appears to be a despotic, and in the hands of the Moslem's: The provinces in which they are chiefly found are to the north of Coosamiss; and it is stated that the chief inhabitants are negroes. The negro population is much less ferocious, and in general further advanced in civilization. The recently conquered countries of Gholan and Gholobgo were Moslem states:—that is to say, the government was in the hands of the Moslem's.

Mr. Bowdich has written a confused chapter on the Ashantee language, from which very little can be gathered. He says that from Amanah to the Voita there are six different languages spoken: the Ashantees, Abanta, Fantee, Accotoo, Acera, and Addumpe. But the vocabularies which he has printed show that these are merely so many dialects of one language. He describes the Ashantee tongue as having the peculiarities of the Fantee, Warsaw, &c., and inasmuch superior euphony, from its abundance of vowel-sounds and its rejection of aspirates. Oratory is an accomplishment in which the Ashantees are generally excel. The rest of Mr. Bowdich's dissertation is principally occupied with a comparison between the grammatical peculiarities of the Fantee and Accera dialects. All these dialects appear to be characterized by the absence of adverbs, prepositions, and those other disguised forms which in other languages are termed circumstantial adjectives, and which are used in all the processes of speech. The Ashantee music, of which he gives some specimens, is spoken in such terms by Mr. Bowdich for its sweetness and animation. Among their instruments are the flute made of a long bamboo, and the small cylindrical drum, which is covered with a compound of the most absurd fables. The top of which is covered with an alligator or antelope's skin, having a bridge raised over it, across which are extended eight strings; immense horns, made of elephant's tusk; the hour-glass, or a small drum; and the pipe. They have also drums made of the trunks of trees hollowed out; and in their martial concerts the noise is increased by the aid of castanets, gonggongs, flat sticks, drums, and old bones. There is also a musical instrument, made of a hollowed out stick, and played by blowing into it.

Mr. Bowdich has given various drawings of the houses of the Ashantees. The walls are usually formed of stakes and wattle-work, filled up with clay. All have gable ends and ridged roofs, consisting of a frame-work of bamboo, over which is laid astrich, and adorned with the gable, and the frames as 'frequently csed in gold, about as thick as cartridge paper.' While Mr. Dupuis was at Coosamiss, the king commenced the erection of a fort, which, although built only of mud and bamboo, is of considerable length. It was intended as an imitation of Cape Coast Castle.

The principal manufacture of the Ashantees is that of cotton cloth, which they weave on a loom worked by strings held between the toes, in webs of never more than four inches broad. Silk is sometimes interwoven with the cotton. The cloths which they produce are often of great fineness of texture, and their colouring of the highest brilliancy. They paint their patterns with a fowl's feather; and Mr. Bowdich says, that he has seen men produce these figures in this manner, with great regularity, as fast as he himself could write. Another of the arts in which they have attained considerable excellence, is the manufacture of earthenware. The Ashantees are the best potter in the world, and Mr. Bowdich says that the sword-blades which they make often evince very fine workmanship; but that they have no idea of making iron from the ore as some of their neighbours farther north do. They are of the opinion that iron is an ironstone of a dark red colour spotted with grey, from which he says they cast bullets. When lead is scarce, some of their ornaments are described as being made of brass; but we do not find he states that copper is found in the country. The most famous part of the Ashantees' work. The Ashantees have the most established trade in the king's palace those of most common use are described as being made of this precious material. Mr. Dupuis intimates, however, that the statements of Mr. Bowdich
upon this head, and also the descriptions he has given of the splendour of the Ashantee court in general, are somewhat high coloured.

It is said in this country both in mines and in particles washed down by the rains. According to Du- puis, the richest gold mines known to exist in any part of Africa are those in Gaman. Some of the richest of these mines are described as those from which the V.I. from which much gold was formerly obtained, the mines are now either exhausted, or at least are no longer worked. There are many rich mines in the small district of Adoom, westward from Cape Coast, and a few years since from the sea; and during the rainy season, it is said that not fewer than eight or ten thousand slaves are employed in washing for gold dust on the banks of the Bara, in Gaman.

The rainy season in Ashantee never said to commence the last month of May; but the heaviest rains are from about the middle of September to the end of the following month. In some years, however, there is little or no rain at all during the usual season. Mr. Bowdich has given the variations; but several parts of the country are to be, over which his own observations, and those of his associates, extended. In June it appears to have rained at Coomasie from 7° to 8°; in July, from 7° to 0°; in August, from 7° to 0°; in September, from 7° to 0°; in October, from 7° to 0°; in November, from 6° to 0°; in December, from 6° to 0°; and in January, from 5° to 0°. In the morning, especially, it is much colder than usual at this season.

The yam is the chief vegetable that is cultivated in Ashantee. It is planted at Christmas, and dug up early in September. But there is also grown a good deal of corn, rice, melons, pumpkins, and squashes, the so-called melons, somewhat resembling squashes. The plantations are of considerable extent, and very neatly kept. The principal domesticated animals are cows, horses of a small breed, goats, and some of the smaller species of sheep. Among the wild animals with which the region abounds are lions, elephants, hyenas, wild hogs, deer, antelopes, alligators, and a variety of snakes. Among the birds are vultures, parrots, and several of the smaller species of beautiful plumage, which sing melodiously. But all the departments of the native history of the country are still very imperfectly known.

ASHBORNE (or, as it is written in ancient records, ESSEBURNEN, ASHBOURNE, and ASHBOURNE), a township in Derbyshire, in the hundred of Shipstone, and the county of Derby, is 13 miles from London and thirteen from Derby. The population in 1831 was 2946, of which number 2246 were rateable, and 700 were of twenty-seven unincorporated, or persons over the age of 16, and 502 were of the age of 18.

It is pleasantly situated. High hills shelter it from the cold winds of the north; and to the south-west it looks towards the valley mentioned above, where the Dove winds through some of the richest meadows in the kingdom. The church is in the form of a cross, with a tower rising from the centre, surmounted by a fine spire. The building was probably erected in 1491, as there is a memorial in brass of its dedication to St. Oswald in that year. It is in the early English style, and there are several good doorways. The walls and buttresses retain the characteristics of this early style, and are part of the building which were building and twenty-seven unincorporated, was 502.

There was formerly a presbyterian meeting-house in Ashborne; and at present there are three places of worship, one a Roman Catholic, one a Baptist, and one a Wesleyan Methodist; as well as one for the Calvinistic Methodists (or Lady Huntingdon's connection), in the suburb of Compton, and a Presbyterian, which is separated from the town on the south side by the rivulet Hemmore, or Schoo.

There is at Ashborne a grammar-school founded by Sir Thomas Coke and others in 1583, and a Mr. Spalden, who lived in the beginning of the 18th century, by his will (dated 1710), founded two elementary schools, one for thirty boys, and the other for the same number of girls. There are several almshouses in the town, which have origin to different benevolent individuals, especially to Mr. Spalden above-mentioned; and to Mr. John Cooper, who built at his own charge the Calvinistic methodist's chapel in Compton, and also built and endowed an almshouse adjoining to it.

The market is on Saturday, for corn and provisions. There are no less than eight fairs, all for horses, horned cattle, and sheep; wool is sold at the fair in July, which is the great annual fair considered in this country in the year. It does not seem to possess any particular manufacture, unless it be of lace: but there are iron and cotton factories in the neighbourhood. The chief trade is in cheese and malt.

The parish is seven miles long and eight miles broad; it contains the hundred, or wapentake; viz., Wirksworth wapentake (in which is the town), Appletree hundred, and Morleston and Lit-church hundred. It has three dependent parochial chapels, viz., Alsop-in-the-Dale, Hognaston, and Parwick. The population of the parish, including that of the town (as given above), and of the chapels, was in 1831, 5699, and the whole area was 16,490 acres. The living is a vicarage, of which the Dean of Lincoln is patron. The rectory of Alvanley is annexed to the Deanery of Ashborne, and is granted by William II. (Rufus) to the church of St. Mary in Lincoln, and to the bishop of that see and his successors; but by some arrangement at a remote period, it was attached to the Deanery of Ashborne. The living is now leased out by the dean. Ashborne is in the archdeaconry of Derby and the deanery of Litchfield and Coventry.

Ashborne was the scene of some contests during the war between Charles I. and the Parliament, and the troops of the latter were victorious over the royalists. The young Pretender passed through Ashborne in his retreat from Derby, in 1745. (Lysons's Magna Britanniæ; Rhodes's Peak Scenery.)

ASHBURTON (antiently written ASPERTON), a town in the hundred of Teignbridge, in Devonshire, on the road from London (by Exeter) to Plymouth: 92 miles from London, 19 from Exeter, and 24 from Plymouth.

The town is situated a short distance eastward from the river Dart, and consists mainly of a long street, through which the London and Plymouth road passes, and of a second street, turning off to the right, through which passes the road across Dartmoor to Tavistock. The houses are neat, and are mostly covered with slate, which abounds in the neighbourhood. A small stream, which turns several mills, runs through the town; and the road, which is far from the town, is now lowered down, just where the Plymouth road crosses the Dart.

The church, dedicated to St. Andrew, is a spacious structure in the form of a cross, in the perpendicular style of Otho's Deanery. The architectural beauty of the tower is nowhere more crowned by a small spire. In the chancel are several stalls, as in collegiate churches. Adjoining the church is the ancient chapel of St. Lawrence, in which the grammar-school is held, and also the meeting-place for parliamentary elections and other public business. This chapel was formerly endowed with lands valued in the time of Edward VI. at 10l. 1s. 6d. per annum. Of this amount, ten marks, or 6d. 13s. 4d. went as stipend to the chantry priest, who was to keep a grammar-school; and the remainder to maintain and repair the leaden pipes for the conduction of wholesome water for the relief of the infected, when the plague should be at Ashburton, that they might not infect others. These lands, it is said, are the same as those to which lands now devoted to the repair of the chapel; the endowment of the grammar-school coming from other sources. The chapel was used for marriages and other occasional parochial duties; but after the Reformation, in 1534, it became a grammar-school for the education of the children of the town, especially one given in 1754 by Lord Middleton and the Hon. John Harris (at the school). The school was afterwards supported by the State, amounting in 1821, upwards of ninety children received education from two schoolmasters of Ashburton. In 1865, the late Miss Dunming founded a gift of 60l. per annum, for the instruction of 200 girls in reading, writing, &c.

The independent, particular holiness, and Wesleyan methodists have meeting-houses in the town.

* In the parochial returns for 1851, the chapellaries of Hognaston and Parwick are given as distinct from the parish of Ashborne.
gentle eminence, stand the ruins of the castle of Ashby. This castle seems to have been of vast extent and very lofty. It can trace back a 13th-century hall, kitchen, sleeping chambers of state, the chapel, &c.; wherein are found, in good preservation, rich doorways, chimney-pieces, arms, devices, and other ornamental accompaniments. (See Nichols's Leicestershire, vol. ii. p. 612.) It was built by Lord Hastings, a nobleman, about a year in the time of Edward IV., and who was beheaded by order of the Duke of Gloucester (afterwards Richard III.), shortly after Edward's death. It was one of the places in which Mary Queen of Scots was confined.

The 'Ivanhoe' baths, erected within the last few years, are supplied from the collieries with water impregnated with muriate of soda, or common salt, to a greater degree than sea water. There is a small theatre, a handsome hotel, and lodging-houses.

There is a free school, founded in 1567 by Henry, Earl of Huntingdon; also a school for educating and clothing twenty-six boys, founded in 1699 by Mr. Isaac Dawson, and a small foundation for the instruction of twelve girls. Another charity-school has been lately founded by Alderman Newton, of Leicester.

Woolen and cotton stockings, and hats, seem to be the chief articles of manufacture in Ashby; but the manufacturers suffered materially during the war which followed the first French revolution. The market is on Tuesday, and is well supplied. There are four fairs in the year, besides a statute for the hiring of servants on the 22d September.

Coal and ironstone are worked in the neighbourhood of the town, and there is a canal from the Coventry canal navigation, near Ashby. The living carries a small income in the vicarage of Moreton, the archdeaconry of Totnes, and the bishopric of Exeter; and in the ecclesiastical province of Canterbury. It includes the chapels of Buckington and Buckland-in-the-Moor. The dean and chapter of Exeter are the patrons.

The ancient court leet and baron's court are held in the town, and the sessions in the petty sessions are held in the petty sessions in the town. The corporation of the town is empowered to hold these courts before the lord warden or his substitute, for the administration of justice among the townsmen of Devonshire and Cornwall, by virtue of a privilege granted to them by Charles II. and 18 miles direct distance from Bedworth without any lock.

The town is the birth-place of John Dunning, the first Lord Dunning, and the son of the late Lord John Dunning, editor of the Quarterly Review. —(Lysons's Magna Britannia; Reports of Commissioners of Charities, &c.)

ASHBURY, LORD. [See DUNNING.]

ASHFORD, I. L. AUCH (in ancient writings called ASCHEB and ESSEBEB), a market town in the hundred of West Goscote, in the county of Leicester. It is on the little river Mere, or Mease, a feeder of the Trent, and on the road from London to Burton-upon-Trent; 115 miles from London, and 19 from Derby. The original signification was simply Ashby; the distinctive addition of De la Zouch, it received from the Zouches, who were lords of it.

This town consists chiefly of one street, in which stands a new and magnificent mansion of the late Lord Ashby, and 18 acres by three parks, now no longer existing, viz. Prestop park, the great park, and the little park, of which the last was the homestead to the castle. The situation of the town obtained for it from Camden the character of Villa Amstensima (a most delightful town). The land around is chiefly pasture.

The church, dedicated to St. Helen, is a handsome and lofty ancient structure. It is of stone, and the tower contains six large bells and a set of chimes. The body of the church is well pewed; and the chancel was fitted up with pews for his own family by Francis, Earl of Huntingdon, who died in 1790. On each side of the chancel is a large chapel, prepared for the interment of the most distinguished personages of the archbishopric, on the north side is converted into a vestry-room, and that on the south side is the burial place of the Hastings family. In the latter is a sculptured monument of Francis, Earl of Huntingdon, and his courtiers of the sixteenth century. In this church there was, in 1804, when Mr. Nichols's History of Leicestershire was published, a singular instrument of punishment called the finger pillory. It was placed in the church, and was used in the punishment of petty offenders; the upper part turned on a hinge at one end, and was fastened by a lock at the other end, after the manner of the stocks. In this machine are different-sized holes for containing the fingers of the disorderly. The beam is supported by a post, and is about four feet high.

In an open pasture on the south side of the town, on a

**So Lysons's Magna Britannia; the 10th Aug. and 11th Nov. according to others.**
ASH, one of the twelve tribes of Israel. [See Palestine.]

ASHES, the remains of any thing burnt, whether of vegetable or animal origin, and to a certain extent of mineral bodies also. First with respect to Vegetable ashes: When chemically separated from each other, they consist of oxygen, hydrogen, and carbon: it constitutes nearly the whole of all vegetable matter, and it is almost entirely dissipated when burnt. Two of its elements, by combining with the oxygen with which they were already united, and a fresh portion acquired from the atmosphere, form new compounds; these products it would be foreign to our present purpose minutely to notice, but it may be observed that they contain carbonic acid, and carbonic oxide. The carbonic oxide of woody flue is the element which remains longest unacted upon, and on this circumstance the preparation of charcoal from wood depends. When, however, this carbon has been totally dissipated by the long-continued and combined action of heat and oxygen of the air, there remains only a small quantity of ashes; these are derived principally, if not entirely, from such substances as the plant takes up from the soil during its growth, and which, though universally mixed with it, are only occasionally to be found amongst the accidental than necessary constituents of the vegetable. Ashes vary in composition according to the nature of the plant, the soil in which it grows, and the manure used upon it. Ashes result from burning substances of the land: they occur in them in the state in which they existed in the plant; they are mostly the altered results of combustion. But to this part of the subject we shall presently recur.

The substances usually contained in the ashes of land-plants are potash, soda, lime, magnesia, silica, the oxides of iron and of manganese, chlorine, carbonic, sulphuric, and phosphoric acid; alumina occurs but rarely, and sometimes oxide of copper has been met with. The salts derived from the combination of some of these bodies are soluble in water; such are the compounds of potassium and sodium with chlorine, those of the same metals with the carbonic and sulphuric acids, and with silica. Lime, and some of the other bases, unite with the carbonic or phosphoric acid, or with silica, are insoluble in water. Very frequently more than one-half of the ashes of vegetables consists of carbonate of lime.

The quantity of ashes varies, not only according to the soil, age, and aspect of the plant, but also in different parts of the same plant, from one and a half to three and a half per cent. of its weight, after drying in the air. Sometimes the ashes amount to four or five per cent., and in the bark to six or seven; the quantity and quality of the ashes also vary in the same kind of wood from the accidental circumstances already noticed. Berthier (Annales de Chimie et de Physique, tom. xxxii. p. 240) has given the results of experiments on ashes of different kinds of wood; from these the following are selected as almost extreme cases of the quantity of ashes obtained from various woods—

<table>
<thead>
<tr>
<th>Wood</th>
<th>Amount of Ashes</th>
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</thead>
<tbody>
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<td>Oak</td>
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</tr>
<tr>
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</tr>
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<td>Potash and soda</td>
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On considering the constituents of the soluble part of wood-ashes, it will be evident that it must consist of the alkaline sulphates, carbonates, and chlorides; while the insoluble matter is chiefly composed of carbonate of lime, and probably of magnesia, phosphate of lime, and phosphate of iron. Wood-ashes may contain a considerable portion of iron without being impregnated with the contents of its soil, because it is in the state of phosphate: the magnesia appears to exist as an oxide: this is indicated, not only by the greyish tint which it imparts, but also by the smell of chlorine evolved by the union of magnesic acid with it.

It needs hardly be stated that the incineration of wood is a most important operation; from its ashes are obtained the immense quantities of impure potash, and from the carbonic acid the carbonic acid itself, and from the oxides of iron the carbonic oxide of the alkali. Potash is the essential principle of all these materials; it is well known that a compound of potash is, by heat and the decomposition of its acid, converted into carbonate. The mode of plants contains also other vegetable acids, as the oxalic, citric, tartaric, malic, &c.; and the salts which these form with potash are decomposed by heat, and yield the carbonate. The sources of the alkali is a subject which has been much discussed, but there is now no question of their being derived from the soil, from the bodies of the plant, or from the animals which feed upon it. [See Potassium and its salts.]

Although wood-ashes thus yield carbohates of potash, yet there is no reason to suppose that this salt exists in the sap of the plant. On the contrary, in the opinion of Vaquerin, the alkali is there combined with acetic acid; and it is well known that acetate of potash is, by heat and the decomposition of its acid, converted into carbonate. The mode of plants contains also other vegetable acids, as the oxalic, citric, tartaric, malic, &c.; and the salts which these form with potash are decomposed by heat, and yield the carbonate. The sources of the alkali is a subject which has been much discussed, but there is now no question of their being derived from the soil, from the bodies of the plant, or from the animals which feed upon it. [See Potassium and its salts.]

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The ashes of land-plants yield principally the salt of potash; those of marine plants afford a large quantity of soda salts, and especially the carbonate. There are several varieties of salae and soda, cultivated on the coasts of Spain, which, when full grown, are cut, dried, and burnt in trenched; the resulting ashes are called barilla, and are imported in the state of hard, grey, porous masses. The ashes of the heartwood contain about 40 per cent. of carbonate of lime, and are mixed with various salines and earthy impurities. It is used for soap-making, and in other manufactures requiring an alkali; but since the duty has been taken off common salt, and on account of the cheapness with which soda is obtained from it, barilla is now much less used than formerly.

Kelp is the ash of some varieties of sea-weed, especially of the Fucus ruscarius and Fucus vesiculosus. It is prepared in the islands of Scotland, and contains scarcely one-tenth as much carbonic acid as barilla does; the remainder consists principally of chloride and iodide of sodium, sulphate of potash, phosphate of lime, earthy and carbonaceous matter. It is used in the manufacture of crown glass, as well as in that of glass of different kinds of wood; from these the following are selected as almost extreme cases of the quantity of ashes obtained from various woods—

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pota salts only na existina there. [See SODIUM and its salts.]

Cool ashes are extremely various both in their appearance and composition. Thus much of the coal of the north of England, under common circumstances, burns to a cinder. The number of the ashes of the coal, with some carboxyable matter requiring rather a high temperature to burn it, on account of its being enveloped by incinmable matter. The coal of Somersetshire burns to red ashes, evidently coloured by peroxide of iron; those of the Staffordshire coal are nearly white.

Coal, like wood, consists principally of carbon, oxygen, and hydrogen, and, according to Dr. Thomson, it contains nitrogen also. The carbon generally varies from seven- fifty to nine-tenths. The quantities of the ashes yield, by different kinds of coal varies considerably; according to Kirwan, Wigan coal contains 1:57 per cent. of ashes; Whitechapel coal 1:7, and Swansea coal 3:33 per cent.; they consist principally of silica and alumina, with small quantities of lime, sometimes magnesia, and also peroxide of iron; but they do not contain either the chlorides, phosphates, or alkaline salts found in wood-ashes.

It may be remarked, that while the ashes produced by some kinds of coal are nearly useless, that forms of them which results from the imperfect combustion of the north-country coal burnt in London is very largely and economically employed in brick-making.

Ashes of coal have been examined by Kliproth; the peak of Mansfield yielded 20:5 per cent. of incinmable matter, consisting of silica, alumina, lime, sulphate of lime, and peroxide of iron. MM. Oberlin and Buchner have lately analyzed the coal and turf occurring in the vicinity of Strasbourg; 100 parts of the dried turf yielded 570 of ashes of a mixture of a dark greyish colour, mixed with white and reddish gritty particles of an earthy, saline taste, and insusceptible to the blow-pipe. One hundred parts of these ashes yielded 50 parts of lime, with a little sulphate of lime; 19 Carbonate of lime and of magnesia Phosphate of magnesia and of aluminas Sulphate of lime and oxide of iron Alumina and silice 100 The ashes contained neither free nor carbonated alkali, nor any sulphur. (Journal of Pharmacy, April, 1835.)

With respect to animal ashes, we are not aware that the different forms of animal matter have been subjected to in-formation. From the following results obtained by Bregelli, in his experiments on the ashes of bones, it is not difficult to ascertain that the phosphate of lime would constitute the larger part of the ashes of the animal solids, excepting the fat; he found that ox bones, after the dissipation of the carboxyable animal matter which they contain, yielded 67 per cent. of ashes, composed of Phosphate of lime, with a little fluosial of calcium and of carbonate of 57:35 Phosphate of lime 38:83 Carbonate of lime 2:02 Soda, with a little carbonic acid of sodium 3:42 The ashes of human bones contain about four per cent. less of phosphate of lime, and almost 74 per cent. more of carbonate than ox bones. With the exception perhaps of the magnesia, all the above compounds existed as stated in the bone previous to its combustion, and this circumstance forms a remarkable difference between vegetable and animal ashes.

Animal ashes, termed technically bone ash, are sometimes, though with less effect than unburnt bones, employed as a manure; also for the purpouse of making glass and cups, and in the preparation of phosphoric acid.

Volcanic ashes only need to be noticed. Vaquelin examined some ashes from Vesuvius which fell at Naples in 1824; the ashes consisted of stalks, leaves, and roots, and found to consist of aluminas, oxide of iron, muriate of ammonia, sulphate of lime, potash, cotton, manganese, lime, and charcoal; the proportions of these, however, were not determined. Vaquelin also examined a large amount of the ashes of Puy-de-Dome, June 16, 1824 (p. 72.) Vaquelin also analyzed the ashes ejected in the same year from Albina; they were of a grey colour, and in fine powder, when heated to redness in contact with the air they exhibited sulphuric acid, and in a close vessel they produced sulphur. The following statement shows that the composition of these ashes was very different from those of Vesuvius ejected in the same year. One hundred parts consisted nearly of —

Soda 2:16 Sulphate of lime 20:88 Sulphate of iron 15:9 Alumina 10:3 Lime 2:60 Charcoal 1:0 Sulphate of copper and of alumina Traces of sulphur, a muriate and moisture

(Anales de Chimie et de Physique, tom x. III, p. 111.)

ASHFORD, a market-town in Kent, on the west side of the Stour, just below the confluence of the two upper branches: it is on the road from London (through Maid- stone) to Faversham, 35 miles from the former, 38 from the stone, and 114 from Canterbury. It is called in Doomsday-book both Estefort and Esseteford, and in other ancient records Esethiford, taking its name from the Eshe or Eschét, a now obsolete designation of the west branch of the Stour from its source near Lenham to this place.

The situation of this town is pleasant and healthy, being on a small eminence, with a gentle ascent to it on every side. The houses are well built, and the main street (through which the roads pass) is of considerable width, and is paved. The market-house is in the centre of it, and the church on the south side. At the east end of the town is a stone bridge of four arches over the river Stour. The market is on Friday. There is a monthly fair, for the sale of fat and lean stock, held on the first Tuesday in the month; and there are four other fairs, as far as we can gather from our authorities. Several genteel families reside in the town. The population of the parish in 1831 was 2,489.

Adjoining the church is a grammar-school of some repute, founded in the reign of Charles I. by Sir Norton Knatchbull. The master is still appointed by the Knatchbull family.

The church is in the form of a cross, with a tower rising from the centre, lofty and well-proportioned, and surmounted by four pinnacles. The church is in the perpendicular style, and has six north doorways. There are very sumptuous monuments of the Smyth family are in a chapel adjoining the south transept. The tower was erected in the reign of Edward IV. by Sir John Fogge, who also much repaired, if he did not rebuild, the church; and founded a college or choir (consisting of the vicar as master or pre- tendary, two fit chaplains, and two lay clerks), which appears to have been suppressed before the Reformation. A chantry founded in the time of Edward III. was also suppressed during the progress of the Reformation. The former is a vioceage in the presentation of the dean and chapter of Rochester. There are places of worship for different denominations of dissenters: also two national schools, one for boys and one for girls.

The greater part of the parish constitutes what is termed "the liberty of the town of Ashford;" and is separated from the jurisdiction of the hundred. It has a constable of its own. The town is governed by a mayor, and has a court of record every three weeks for all actions of debt or damages not exceeding twenty marks (61. 3s. 4d.).

ASHLAR, rough stones of various sizes. This term is applied to free-stones when they are first taken out of the quarry.

ASHLER, a facing made of squared stones. In countries where stone is scarce and expensive, ashler principally consists of thin slabs of stone used to face the brick and rubble walls of buildings. These slabs are generally from four to six inches thick. Ashler is of several kinds. Plain ashler is so called when the surface of the stone is made quite smooth. All the public buildings of London in which stone is used are more or less faced with plain ashler. When the stone shows on its surface a series of narrow parallel fluting, the work is called sawn ashler. This is principally to be met with in the basements of buildings where the stone is set with fluting running perpendicularly. There are also 12 or 14 ashler, which are more common in build- ings, produced by slightly cutting into the stones, so as to make a depression, along one, two, or more of the sides of the joints. This kind of ashler is called rusticated ashler. For a more particular account of rusticated work, see MASONRY. The Banqueting-hall at Whitehall, Somerset- house, the Bank of England, and St. Paul's Cathedral, may

3 2
ASHLING, a term in masonry signifying the act of bedding in mortar the asher above described. The term is also used in carpentry to signify the short upright pieces of wood placed in the roof of a house to cut off the acute angle between the joints of the floor and the rafters; almost all the garrets in London are built in this way. The annexed cut, representing a section of a garret, shows the ashlering above described.

ASHMOLE, ELIAS, an eminent antiquary and herald, the founder of the museum which still bears his name at Oxford, was the only son of Simon Ashmole, a saddler of Lichfield, by Anne, daughter of Anthony Beyor of Coventry. He was born May 23d, 1617, and was placed at an early age as a chorister in the cathedral of Lichfield. He was afterwards taken into the family of James Paget, Esq., one of the puisne barons of the Exchequer, who had married his mother’s sister; under whose roof he studied law, spending his leisure hours in acquiring music and other accomplishments. In 1638 he married Eleanor, daughter of Peter Mainwaring, of Smallwood in Cheshire, and in Michaelmas term the same year he became a solicitor in chancery. In February, 1641, he was sworn an attorney of the Common Pleas. He lost his wife on the 5th of December the same year. The troubles coming on, and being a royalist in principle, he retired from London into Cheshire. In 1648 he became one of the gentlemen of the ordinance in the garrison at Oxford, whence he removed to Worcester, where he was first a commissioner and afterwards receiver and registrar of the excise. He became, soon after, a captain in Lord Ashley’s regiment and comptroller of the ordnance. In the midst of these employments he was far from neglecting his studies, having entered himself of Brasenose College, Oxford, where he applied himself with great vigour to the study of natural philosophy, mathematics, and astronomy, and where his acquaintance with Mr. afterwards Sir George Wharton led him into the absurd mysteries of astrology.

In July, 1646, the king’s affairs having grown desperate, after the surrender of Worcester, Mr. Ashmole withdrew again, for a few months, to Cheshire; but coming to London he fell in with Mr. afterwards Sir Jonas Moore, Mr. William Lilly, and Mr. John Booker, esteemed the greatest astronomers of their time, and was by them caressed, instructed, and admitted into their fraternity. In 1647 he went into Berkshire, where he made choice of the village of Englefield for the place of his retirement, at which he studied botany. In 1649 he married his second wife, the Lady Mainwaring (widow of Sir Thomas Mainwaring, Knt., recorder of Reading), whose second son by a former hus-

band, Mr. Humphrey Stafford, made great opposition to the match. The fortune which he obtained with this lady (he was her fourth husband) enabled him to open his house to the most learned and scientific persons of the time. In 1650 he was admitted in 12mo, in the year, by Dr. Arthur Dee upon the philosopher’s stone, under the title of Piscivorus Chemicus; or, Chymical Collections expressing the Ingress, Progress, and Egress of the secret Hermetic Society, for the chaseing under the moon. Whereunto is added, the Arcanum, or grand secret of Hermetic Philosophy. Both made English by James Hasolce, Esq., in which name, the letters of his own will be found transposed. He, at the same time, addressed himself to the discovery of the greater conversations with the Philosopher’s stone, and the collection of works of such English chemists as had till then remained in manuscript; to which, as well as to his ardent passion for the study of chemistry, he had been excited by one Backhouse, who was reported an adept; and whom, from his free communication of chemical secrets, Mr. Ashmole, in the fashion of the time, was accustomed to call father. In his diary, April 3d, 1651, he says, ‘Mr. William Backhouse, of Swallowfield in com. Berks, caused me to call him father thenceforward.’ He likewise employed a part of his time in acquiring certain manual arts, such as sewing seals, casting in sand, and the mystery of a working goldsmith. In 1652, believing that a competent knowledge of Hebrew was necessary for understanding and explaining such authors as had written on the hermetic science, he applied himself to the study of that language, under a rabbi of the name of Solomon Frank. At length toward the close of 1655 his Theatrum Chemicum Britannicum appeared, a quarto volume, containing many pieces of our old hermetic philosophers. This work gained him a high reputation, and among other scholars to whom it extended his acquaintance was the celebrated John Selden, with whom he lived in intimate friendship till his death. Ashmole’s marriage with the Lady Mainwaring, exclusive of mere family opposition, involved him in several law-suits, and at last in one in Chancery with the lady herself. On October 8th, 1657, his son, ‘The cause between an inquested wife and her husband,’ was heard, where Mr. Serjeant Maynard observed to the court that there were 800 sheets of depositions on her wife’s part, and not one word proved against me of using her ill, nor ever giving her a word or provoking word.

Ashmole now devoted himself to the study of antiquity and records. This recommended him to Mr. afterwards Sir William Dugdale, whom he accompanied about this time, when making his survey of the Fens. Ashmole’s relish for chemistry had abated, and he gave up his intention of extending his Theatrum Chemicum to several volumes. In 1658, however, he published a treatise on the philosopher’s stone, The Way to the Golden Threads, and works, in 4to.; a work, in which he took leave of his friends the astrologers and alchemists with a good grace.

In the spring of 1658 Ashmole applied himself to the collecting of materials for a History of the Order of the Garter, the greater portion of which was afterwards noticed hereafter. In this year also he went to Oxford, where he made a catalogue of the coins which had been given to the Bodleian Library by Archbishop Laud. In 1659 the younger Tradescant and his wife made over to him, by deed of gift, the Museum of curiosities at South Lambeth, which the two Tradescants, father and son, had been long accumulating.

On the restoration, Mr. Ashmole was early introduced to the presence and favour of King Charles II. who, on June 18, 1660, bestowed upon him the place of Windsor herald; and a few days after appointed him to make a description of the royal collection of medals. On the 3d of September that year, he had a warrant signed for the posts of commissioner of excise; and was also joined in a commission for an examination of the notorious Hugh Peters, respecting the royal library and medals which had fallen into Peter’s hands in 1649.

On November 2, 1660, he was called to the bar in the Middle Temple hall; and in January, 1661, admitted F.R.S. Soon after this time, he had several new preferments bestowed upon him; he was created a baronet by amongst others, by warrant, February 9, 1661, the secretaryship of Surinam. On the 17th of February, 1665, Sir Edward Bythe sealed his deputation for visiting Berkshire, which visitation he began on the 11th of March following. June 9, 1666, he was appointed accountant-general and county accountant in the
exercice. His second wife, Lady Mainwaring, dying at the beginning of April this year, Ashmole paid his addresses with little delay to Elizabeth, the daughter of his good friend Sir William Dugdale, and was married in Lincoln's Inn chapel on the 3d of November following, by Dr. Lloyd, afterwards bishop of Worcester; and on the 19th of July 1669, he received the degree of M.D. from the University of Oxford by diploma. He was now courted and esteemed by the greatest person in the kingdom; and having finished his experiments in the art of making gold, he had taken the garter, presented that work to the king, May 8, 1672, who, as a mark of approbation for his toil and research, presented him with a privy seal for 400l. In 1673 he resigned his office of Warden of Chester and was appointed to Walker's. As his death, might have been made garter king of arms, but waived the appointment in favour of his father-in-law, Sir William Dugdale. At the close of 1677 he was proposed to represent the city of Lichfield in parliament; but finding himself insufficiently supported, withdrew his pretensions. On the 26th of January, 1679, a fire broke out in the Middle Temple, in a set of chambers next to those in which Mr. Ashmole resided, by which he lost the greater part of his library, a cabinet of 9000 antient and modern coins, and a great collection of seals, charters, and other antiques: his manuscripts, however, and his gold medals, were spared; and his valuable works in the Athenae Oxonienses of 1689, the University of Oxford having finished a handsome repository for curiosities near the theatre. Ashmole (according to a proposition made to them before it was begun) sent thither the collection of rarities which he had received from the Tractables, besides with such additions as they have made since. Thus has the learned man added the donation of his manuscripts and library. This is still called the Ashmolean Museum.

In the beginning of 1685 Ashmole was again invited to represent the corporation of Lichfield in the House of Commons, but inasmuch as it had been recommended to the king for two years, and the remains of bequests to Henry James intimating to him, by Lord Dartmouth, that he would take it kindly if he would resign his interest to Mr. Lewson, he waited upon his Majesty and told him that he went in Lichfield to prosecute his father-in-law, Sir William Dugdale, he declined a second time the office of garter, which he would have obtained for his brother-in-law, John Dugdale, but was unsuccessful. He however procured for him the place of norroy king of arms. This was one of the last public acts of Ashmole's life; the remainder of it was spent in an honourable retirement to the day of his death, May 18, 1692, when he was in the seventy-sixth year of his age. His body was interred at Ashmole, and his soul may rest in peace upon his grave with a Latin inscription.

Besides the works already noticed, which were published during his life, Ashmole left large collections in manuscripts, with the draughts of the Tomb, &c., in all the Churches in Berkshire, penned in 1666. These were in part published afterwards under the title of The Antiquities of Berkshire, in two volumes octavo, 1717, 1723, and at Reading in folio, 1736. 2. Familiarum illustrum Imperatorum Romanorum Numerorum Oeconomiae Bolivianae Bibliothecae archivis descripta et explanata, finished in 1659, and given by Ashmole to the public library in 1666, a MS. in the Bodleian Library, and Explanation of the Coins and Medals belonging to King Charles II., a MS. formerly in the king's cabinet. 4. A Brief Ceremonial of the Feast of St. George, held at Whitehall, 1661, with other Papers relating to the Order. 5. Remarkable Passages in the year 1666, set down by Mr. Elias Ashmole. 6. An Account of the Coronation of our King, transcribed from a MS. in the King's private Closet, by the late Earl of Arundel, and of the Coronation of King Charles II. 8. The Arms, Epitaphs, &c., in some churches and houses in Staffordshire, taken when he accompanied Sir William Dugdale in his visitation. 9. The Apparel of the Clergy in England, described in a MS. by a foreigner, Derbyshire, Nottinghamshire, &c., taken at the same time.


ASHOVER, a town in Derbyshire, pleasantly situated in a deep narrow valley, 1 mile S.W. of Chesterfield, which is the post town, and four from Matlock. It has a small market, frequented during the winter by a few butchers; and two fairs for horned cattle and sheep. As the market is insignificant and irregular, and is moreover held without charter (as are most of the fairs), it is commonly regarded as a village: but Messrs. Lysons (Magnae Britanniæ) reckon it among the market-towns. Stocking-weaving and tambour-working give employment to some of the inhabitants.

The church is a Gothic building with a handsome spire, and contains several monuments of the Babington and other families. In it is a singular antient leaden font, hexagonal in the lower part, and the Hvart, or font, is circular, and ornamented with rudely executed figures in bas-relief, with flowing drapery, and books in their left hands, standing under circular or Norman arches and separated by slender pillars. There is an ornate window in the chancel ended, a small round-headed window in the south side of the chancel, and a good parent window in the north. On the south side is a large window, and on the north is another. The Church House, built in 1703; also meeting-houses for the Wesleyan Primitive Methodists.

The parish of Ashover is extensive, containing 1,250 acres, and has a population of 3179. It is mostly in the hundred of Scarsdale; but the dependent hamlets of Dethwick, Lea, and Holloway, are in the wapentake of Wirksworth. The living is a rectory in the archdeaconry of Derby, and the deanery of Shirebrook. The vicarage is a chapelry.

There are in the parish considerable lead-mines, especially those of Gregory, Brimstone Dyke, and Overton. Blende, or black-jack, an inferior species of zinc ore, is found. Limekilns, lime and whetstones, and whetstones of a finer grain, are found in some of the mines. Chamomile is cultivated for medicinal purposes in considerable quantities; and valerian, elecampane, and roses (the last for the leaves), to a smaller extent.

There are remains of Eastwood Hall, once the residence of the Reresby family, and a structure of some importance, as appears from its massive masonry. It is a gloomy building, with a modern wing, standing at the foot of a high hill, which is covered with huge masses of sandstone rock, and crowned with a pine forest. At Overton in this parish is a house which was the seat of the Babington family and occasionally the residence of the late Sir Joseph Banks. At Lea, in this parish, are the ruins of an ancient chapel; also a Unitarian chapel, a cotton mill, and a hat manufacturing (Lea Wood).

On the declivity of a hill on Ashover common is a Rocking stone sixty-six feet in circumference, called by the country people Robin Hood's Mark; and near this a singularly-shaped rock, which has been a rock idol.

3. Descriptions of counties and parishes. 8. Magnæ Britannia; Rhodes' Peak Scenery; Beauties of England and Wales.)

ASHTON-IN-MACKERFIELD, a chapelry in the parish of Winwick, in the hundred of West Derby in Lancashire. It lies on the road between Wigan and Warrington, about two miles and a half N.W. by N. of Newton, one of the boroughs disfranchised by the late Reform Bill. It contained, in 1831, 5919 inhabitants, who are chiefly employed in the cotton and woollen manufactures. Some authorities add that there are collieries and potteries. It is sometimes called Ashton-in-the-Wilds. The chapelry is in the gift of the rector of Winwick, whose living is one of the richest in the north of England.

Besides the chapel of the Establishment, there are eight places of worship: three belonging to the Catholics, who are numerous; and one each to the Methodists, Independents, Unitarians, and Quakers. (A full Description of the country round Manchester, &c.; Carter's Top. Dict. of England, &c.)
ASH

ASHTON-UNDER-LINE, a manufacturing town in the hundred of Salford in Lancashire, on the north bank of the river Tame, which here divides the counties of Lancashire and Cheshire. Duckenfield, which forms a suburb of Ashton across the river, and is united with it by a bridge, is in the latter county. The church is said to be of ancient origin, and was

which, nineteen were Methodist, three Baptist, one Independent, and one Johamite. (See Parliamentary Returns for 1830.)

The principal villages in the parish are as follows.—Stalybridge is on the Tame about a mile E. of Ashton. It is not wholly in this parish; for part of it lies across the river, in the parish of Stockport in Cheshire. The two parts are, however, united by an excellent stone bridge, and included in one civil and ecclesiastical parish. The most important part of the place is of modern growth, though so far back as in 1795 it consisted of a continuous well-paved street of half a mile, and had in it an episcopal chapel of octagon form. The chief branches of trade were then, and still are, the cotton trade and the manufacture of cotton cloth, and consisted of weaving, dyeing, pressing, &c. The population is not ascertained.

Mosley is N.E. of Ashton about two miles and a half. It is connected with Ashton by a new, but not very good road, over a range of high hills. There are scarcely any houses between the places; but in Mosley there are several good ones, and a parochial chapel in the gift of the rector of Ashton. The population in 1831 was about 1500.

Lees is N. by W. of Mosley, and about five miles N. by E. of Ashton. Its situation rather connects it with Oldham (through which its manufactures are carried off to Manchester) than with Ashton, with which it has little communication. In the fact, 1834, about a mile S. of Lees, Hooley Hill, the populous part of Audenshaw, is a mile S.W. of Ashton. It has a population of between 2000 and 3000, and is rapidly increasing.

Fairfield, which is a Manchester to Ashton, is a settlement of the Moravians. It has a chapel, and several good houses.

Near Mosley is Hurt's Head Pike, a well-known object, erected in 1756, on the site of a former structure, which is said to have been used as a beacon. The present building is of stone, and is an upright cylinder, surmounted by a cone, whose base nearly covers the upper surface of the cylinder. It commands a delightful view of the surrounding country.

On the W. side of the road from Ashton to Manchester, is a large moss, or shaggy bog, from the edges of which turf is cut for fuel. At the depth of ten feet, or thereabouts, lies a tolerable loam, which, with improvement, may be rendered good meadow-land. The moss may be crossed at all seasons. Fir trees, fresh and full of turf, have been found in it; likewise oaks quite sound, and as black as ebony.—(Aikin's Description of the Country round Manchester; Boundary Reports, &c.)

ASH-WEDNESDAY. This, which is the first day of Lent, had formerly two names; one was caput jupitri, 'the head of the fast,' the other was Ash-Wednesday, so called from the ancient ceremony of blessing ashes on that day, which which, however, was not signed to persons in the form of a cross, adding this admonition, Memento, homo, quod cintis et, in cinere reroceritis: 'Remember, man, that thou art ashes, and shalt return to ashes.' (See Festa Magazine for Anglo-Britons, p. 19; Moremi Papatua, p. 37; Festall, fol. 1511, p. 15.) 'Mannerly to take their ashes decently, is among the Roman Catholic customs censured by John Bale in his Declaration of Bonner's Articles, 1554. The ashes used this day in the Church of Rome are said to be made from the palms consecrated on the Palm-Sunday before. In Bishop Bonner's Injunctions, a.d. 1555, we read that 'the hallowed ashes given by the priest to the people on Ash-Wednesday are to put the people in remembrance of the pains of hell, and the ashes of 1831 above, for the whole earth, but earth, dust, and ashes.' The antient discipline of sackcloth and ashes on Ash-Wednesday, is at present supplied, in the English established church, by reading publicly on this day the curses denounced against impenitent sinners, when the people are directed to repeat an 'Amen' at the end of each malediction. Compare Wheatley on the Common Prayer, 8vo. 1724, p. 227; Brand's Popular Antiquities, vol. 3, p. 389; &c. The notion of the ashes of the primitive Christians did not commence their Lent until the Sunday now called the first in Lent. Pope Felix III., in the year 487, first added the four days preceding the old Lent Sunday, to complete the number of fasting days to forty. As a substitution for the ashes, Pope Gregory the Great introduced the sprinkling of ashes on the first of the four additional days, which gave it the name of Ash-Wednesday; and the council of Constance, in the year 1091, strictly enjoined the observance of the ceremony, which was abo.
lished in England at the Reformation, and a commi-
nication service, as above alluded to, substituted in its stead.

ASIA, under which name we at present comprehend all the countries in the east, lying between the Mediterranean Sea and the Indian Ocean, was, as well as in the time of Herodotus (ii. 261), the name given by the Greeks to the eastern countries, as far as the Euxine or Caspian, and the Red Sea; and it continued so to be used by the Romans till the time of Tacitus, who calls it the Eastern Empire, or the Orient, and so it is called in the New Testament. The term Asia is a Greek word, and signifies the great continent which is situated immediately east of Europe. It is bounded on the west by the Euxine or Black Sea, on the north by the Caspian, on the east by the Indian Ocean, and on the south by the Persian Gulf. The area of Asia is estimated at about 5,000,000 square miles, and the population at about 500,000,000 souls. Asia is divided into three parts: the Near East, the Middle East, and the Far East. The Near East includes the countries of the Levant, such as Syria, Lebanon, Jordan, Israel, Palestine, and Cyprus. The Middle East includes Iraq, Iran, Afghanistan, and Pakistan. The Far East includes China, Japan, Korea, and the Philippines. Asia is the second largest continent in the world, after Africa, and it is the most populous. About half of the world's population lives in Asia. The major countries of Asia are China, India, Japan, Pakistan, and Indonesia. Asia is home to many of the world's most important cultures and civilizations, including those of ancient Egypt, Mesopotamia, China, India, and the Maya. Asia is also home to many of the world's most important religions, such as Islam, Buddhism, Hinduism, and Christianity.
ports of the Red Sea began to visit the shores of Malabar, and to venture as far as Cape Comorin and the island of Ceylon (called Taprobane by the Greeks). But this, though the geographical information acquired was scarce, was of the most valuable kind, its progress is extremely slow even in our time, and must have been still more so among the ancients on account of the numerous defects of their shipbuilding and inland navigation. Hence, besides, such information is commonly limited to the harbours and shores, and rarely extends to any great distance in the interior. Accordingly we find, that though the commercial intercourse between Egypt and India was continued without interruption for many centuries, the additional geographical knowledge was scanty and vague; and though many of the harbours of Malabar were annually visited by Egyptian vessels, the information acquired concerned exclusively the coast of Malabar from the coast of Coromandel, and the country farther to the east, is limited to a few places, and was obviously obtained by the Greeks of Egypt from native navigators, none of them probably having ventured to advance beyond the island of Ceylon and Cape Comorin.

The successors of Alexander, being almost continually engaged in wars among themselves, did not disturb the unsubdued nations which surrounded the Greek empire in Asia, with the exception of Bactria, Nicator, the King of Syria, who made it, is thought, a successful attempt to subdue a part of the valley of the Ganges. This opinion rests on the statement of Pliny (vi. 17). It is, however, certain that he was, in the reign of Seleucus, Megasthenes, one of the Prasi, to whom a considerable part of Hindustan was subject, and to this individual we owe some further particulars respecting India and its inhabitants. (Strabo, 792, 724, &c.) The Greek empire of Bactria, however, did not long continue in existence. The extensive conquests of Alexander, added little or nothing to the previous knowledge of the Greeks concerning that country. Most of the Greek kingdoms in Asia were destroyed by the Parthians, and Didymus visited only the southern provinces of the Persian monarchy. The extreme western boundary of the Roman empire was formed by the Tigris, the Euphrates, and the Caspian sea; and the extensive and formidable military expeditions being carried on in countries previously known, could add very little to the geographical knowledge of Asia. We ought, however, to make an exception with respect to the Caucasia. In their wars with the Medes, and especially with the Persians, the armies of the Romans passed the boundaries of the known world and arrived at Mount Caucasus, with whose extent and situation they became acquainted, though they did not enter the plains which lie between the mountains and the Caspian Sea. The knowledge of the Caspian Sea, consequently, was the result of information of a commercial road through Bactria, by which the countries on the south of the Caspian Sea were carried on an active commerce with Britain; and soon after another route was opened and the strip of land on the south of the Caspian Sea to the coast of Asia Minor was discovered, and a road was opened by the Euphrates and the Tigris. At length, after the Greeks, the information acquired by the Romans concerning Upper Asia was very considerable. The establishment of military garrisons in the countries to the north of the Tazares, and of some parts of India. For the first we are indebted to an embassy of the Emperor Justinian II, who sent in 569 one of his governors to one of the wandering tribes of the Turks in the country on the west and south of the Altai Mountains and about the lake of Saisan, or Zaiang, with the view of inducing them to attack their common enemy, the Persians, without foreboding that the discoveries of this very people, after a lapse of nearly nine hundred years, would destroy his own empire and choose Constantineople for their metropolis. Nearly about the same time, an Egyptian merchant, Cosmas, named Indolccaes, who for a long time had resided in India, directed attention to a route over the mountains and a sea to the coast of India, and composed his Topographia Christiana, in which he gives some new information respecting Ceylon, called by him Selediva, instead of the ancient name of Taprobane, of the commerce of that island; but it was not until after the discovery of the roads through Upper Asia by which the silk manufactures of this country were brought to Persia and Constantinople, that the channels of geographical information were so widely opened.

The channels of geographical knowledge were so widely opened. The knowledge of the geography of Asia was embodied in the systematic works of Strabo, of Pliny, and of Ptolemy of Alexandria, the last of whom raised geography to a science by basing it on astronomical and mathematical foundations. From these works, it is evident that only those countries into which the Macedonian conqueror had carried his arms were known with some degree of correctness as to their general features, and that beyond them their knowledge was limited to a few places traversed by commercial roads, and to the harbours. Ptolemy was acquainted with the coast of Arabia, the coast of India, the mouth of the river Ganges, that of the Ganges, and that of the river Indus, as far as the Seres, as well as that through Bactria to India. He also had some knowledge of the north-western extremity of the Himalaya range (called by him Imas or Himalas), the coast of Nias, and a part of the coast of Arabia and Persia, and with those of India as far as Cape Comorin. The island of Ceylon, which at that time was the common resort of the eastern and western navigators of the Indian Sea, was also pretty well known to him, though it was not until after the voyage of Christmas in the year 1505 that it was properly known. In its neighbourhood states there were found 1378 islands, by which probably the Laccadives and Maldives are meant; and he names Jabsa (Yavadvipa) i.e. the island of Jabsa near the west coast of India. In this manner, he enumerates the islands and atolls of the coast of India, and the islands of the strait of Malacca, extending from the west coast of Arabia to Cape Comorin. Many of these islands were named after the names of the people who lived there, i.e. the inhabitants of a particular island. Besides these works, the Periplus of the Erythraean Sea, and another probably written in the second century, and attributed to Arrian, give a more particular description of the coast of the south of Arabia, through its king of Saba, and the island of Axum, likewise, which certainly is the work of Arrian, contains a brief coast description of the Pontus Euxinus (Black Sea). (See Arrian.) As to the geography of northern Asia, few additions seem to have been made after the time of Herodotus. Some of these additions may have been due to a retrograde movement, as the father of history knew the Caspian Sea to be a lake, which Strabo believed to communicate with the northern ocean. Ptolemy in his Cosmographia briefly notes that the Danube enters the Black sea, but placed its length from east to west instead of from north to south, as Herodotus had done. (See Argonauts, vol. ii. p. 310; and Pomp. Mela, i. 2.)

II. Asia as known in the Middle Ages.—Though the Byzantine empire did not fall before the invasions of the northern barbarians, it was hemmed in on every side by powerful enemies. On its eastern boundaries, the kingdom of the Parthians was replaced by that of the Sassanians, who under the dynasty of Bahram; the Sassanians, who under the dynasty of Bahram, in extending their dominion over all the countries of the south of the Caspian Sea, and of some parts of India. For the first we are indebted to an embassy of the Emperor Justinian II, who sent in 569 one of his governors to one of the wandering tribes of the Turks in the country on the west and south of the Altai Mountains and about the lake of Saisan, or Zaiang, with the view of inducing them to attack their common enemy, the Persians, without foreboding that the discoveries of this very people, after a lapse of nearly nine hundred years, would destroy his own empire and choose Constantineople for their metropolis. Nearly about the same time, an Egyptian merchant, Cosmas, named Indolccaes, who for a long time had resided in India, directed attention to a route over the mountains and a sea to the coast of India, and composed his Topographia Christiana, in which he gives some new information respecting Ceylon, called by him Selediva, instead of the ancient name of Taprobane, of the commerce of that island; but it was not until after the discovery of the roads through Upper Asia by which the silk manufactures of this country were brought to Persia and Constantinople.
interrupted every sort of commercial intercourse with India as well as with Upper Asia, and the distracted condition of the Byzantine empire, and the state of barbarism in which the western nations of Europe were sunk during the earlier part of the middle ages, was such as to deprive them for more than two centuries of any additional knowledge concerning the countries of the East. From the close of the sixth century to the beginning of the Crusades, no fresh information of any sort whatever has been obtained about them. Geography had its full share of the advantages resulting from this favourable change. As every true Mohammedan was bound by his religious tenets to visit at least once in his life the Kaaba of Mecca, travelling became more frequent among such a people than it even was among any nation; and as the love of letters increased and became more general, the number of their geographical works, travels, and voyages increased in the same proportion. Many of their works are undoubtedly authentic, others are still inaccessible to European readers, but some have been translated. The most important are the Oriental Geography, translated by W. Ouseley, London, 1840, which was written in 1259, and the more recent Geographical Description of Haukal the inhabitant of Abydus, translated by A. Metternick, 1829; the Travels of Ibn Battuta (1324-1354), translated by Professor Lee of Cambridge, London, 1829. Ibn Battuta was doubtless the greatest traveller that ever lived. He visited Tunis, Constantiople, Tartary, Hindustan, China, Ceylon, the eastern coast of China, and Tanger in Africa (which was his birth-place), and traversed all the countries between these extreme points.

The Chinese literature also at an early period have renewed the commercial intercourse with India by the Red Sea and the Gulf of Persia, and to have soon extended their navigation beyond the extreme limits attained by the Greeks of Alexandria. They were prompted to desipre the dangers, and to the compilation of astronomical tables. There are extant two works on the countries about the seas of China, written, as it is thought, by Ibn Wahab and Abu Seid about the end of the ninth century. The latter composed only a commentary on the writings of the former, and thus had the advantage of some richness of the Annals of Suleiman, who have obtained some of the Chinese works, and are still inaccessible to all but the most copious geographical and ethnographical information about the eastern countries of Asia in the middle ages, before the establishment of the Mongol empire, is contained in the Chinese works in the historiographic works of Abraham of Neacy, who was to the east the historiographer of the 13th century. The work of this period is characterized by more judgment and accuracy than the similar compilation of Piny the elder. Nine books are devoted to the geographical description of China, at the different periods of the native dynasties; and twenty-five contain the description of foreign countries. The work of the Holy Sepulchre from the Insdiles. The navies of the Italian republics accompanied these expeditions, and the citizens of Pisa, Florence, Genoa, and Venice had thus an opportunity of obtaining the commerce of the east, and were likely to result from a commercial intercourse with western Asia. Following up these views, they entered into a very lucrative commerce, and brought by their vessels the most valuable products of the East. The Genoese, in particular, had got possession of Galata and Pera, suburbs of Constantinople, and with them the exclusive commerce of the Black Sea, extended their commercial speculations to India through the Crimea, Cafla, La Gara (Azof on the Don), Khwarizm, Urgens (Khiva), and Tashkend, of which the route interested the work of Baldocci Pegolelli, entitled Libro de Disseminati de Paises e Mares, written in 1335, gives some information. Their rivals, the Venetians, had come to an agreement with the sultans of Egypt, by which the direct road to India through the Red Sea was opened to them, and the sudden increase of the wealth of the republic proved that they knew how to profit by these advantages.

Europeans began to renew their acquaintance with the countries of Asia on the shores of the Mediterranean in the eleventh century by pilgrimages, and soon afterwards by the Crusades (1096-1270). The Crusaders' interests were, however, confined to the lands on the coast of the Mediterranean, and were not likely to result from a commercial intercourse with western Asia. Following up these views, they entered into a very lucrative commerce, and brought by their vessels the most valuable products of the East. The Genoese, in particular, had got possession of Galata and Pera, suburbs of Constantinople, and with them the exclusive commerce of the Black Sea, extended their commercial speculations to India through the Crimea, Cafla, La Gara (Azof on the Don), Khwarizm, Urgens (Khiva), and Tashkend, of which the route interested the work of Baldocci Pegolelli, entitled Libro de Disseminati de Paises e Mares, written in 1335, gives some information. Their rivals, the Venetians, had come to an agreement with the sultans of Egypt, by which the direct road to India through the Red Sea was opened to them, and the sudden increase of the wealth of the republic proved that they knew how to profit by these advantages.

Whilst the Italian republics, from mercantile motives, kept to themselves the scanty information which they had acquired by their commercial intercourse with Asia, the Crusaders, on the other hand, took advantage of the political connexion with those who inhabited the northern and inland parts of this continent. This was brought about by the conquests of Tugenghi-khan and his successors. Soon after the death of Tugenghi-khan, Edward I of England, in 1299, assumed the title of ruler of Persia and Subei, and established his dominion in little more than twenty years (1296-1297) over all the inland countries of Asia, from the Caspian Sea to that of India and Tibet, the Mongol empire extending its conquests across Europe as far as the Danube. Thus, Edward I of England established the power of Poland, and gained a victory at the foot of the Riesengebirge, at Liegnitz in Silesia (1343). All Europe trembled; but the barbarians, having got
of the death of their great Khan, instead of pursuing these advantages, returned to their native country, preserving, however, the dominion over Russia. Then the politicos of Pope Innocent IV. and of King Louis IX. took their plan of pointing the power of the great Mongol empire and its warlike army against the Mohammedan princes in western Asia, their implacable enemies; but this object did not seem practicable to the projectors of this plan, unless they could first convert the barbarians to the Christian faith. For that purpose some friars were sent to the court of the great Khan; John de Plano Carpini in 1246, Father Aeselin, a dominican, in 1248, and William Rubruquis, or Ruysbroeck, in 1254; and though they did not accomplish the object of their mission, the information which they acquired of the countries through which they passed made the Europeans for the first time acquainted with the immense extent of those regions formerly called by the vague name of Scythia, which from that time obtained the name of Mongolia, or Tartary. Carpini traversed a considerable part of the deserts to the south of the Altai range, and Ruysbroeck advanced even to the then metropolis of the Mongol empire—Karakorum, situated at the confluence of the Talas and Orghon, tributaries of the Selenga, to the south of the lake of Baikal. He gives a curious and very interesting description of that extraordinary town, which was entirely surrounded like an island in a lake, and which he calls the capital of the Mongol empire; but these accounts were not continued in their career of conquest in Asia, and at length subjected China to their sway (1275-1279) under the reign of Kublai Khan (1259-1294), the most able of all the successors of the Mongol khanate. At the close of this monarch the Venetian traveller Marco Polo resided from 1275 to 1292, and as he enjoyed the favour of the emperor in a very eminent degree, and was well acquainted with the most important languages spoken by the people of the country, he was frequently sent on missions to the remotest provinces of the Mongol empire, which were so distant from one another that he was often obliged to travel six months before he arrived at the place of his destination. Under these circumstances, the Mongol empire in different directions, he was sent as ambassador to the islands of the Indian sea, and had thus an opportunity of becoming acquainted with this part of Asia also. On his return to Europe he passed through the strait of Malacca, remained, on account of the monsoons, five months in Sumatra, visited Ceylon and Malabar, and landed at Ormuz in the Persian Gulf. In all his missions and travels he had been in the habit of keeping a journal, and of entering what appeared to him most worthy of being recorded. On his return to Italy his incredible countrypeople imported him on unceasing questions, and at length he resolved to make an extract from his notes. Many editions of his work have seen the light, and so greatly is he indebted to Arab and Persian authors, which have been translated into almost all European languages. It very materially influenced the views of Columbus, the discoverer of America, and directed the route of Vasco da Gama, who first went to India by the way of the Cape of Good Hope. The correctness of Marco Polo's information is better known and valued in proportion as, by the study of the Asiatic languages, and by the reports of modern travellers, we become more acquainted with the countries which he described. He has been frequently called the father of modern geography, and doubtless a claim to that title. If the name of a discoverer of Asia were to be assigned to any person, nobody would better deserve it, for he alone added to our geographical knowledge of Asia a much greater amount than what had previously been known by the ancients, together with what had been acquired by the travels of Carpini and Ruysbroeck. Besides the information which he gives us concerning Asia, he describes the countries of the eastern Africa and the island of Madagascar: the latter countries, as well as some parts of Asia, he had not personally visited; but even here his information has proved correct, and shows the care which he used in collecting his facts. 

The chief subject of his description is the Mongol empire, which extended over more than one half of Asia, including nearly all the countries of which the ancients had either no knowledge at all, or very scanty and confused information. To the north, his knowledge extended to the lake of Baikal, the Tungus tribes, who had no cattle but rein-deer (which tribes he calls Mekrit), and the adjacent sea (Mare Oceano); and he informs us of the connexion between the plains of eastern Europe on the Volga and Don, and those of Tartary and China, in which Peking becomes the residence of the Mongol emperors, and of Japan, called by him Zipangu, which name is evidently formed of the Japanese 種pen, the name of the (the) people. He had not visited, but as his protector, the great Kublai Khan had sent, in 1290 and 1291, some naval expeditions from Khanfu and Zaitun, in the Chinese provinces of Chekiang and Fukien, which may have explored the Japanese islands, and Marco Polo had a good opportunity of collecting information concerning them, though, as he says, they were 1500 miles from the Chinese coast. The countries to the west of China he had visited, especially Tibet; here he got information of Mien, i.e., Pegu, and Bao-lung, in India, a name never before known in Europe. Kublai Khan had sent, in 1272, an army to conquer these countries. Marco Polo was the first European, as far as we know, who navigated the seas to the east and south of the peninsula beyond the Ganges; and here he mentions the Spice Islands, 7441 number, as he says, but he did not see them. They are situated in the sea of Cyn, and are mostly inhabited; but they have commerce with foreign nations, except the merchants of Ma-Chin. These ports the Moors visit them during the monsoons. He next gives some general information of the islands of Sunda and the adjacent groups, which, according to the information he obtained from native navigators, consisted of 13,700 inhabitants. All these countries and islands were almost entirely unknown before the publication of the travels of Marco Polo. But of the countries previously known to the ancients, his information gave him was likewise interesting, and has proved very useful. He treats of Ceylon, Malabar, and Ormuz, which he himself had visited; and of Aden, Socotora, Abasina (i.e. Abyssinia), Zanguebar, and Madagascar, which names were for the first time introduced into geographical literature by him in his travels. It is possible that the information concerning these seas served, two centuries later, to direct the course of Vasco da Gama in his first navigation to the shores of India. For he says, departing from the coast of Malabar, a vessel makes, by the assistance of a current, in three months, a thousand miles towards the south-west, and then arrives at Madagascar, and to the still more extensive islands farther to the west (i.e. Southern Africa), which are inhabited by black tribes with curly hair, rich in valuable productions, elephants, camelpardas, gold, sandal-wood, amber, and frequently visited by merchants from Arabia and India. After the time of Marco Polo the number of travellers in Asia increased, and many objects which were formerly considered part of it, they commonly tried to enliven their works by fables or inventions of their own, or by exaggerating the information which they had obtained by correspondence, or by the report of others, or by translation of information given by the Armenian monk Hayton, in his Historia Orientalis, who collected it from the communication of his uncle, king Hayton I. of Armenia, who, having been present at the court of the great Khan Mangu Khan, had some opportunity of collecting geographical facts. Equally worthless are the reports of the Venetian monk Oderico di Portenau (1317), and still worse the travels of the English knight John Mandeville (1358); these two travellers seem to have been fluttered with information from all parts of the fifteenth century, we find some better information, especially through the Spanish ambassador Gonzalez Clavigo, who in 1406 was sent to the court of the famous Timur at Samarcand; and from the German adventurer John Schlumberger, who served in the armies of Bajazet, the Turkish emperor, of Timur, and Shah Rokh, from 1400 till 1427; and especially the Venetian, Josaphat Barbary, who travelled (1436-1441) in the coast of Guinea, and collected many remarkable facts. But all these travellers, though they brought back to Europe some useful information, contributed little or nothing to the extension of our knowledge, as to parts which had previously not been known at all, or only imperfectly. Marco Polo reflected in a very eminent degree by the discoveries of the Portuguese soon after they had found their way to India round the Cape of Good Hope. III. Progress of the geographical knowledge of Asia
after the circumnavigation of Africa.—The parts of Asia which had been visited by the Greeks were so far known, as to their boundaries, extent, and principal features, that they could be laid down with a tolerable degree of exactness.

This will be evident to any person who examines Ptolemy's map of the extensive region between the Mediterranean, the Caucasus, the Caspian Sea, the Belur Tagh, and the northern margin of the Indian Sea. Their attention to the details in the information which this geographer had obtained respecting India betrayed him into very great errors as to that country. The information acquired by the travellers of the middle ages was much more exact. None of them had determined the astronomic position of any place, so that the knowledge of Marco Polo, had noticed the immense extent of the countries which they had traversed, a very erroneous idea was formed of their true position on the globe. Thus we find the French geographer Martin Fauchien, who, in 1484 and 1485, accompanied the Portuguese navigator, Diogo Cam, in his voyage of discovery along the coasts of Guinea, and in 1492 made, in his native place, Nürnberg, a terrestrial globe, has placed the Zippangu of Marco Polo, or the present Japan, at no great distance to the west of the islands of Cape Verde. A few years were sufficient to remove this error. But even later geographers, such as the Italian Giovanni Battista Mutino in their Typus Cosmographicus Universalis, i.e. in their maps of the old and new world, drawn up in the first quarter of the sixteenth century, laid down the same country at a short distance to the west of the Terra di Cina and Persia.

Vasco de Gama arrived, in 1498, at Calicut, on the coast of Malabar, and the Portuguese pushed their discoveries in these seas with such activity and zeal that, in the course of less than half a century, they had explored them as far as Japan. Their first efforts to establish a commerce were directed to the coast of Malabar; and, as the Arabs or Moors, who then carried on a very active trade with the eastern Mediterranean, the Persian Gulf and India, had explored them from these parts, and to embroil them with the numerous sovereigns among which this coast was divided, they were soon obliged to have recourse to arms, and to enter into alliance with some of the native powers. In a few years they had acquired a complete knowledge of the whole coast, from Cape Comorin to the Bay of Cambay and its rich emporiums, Surat and Broach; and, as early as 1509, they made several settlements on the southern coast of Gujarat as far as Diu, which they had then secured from the Arabs and Persians, and from the Arabs and Persians, and from the Mughals. The Portuguese at this time felt the necessity of establishing sugar plantations in India and the east of the vicerey and colonial government. The Portuguese now made advantageous treaties with the petty sovereigns along the whole coast of Malaya. But before this time the neighbouring island of Ceylon had been discovered by Almeida in 1506, which was at that epoch of the greatest commercial importance, being a station for the Arabian vessels which went to the Spice Islands for the spices, which, together with the cinnamon which grew in Ceylon, they exported to the harbours in the Persian and Arabian Gulf, and thence to Europe. In 1517 the Portuguese erected the fortress of Colombo, in Ceylon, and began to exercise a dominion over its petty sovereigns. To secure to themselves, and to further their commerce with such rich countries would probably have induced them to encourage their commerce from the commercial nations of Europe; but they entered the Indian seas as conquerors and not as traders. They were not interested in the trade of Malacca, which was the most eastern limit of their discoveries, by which Europeans became acquainted with the real extent of Asia, and with a great part of its coast. Had the Portuguese only been able to exercise a dominion over the coast of India, they might have been the first to establish a commerce in the Indian and Chinese seas. But the Portuguese conquest of Malacca in 1511 was not followed by an establishment of a new station on the coast of Ceylon (1536), with their settlements on the Coromandel and Malabar coasts; and they remained, at the conclusion of peace (1565), only in the possession of Goa and Diu, which they had held since 1517. These settlements were the results of the Portuguese conquest of Malacca in 1511, and they extended the settlements during the century that they possessed the dominion of the Indian seas, acted more on mercantile principles, and did not materially increase our geographical knowledge of the countries which they occupied. They published, indeed, a few descriptions of some of their colonies, and their natural productions, especially of the plants and shells (Rumphius, Ambonensis Historie Samen; Rheede, Hortus Malabaricus; Fr. Valentinus Beschrei- bung, &c.) written in a work entitled "Reise durch die Inseln der Morgenstern Order," which contains some geographical information. The most important communication belonging to this period was furnished by the German
naturalist, E. Kämpfer, who, in the capacity of Dutch physician, resided in Japan from 1684-1692, and has given a description of the country.

During the long-protracted contest between the Portuguese and Dutch in the seas of India, the most northern part of Asia which had not been known either to the ancients or to moderns, suddenly emerged from the obscurity in which it had hitherto been enveloped. The southern part of Russia, for whom more than two centuries had been dependent on the Tartar princes of the family of Tashkurgan-Khan, obtained the full sovereignty of their country in 1461, and in the following year, their extension of their dominion, and with their geographical knowledge, over the countries drained by the Don, Volga, and Ural, up to the Ural mountains, by the conquest of Kasan (1552) and Astrakhan (1555). In 1129-1138, Batu, the grandson of the Conqueror of the Cimmerians, who was in fear of punishment for having robbed some travellers, crossed the Ural range with a troop of his countrymen, and entered Siberia. The discovery of Siberia, and its subjection to the Russian sway, were pursued with such vigour, that in 1644 the mouth of the Amur was reached, and in 1648 the bold hetman Deshnev, favoured by a mild season, circumnavigated the most north-eastern corner of Asia, from the mouth of the Kowmyra round the north-east cape to the mouth of the Anadyr, and thus proved that Asia was actually separated by an open sea from America. This fact, however, remained for a length of time problematical; the Russian navigator Behring (1725—1728), as well as Captain Cook (1774-1778), extended their way of navigation by covering the unknown regions of the English. In 1820-1824, the Russian captain Wrangel again succeeded in effecting this circumnavigation. The discovery and conquest of Siberia were completed by Peter the Great, who became Tsar of all Russia.

Somewhat later, and still more unexpectedly, Europe obtained a complete geographical view of the immense empire of China, and a considerable part of central Asia. The Jesuits were not due to accounts on the curiosity among the inhabitants of Europe to see the wilds or the empire of China, and the character and manners of the Chinese. The Jesuits were not due to accounts on the curiosity among the inhabitants of Europe to see the wilds or the empire of China, and the character and manners of the Chinese. The Jesuits were, indeed, disposed to convert the inhabitants of Japan to Christianity, and had met with more success than in any other country of Asia. But a persecution breaking out against them and their protection, they were compelled to leave the country, directed their labours to China. Father Matteo Ricci, an Italian, a man of considerable attainments in astronomy and mathematics, soon acquired a great authority at the court of Peking, in 1600.

One of his successors in the mission, Father Schall, was appointed chief of the bureau of Heavenly Affairs, and maintained himself in this place even after a revolution had taken place in Peking. The Mandshurian emperors had ascended the throne. The Jesuits continued in favour to the middle of the last century (1795). During this time some of them had an opportunity of traversing various parts of the Chinese empire, and the countries of central Asia. Father Benoît, who travelled from India through Kashghar, Yarkand, and the desert of Gobi, to the great wall of China, and ascertained that Katsi was northern China, and Kambala the town of Peking, which till then had been considered as different countries and towns. Other Jesuits succeeded in insinuating themselves so far into the favour of the great emperor Kanghi, that some of them always accompanied him in his expeditions and wars, or were sent on certain missions. By these means they acquired a considerable knowledge of China and the countries dependent on it, as Manchuria, Corea, and even of the great desert called Gobi, as well as of the manners, character, and institutions of the inhabitants of those countries. The observations of the Jesuits were published. But the greatest service which they rendered to geography was their map of China, which was made under the authority and at the expense of the Chinese government, by the friars Bouvet, Regis, and Jartoux, between 1708 and 1718; and after having been corrected by the friars Falet d'Arocha, Espinha, Kellerstein, and Gault, was published at Peking in 1763. The map consists of 110 sheets. The great imperial geography, entitled Thibang-y-thomong-toki, written by the order of the emperor Kienlong, may be considered as a commentary on this map. The second edition (1790) of this extensive work is, like the first, divided into two parts, and is indebted for our knowledge of it to the industry of some Chinese scholars, especially Sir George Staunton, Davis, Morrison, Abel Rémusat, the Archimandrite Hyacinth, and Klaproth. Modern travellers, especially the Dutch explorer J. van Nieuwenhoven and Van Braam and neighbours, have added something to the information of this book. This, therefore, extends only over a comparatively small extent of country. The voyage of Captain Mayhew, however, has materially improved our knowledge of the coast of the bay of Pecheli, and the peninsula of Corea, a coast which previously had not been examined with any degree of accuracy.

While the conquistadors of the Russians in Siberia, and the operations of the Chinese government, opened to us the region of the Northern Sea, and the heart of Asia, our geographical knowledge of the southern and western countries was comparatively slow. The fanatical policy of the Turks, who, at the end of the fifteenth and the beginning of the sixteenth century, had got possession of them, shut up the roads through Asia Minor and the adjacent countries, which consequently were not visited, except by a few pilgrims. The policy of Persia, however, under the dynasty of the Solmodes (from 1501-1722), was much more favourable to European travellers, many of whom got access to every part of the country, and even to the court, and collected very valuable information concerning the geography of Persia, the institutions, and the character and manners of the Persian emperors, which are recorded in the travels of Pietro della Valle (1614-1626), Adam Olearius and Albrecht von Mandelslo (1633-1639), John Thvenot (1652), John Baptist Tavernier (1665), and especially in the works of the Honorable John Chardin, Envoy of King of Persia and of Charles II. of England, who discovered the ruins of Persepola; and of Francis Bernier, the physician of the emperors Aurung-Zeb, who first gave us some information on the valley of Cashmere. Gaspar Balbo, and Venetian pilgrims, from Venice (1579-1588), by the route of Aleppo, Bir, the Euphrates as far as Feliugia, and Bagdad. Rauwolf, in 1574, also descended the Euphrates from Bir.

Towards the end of the seventeenth century the suspicious policy of the Turks began gradually to relax; and the first fruits of the zeal to explore the countries subject to their sway was the discovery of the ruins of Palmyra by Halilfax in 1691, and the travels of another Englishman, Henry Maundrell, to Jerusalem in 1697. They were soon followed by the naturalist J. Pinot de Tournefort, who explored Asia Minor, Armenia, and Persia (1701), and who, with the assistance of the Jesuits, and of Father de Bray, who visited Syria and Palestine; and, somewhat later, by the antiquarian Richard Pococke (1727), and C. Niebuhr (1766). In our times, these countries have been visited by Volney (1796), Seetzen (1802-1817), Clarke, Father Ducommun, and several others. The climate and the people, and the mountainous nature of the country, had not attracted the attention of Europeans, and was only known from the description of Avicula, was pretty well explored in part of its extent by C. Niebuhr (1761-1767), and its geography, ethnography, and natural history have been considerably enriched in our times by Seetzen and Burchhardt.

The geography of India, that country which, since it first became known, has always excited the curiosity of the learned, and attracted the speculations of the merchant, was longer involved in obscurity than almost any part of Asia. Up to the middle of the last century, its coasts were very imperfectly determined, and very little indeed was known of the interior of the country. A few travellers, as Thvenot, Tavernier, and Bernier, had given some information about a few districts and routes, but it was extremely scanty. The true geographical knowledge of these countries began in the Dutch establishment of the Company of India and the French (about 1740), and in Hindostan with the conquest of Bengal (1757). From this time its progress was extremely rapid. A great part of the valley of the Ganges was occupied, and the province of Bengal was brought into the account of the remainder, and of other districts of Hindostan, was obtained by the translation of the Ayin-i-Akbari, an historical and statistical account of the Mogul empire, composed by Abul Fazl, under the orders of the emperor Akbar. We owe it to the voyage of Captain James Atkinson and his fellow-student Ali and his son Tippoo Saib, rajas of Mysore, gave that exact information of the southern part of Deccan which is always
the effect of such operations. In the wars with the Pindar-ries and with the Maharrattas (1801—1818), the northern districts of Deccan and the central region of Hindostan were explored in a similar manner; and as in the wars with the then French government, the colonies of the French and Dutch in the Deccan, and in Jaffna, Ceylon, (1811) fell into the hands of the English, a full account of them, especially of the island of Java, then almost unknown, was published by Sir Stamford Raffles. The novelty of the season, the variegated descriptions of the different tribes of mountain and desert-dwelling inhabitants of those regions, which we have been indebted for a number of valuable works. The most important of these are, Forbes’s Midlands of Hindostan (1820); B. Heiney’s and W. Wilkes’s Researches on Deccan; Lecomte’s Botanical Excursions through Deccan (1819); Lord Valentia’s Travels (1802—1806); Bishop Heber’s Travels (1824—1826); Malcolm’s Researches on Mahé (1820); Todd’s Rituals; A. Burnes’s Topographical Researches on Cutch, &c.; and his Examination of the Indus and the Pénjáb. An account of the island of Ceylon is found in the works of Perceval (1796), and of J. Davy (1816—1820); and Sumatra was described by Marden. Many separate memoirs, either inserted in the Transactions of the Asiatic Societies of Calcutta and London, or published separately, have illustrated the geography of the island; and it is the subject of a separate district or place. * [See Asiatic Societies.] It may be truly said that India, which little more than fifty years ago was less known than almost any other country of equal extent, has been largely explored by the industry of our own countrymen, that there are few countries out of Europe on which we have better information.

The extensive conquests of the English on the banks of the Ganges and its tributaries, involved them at last in political relations and wars with the tribes of mountainous districts, inhabiting the Himalaya range, especially with the Gorkhas in Nepal; and this led to the conquest, in 1816, of some of the elevated valleys of these gigantic mountains, which hitherto had remained unexplored, and which are admirably described in von Humboldt’s Travels through the valley of Cashmere, which, since the time of Bernier, had only been visited by G. Forster (1783). Before his time, Tibet had already been visited by Turner, who was sent by Lord Stopford to ascertain the possibility of opening a commercial intercourse with that country, in 1779, sent there as an agent of the English East India Company, and on his way traversed the valleys of Bhotan.

The political relations of Persia, which engage the East India Company, were obliged to enter into an alliance with the countries lying on both banks of the Indus, gave rise to the embassy of Mountstuart Elphinstone to the court of Cabul (1809), by whom the whole region known by the name of Afghanistan, which till then had remained almost entirely unexplored, was once opened to us. A similar effect was produced by C. Grant’s embassy to the court of Sind (1809). After that time, Christie and Pottinger traversed Beluchia, and those regions which antiently were known by the name of Ghyzy, of which no probable information had been gained by an European since the expedition of Alexander the Great: In these journeys they discovered the table land of Kelat (1810), and the roads which lead thence to Kerman and Herat. The recent journey of Bumnes from the Indus into the countries on the Oxus river will make some important additions to our knowledge of these hitherto almost unknown regions.

Our knowledge of Persia has likewise received very important additions in modern times, especially from the industry of the English. This also has arisen from political relations: Sir John Malcolm, the author of the classical history of Persia, and Sir Harford Jones, were sent to the court of Teheran, which they soon procured upon to place the organization of the Persian army in their hands, and to permit them to examine the Persian provinces with reference to their capabilities for defence. The result of these geographical researches was an improved map of Persia, through its provinces, published by Macdonald Kinnee in his Geographical Memoir (1813), who, in his travels (1813—14), examined also the roads leading through Kurdistan, Armenia, and Asia Minor. By means of the map mentioned above, it was ascertained, that the tables of Usseyle in oriental geography and literature, by Ker Porter’s and Rich’s researches on Persian antiquities and architecture, and B. Frazer’s travels, who in 1738, 1739, and 1740, first determined the height of the table-land of Iran, and corrected, by his observations, the southern shores of the Caspian Sea. Still more recently we have acquired valuable information from Captain Chesney’s report on the Explorations: the description of that river between Biblos and Bassorn, and many interesting facts as to its flooding, navigation, and the inhabitants on its banks, are contained in this unpublished document.

O f India beyond the Ganges nothing was known at the close of the last century except the coasts and a few ports; but the increasing power of the Burman empire soon produced political relations between it and the government of India, which sent an embassy under General Grant, in 1824, to the court of Amurapha, accompanied by the naturalist Sir Francis Hamilton (Buchanan), from whom we have the first authentic account of that country. The war with the Burman Emperor, a few years after (1824—1826), made us acquainted with the valley of the Irawaddy, to the capital of the Burman empire; and the ceded provinces (Araucan, Martaban, &c.), as well as the countries which were declared independent by the peace (Assam, Cashmir, Manipur, &c.), were added to our possessions. Negotiations for peace, Crawford was sent to Amurapha, and published an account of the Burman empire, by which he cleared up the geography of the peninsula beyond the Irrawaddy, and previous discoveries of Siam and Cochinn China. This work and his history of the Indian archipelago, have considerably enlarged our views concerning the most unknown portion of India.

Next to the English the Russians have, in modern times, been most active in extending and completing our geographical knowledge of Asia. The establishment of mines in Da-uria on the Amur, and in the Altai mountains between the Irish and Oby, gave rise to the travels of many scientific men, and the publication of several interesting travels and treatises. The most valuable works on the geography of Siberia are by Messmerdissch (1792), Dr. Müller, De la C Herce (1798), and, more particularly, in the case of Siam and Cochinn China, especially the travels of Timkowksi (1819-21) and those of Von Bunge (1830), who first ascertained the elevation of the central table-land crossed in this journey.

The conquests of the Russians in Asia have given us a more complete knowledge of the Caucasus. Peter I. ordered a survey of the Caspian Sea to be made, which was executed by Simonof, and thus the true extent and form of that immense lake was disclosed. In the war against Persia in 1721-23, the northern heights of Mount Caucasus and the countries watered by the Kur and Aras were explored; and discoveries were pushed farther south, when (1800) the province of Grussia was ceded to the English by the ancient allies of the Russian. After that time, the valleys of the Caucasus were explored and occupied by Gidenstein, Reiniggs, Von Biberstein, Klaproth (1807), Parrot, and M. von Engelhardt (1814), Kupfer, and M. Lens (1829), who at last succeeded in reaching the elevated pinnacles of the Elburz; Parrot had previously ascended the Ararat.

The Russians have likewise penetrated into the countries east of the Caspian sea, and surrounding the lake of Aral, and have passed through desert islands in the sea of Caspia Karaks. This was chiefly effected by the missions and expeditions of Nazarov to Kokhand (1813), of Murawieff to Khiva (1819), of Meyendorf and Eversmann to Bokhara (1829), and of Von Berg, Lewchini, &c., to the Lake of Aral, since 1825.
IV. General view of the extent and figure of Asia.—Asia lies to the east of Europe and Africa; it is separated from Africa by seas, except at one place, where these two great continents are joined by the narrow isthmus of Suez. With Europe it is connected by extensive tracts of land under the meridian of the Urals, which mountain range, together with the desert and deep-lying plains that characterize the course of the Caspian Sea, and the northern extremity of the Caspian Sea, ought to be considered as the natural boundary between Europe and Asia.

The great depression of these steppes, in which the town of Orenburg stands, is the Caspian Sea, which, with the Arabian Sea and the Persian Gulf, forms a single sea, or a continuous arm of the sea. In Europe, beyond the Caspian Sea, and the surface of the Caspian is more than 300 feet below it, is the characteristic physical peculiarity of the region on the common boundary of Europe and Asia; and it is the great depression that constitutes the condition of the human race in the adjacent countries.

In the changes, to which the nomadic tribes in the interior of Asia were frequently subject, some of them were driven through that immense gap, which opens between the Ural range and the Caucasus, towards the eastern countries of Europe, richly endowed by nature with a soil fit for agriculture; and in this way a continual migration was effected.

Asia, whose area is more than five times that of Europe, differs materially in its physical figure from Europe and Africa. Africa is like a body without members, but Asia extends its limbs in three directions, preserving at the same time the original form of its mass of body; it stands like a man on the country on which it may be considered as an appendage or continuation of Asia, exhibits a preponderance in its numerous limbs over the mass of the body.

The greater part of Asia may be compared to a four-sided figure, whose four unequal angles are placed respectively on the isthmus of Suez, the innermost angle of the Gulf of Tonkin, Cape Shalatkozi in Siberia, and on the peninsula south of the Caspian Sea. Eastward, with the land of Zambiya, it consequently extends to the south of the Tropic of Cancer, and in some parts stretches north of the Arctic Circle. The northern side of this figure, lying within and parallel to the Polar Circle, is that part extending only about 2,700 miles; that near the Tropic, the longest, measures upward of 5,000 miles. Four-fifths of the whole area of Asia, or about fourteen millions of square miles are comprehended in this figure; the whole of its surface amounts to about seventeen millions and a half.

From this extensive continental mass, which may be considered as the body of Asia, its members project on the east, south, and west, in the form of peninsulas and headlands. The peninsulas are that of the Tukshtakes jutting out towards America (with an area of 64,000 square miles), that of Kamtchakta (containing 56,000 square miles), that of Corea of equal extent, the curved arc of the coasts of China, and the promontory of Arabia, forming the south side of the seas of India and Arabia, the peninsula beyond the Ganges occupying 777,000 square miles, India within the Ganges comprehending upwards of a million of square miles, and Arabia about an equal extent: the three last, taken together, have an area nearly equal to Europe. And lastly, the peninsula of Asia Minor, which, not unlike a bridge leading to Europe, has served to facilitate the passage of nations and of civilization. The northern coast alone, though much more indented than any part of the coast of Africa, does not exhibit in its formation peninsulas of great dimensions. These members, detached from the main body of the continent, contain nearly three millions and a half of square miles.

It may be observed that the extensive tract of land which occupies the centre of the continent, and is beyond the reach of any of the seas enclosing Asia, is far superior in extent to that of the coasts of the Mediterranean; this tract forms what may be called Central Asia, and has remained in a state of lasting uniformity, in manners and civilization, whilst its appendages, which lie round it, have undergone numerous changes, and many great progressions in the various sections of civilization.

If we consider—and we think we ought to do—those islands which lie near a continent as its insulated members, we may say that no part of the globe equals the southern part of Asia in the luxuriance of this formation. Here lies the group of the Sundas with its thousand islands and islets, the most extensive archipelago of the globe, which forms an easy passage to the continent of Australia and to the Pacific Ocean and its numerous groups. Thus Asia exhibits the greatest contrasts on the surface of the globe. Its interior presents to our view the most extensive, uninterrupted plains, as the Ganges desert, the Caspian Sea, and the desert of the Altai; the most narrow, and, at the same time, the most picturesque, as the country on the borders of the Tangan, and the valleys of the Himalaya山; and its climate and vegetation are such as to render it one of the most healthy and prosperous regions of the globe.
its branches, extending eastward and westward, the latter of which are known by the name of Hindu-Coosh or Hindu-Kuh. Farther to the west, where the plateau of Iran projects towards the south, the table-land region is separated from the Indian Sea by the mountains of Beluchistan, and thence from the Gulf of Persia by the steep Persian mountain-range (in its northern course called Zagrus), which extends along the coast of the gulf, and bounds the Tigris valley on the east; it afterwards joins the chains of Taurus and Crete to form the backbone of Asia Minor. This range, enclosed between its arms, the greatest part of the peninsula of Anatolia.

Both systems of table-lands are so connected, that, properly speaking, they form only one elevated and continuous plateau on the surface of the earth, but they decrease considerably in breadth where they join one another; and exactly at this point of junction numerous high masses rise and form an extensive mountain-knot, where the ranges of the Himalaya, Hindu-Kuh, Thsangling, and Belur, meet one another; these table-lands are, at the same time, joined and separated in a very characteristic manner.

From the extremity of these table-land systems, especially on the east and west, the inhabitants of their respective countries, which are separated by tables of Mesopotamia and the table-land is very distinctly marked; and from this point the range proceeds westward, until it meets with the main mass of the Caspian mountains.

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By this peculiarity the highland of this range and many extensive valleys, appears not less indented and cut into several divisions and members than the whole continent of Asia on its shores and its exterior valley; the valleys which by this indention are produced, are presents of the table-lands with all their advantages for the progress of civilization. For, as we have already observed, the highland of Asia does not sink on one side only, but on all sides towards every point of the compass; towards different oceans also, which are the limits of the highlands, and these extensive plains, varying greatly in magnitude and form. This circumstance, added to the valleys formed by the indentations in the exterior margins of the highlands, has given rise to many extensive plains, and these have been landscaped through the intervening terraces, direct their winding course towards the north, south, west, and east, and thus give to the internal countries of this continent an open communication with the sea.

The eastern highland of Asia is divided from the western, or, more accurately, the table-land of western Tibet from that of eastern Iran, between the mountains of Balkh and Cabul, by a tract of country varying in its elevation from 5000 to 3000 feet, and in its general character it is large and indented in higher elevation, presents more rigid forms, and has the figure of an irregular trapezium; the western has that of a rectangle extending towards the north-west, and is in every respect of a milder character, and again, the junction of the several mountain-ranges, which the companions of Alexander called the Indian Caucasus, and which now bears the name of Hindu-Coosh, is an extensive alpine region, or rather a mountain-isthmus, extending between the lowlands of Bucharah and of India, and uniting both highlands in the direction east and west, not unlike the isthmus of Panama, which connects the mountain region of South America with that of North America.

To this peculiarity in the formation of this part of Asia we must add another, namely, the parallelism observable in the direction of the mountain-ranges which form the southern boundary of the Gulf of Persia, and the southern boundary of the Caspian Sea. They extend in a diagonal direction from E.S.E. to W.N.W. The Himalaya range, which forms the slope of the table-land of Tibet, and extends from the Gulf of Tonking to Cabul and Cabul, is parallel to the Taurus-range, which, bordering the table-land of Iran on the south, extends from the mouths of the Indus to the western extremity of the Taurus in Lybia in Asia Minor, and is nearly of equal length.

The Mohammedan University of climes and habits which is parallel to the mountain-range which bounds the highland of Iran on the north, and which, considered as a continuation of the mountain-region of the Hindu-Coosh, is traced to the Caspian Sea, and thence through Azerbaijan and Armenia, through its surface exhibit great variety in this part, till it terminates with Olympus and the heights of Ida on the shores of the Dardanelles, presenting towards the Black Sea rapid slopes. This northern chain of the Taurus system is nearly equal in length to the southern, extending towards the Caspian about 2500 miles. The Caspian itself, which extends about 650 miles on the isthmus which separates the Caspian from the Black Sea, though it is some distance farther to the north, has nearly the same general direction.

But this parallelism in the eastern highland, is not observed in the western. Here too, indeed, some of the mountain-ranges traversing the table-lands run in the direction of west and east; but this is not the case of the part of the Gulf of Persia, between the Princeton (42° N. lat.), the Tian-shan (42° N. lat.), and the Altai mountains, farther to the north. In these mountain-ranges a decided diversity is observable. The distance between them widens as they proceed eastward till the most southern of their members, formed by the mountains of India beyond the Ganges, terminates on the peninsula of Malbec, opposite the Sunda islands; and the most northern, the Balkal and Da-urian range, traversing the countries on the Gulf of Okhochak and the peninsula of the Palukashles, approaches the most northern shores of North America.

This diversity in the formation of the surface of eastern and western Asia has had corresponding effects on the civili-

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How numerous and powerful must be the inducements to change in a country where the climates of the polar region come near in contact with those of tropical countries intermingled with the temperate zone; and where this diversity of climates and habits is still further yet diversified by hundreds of different slopes, terraces, and valleys, which, partly watered by rivers and torrents, and partly entirely without running water, are placed near one another, but often rise to such different levels above the sea! What an influence must such a country exercise on
organ, nature, and, on the civilization and history of man; and how powerful must this influence have been through all the generations that the human race has existed!

The part of Asia which is under discussion, namely, the southern, the eastern part of the continent, and finally the section between the Indian Peninsula and the island of Ceylon is divided into three regions of different extent and part, and the geographical position in the centre of the

As the great and the west the Gobi of the Gobi called the world around is the only level plain, but sinks towards the middle, where it is about 300 feet and in some places only 2600 feet above the sea, and forms a long extended flat valley, lying from west to east. The lowest part of this valley is occupied by the proper Gobi, called also Shamo (i.e., sea of sand), and the sands constitute the Tengri of the

Such are the great features which characterize the external form and the interior surface of Asia. We shall attempt to indicate the peculiar character of each of these great divisions.

First of the eastern highland, or system of table-lands. The axis of its elevation, or its highest part, lies in a direction from south-west to north east, and begins between Cambodia and Baluchistan, and the Tsungling, on one side, and the Kaisar mountains of the province of Szechwan, on the other; the

This axis is the highest elevation of the eastern highland, the table-lands of Great and Little Tibet probably rise to the height of about 10,000 feet above the sea, and the Little Tibet is bordered on the banks of the Upper Sutlej and Setselej; and the edges of the

This is the axis of the highland, which is inhabited by the Tibetans and Mongols, not parallel to the separate mountain-chains which traverse the irregular trapezium of the highland from west to east, but cuts them in a diagonal direction. That part of the highland which is situated to the south-east of the axis seems to contain some very high table-lands; but the greatest part of it is probably occupied by deserts with a very much shorter descent towards the adjacent low-countries with a rapid and steep declivity, and by themselves constitute the most extensive mountain-region of the globe. This Alpine region, however, if it exists at all, is but a faint trace of the Himalaya range, the almost entirely unknown to Europeans.

To the north and north-west of the axis extends the greater of the two triangles composing the trapezium of the highland, and is divided by the lakes of Baikal, Zaisang and Aral, forming the region of the Ural, the Caspian Sea and the lake of Aral. At present only the elevation of the large lakes which lie on the northern borders of the lowest terraces, and in their most depressed cavities, has been determined with any degree of exactness. The lake of Zai

According to the measurement of Ledebour and Humboldt, the lake of Baikal nearly 1800 feet, according to Erman; and Kiachta, the great commercial town between Siberia and China, situated on a second and higher terrace, is 2400 feet above the sea, and according to the height referred to, will be the highest point in the basin of Erman. During the latest Russian mission to China, a series of heights was ascertained across the Gobi by Bunge and Dr. Fuss, from Kiachta to Peking; and it was found, that the height of the highest mountain in the basin of the

In all its extent it displays the traces and phenomena of having once been covered by the sea, and among the Mongols a notion still exists that it will again be filled with water.

Farther to the west, towards the Gobi of Hami called Han-hai or the dry sea, the table-land probably rises again, but still farther to the west it is perhaps again furrowed longitudinally from west to east by a wide and extensive depression of the surface. We may here entertain a conjecture by the course of the large river traversing Kashghar and Yarkand, which running eastward terminates in the lake Lop, which probably occupies the lowest part of the valley. The culture of cotton and the vine are found in the regions of Kashgar and Yarkand, connected with its numerous commercial towns (Kashgargh, Yarkand, Aksu, Kuteche, Karashar, Turfan, Hami), which are traversed by the great road leading over central Asia to China, and the valley is not much elevated above the level of the sea, and that the countries lying in this direction offer no great obstacles to travelling. This valley is bounded by two high mountain-chains, running east and west, of which that to the north is called the Than-Shan (Bogdo Olia) range, and the southern the Kun-lun (Koal-koum) mountains. These extensive mountain-chains may be called the interior mountain-chains of the eastern highland of Asia; the Altai mountains on the north, and the Pamirs on the south, constituting the exterior mountain-chains of this elevated region.

Between these four extensive mountain systems lie the three wide plains which occupy the central countries of Asia, and the departure of the great lakes of Baikal, Lop, and Tengri. These three plains comprehend the three countries known under the names of Zungaria, Tangut and Tibet, and their general level probably rises higher and higher as they approach from north to south.

The mountain-chains of the eastern highland of Asia are unknown to us, if we except a small portion of the Altai mountains, and a part of the Himalaya-range. Of the Altai mountain-chains, the range of Semipalatinsk, between the rivers Irith and Oby, have been explored, and here only their northern slopes, which are known by the name of the Altai Ore mountains (or Ergelbog), because they yield annually 70,000 marks of silver and 1800 marks of gold: they rise near Kolyvan to about 5400 feet above the sea. But the higher snow-capped ranges called the Altai Bieldi, in which excellent jasper and porphyry are found, and which extend further to the north-east, and rise to above 10,000 feet, are the object of measurement. They are however remarkable for their formation; their tops do not present craggy summits, but rather extensive and nearly level plains like the table-lands.

The mountains in the interior of the Highland are not
known, except a few spots, which have been traversed by travellers and caravans. Neither their height, direction, nor position is exactly ascertained.

The Himalaya mountains are much better known, at least in the central and northern portions of the range, than any of the other ranges of the earth. The mountains have not been thoroughly explored, and many portions of the range have still to be discovered. The only complete exploration of the range is that of the British expedition under Sir John Wood, which started in 1815 and continued until 1820.

The Himalaya mountain range is divided into three sections. The central range, which is the most elevated, is about 1,000 miles long and 100 miles wide. The northern range, which is about 500 miles long and 50 miles wide, is the most northerly and least explored. The southern range, which is about 500 miles long and 50 miles wide, is the most southerly and most explored.

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the level of the sea, and this is likewise the highest point which agriculture attains; trees are found at 15,000 feet and upwards. Region C extends over the table-land itself, where villages are built at the elevation of 13,000 feet; fields are cultivated at 13,500; very good birch forests grow at 14,000, and some low shrubs, especially tama, used as fire-wood, attain to 17,000 feet above the sea.

The highlands of the Irwaddi are surrounded by extensive terraces, through which the great river-systems descend to the low lands bordering on the ocean.

On the mountain-ranges which bound the table-lands on the north four great rivers take their rise, the Irrawaddy, the Ohbi, the Sual and the Tobol; the Yenesei unites with the Angara, which issues from the lake of Baikal, and with the two Tunguses; the Lena, with its great tributary the Witim; the fourth is the Amur. They run in different courses from the snow-covered mountains of the north, along the course of the rivers. The Irrawaddy, with its tributaries, drains upwards of 1,500,000 square miles, the Yenesei about 1,000,000, the Lena nearly 800,000, and the Amur about 500,000—all taken together, a surface much more extensive than that of Europe, and by far the greatest part of it belongs to Siberia. They abound in fish, and have plenty of water, so that two-thirds of their courses are navigable; but the lower part is for more than six months of the year covered with ice. This causes in springtime an excessive swelling of the waters in the upper branches and tributaries, by which their banks are torn off, and great debris rolls and falls down, and sometimes over the flat country along the lower course of the river. The navigation on the principal water-courses from south to north is, for this reason, very inconsiderable; but it is much more important in their tributaries running east and west, of which a regular communication is established through the greatest part of the country lying between the Ural Mountains and Okhotsk.

The mountain-region, bordering on the highland of eastern Siberia, is terraced, and descends gradually towards the Pacific Ocean, besides a great number of smaller ones. The latter are watered by smaller rivers, but the two former give rise to the two great river-systems of the Huang-Ho and the Kansu-Tien-Shan, of which the former runs upwards of 2000, and the latter more than 2900, if their great bends are taken into account. Each of them carries off the waters of a surface of above 700,000 square miles of the Chinese continent. Beyond the sea, a name probably derived from the tides ascending them upwards of 400 miles, by which they are changed into seas of fresh water, and rendered navigable to a great distance from the sea. This great advantage of the Chinese is a name probably derived from their position with respect to the Pacific Ocean, in which the tides rise to the greatest height. The sources of these two rivers are not very distant from one another on the table-lands, but they are separated by five thousand miles, the north and south by the ranges which form the borders of the highland; in the lowlands of China, however, they converge again, and their embouchures are only about a hundred miles distant from one another; but before they fall into the sea, they are connected by numerous canals.

The tract between these rivers may therefore be considered as one immense delta, and the rivers themselves as a double river-system, formed on a colossal scale, between which is situated the best cultivated country on the globe, central China, which to these rivers is indebted for its system of canals, and its civilization.

The rivers of southern Asia form three distinct groups, of which the first that of the Irrawaddy is the most celebrated; only their mouths and the lower parts of their course have been explored. These rivers, of which six or seven run a considerable distance, taken together, contain probably a greater volume of water than all the rivers of the northern half of Africa. Their course lies from north to south, or S.S.E., and the valleys drained by them extend in a parallel direction between the mountain-ranges, which are as high as any on the continent, towards the Sunda Archipelago, in the shape of a fan. This consists of the Cambay, Siam, and Pegu, which are the largest, carry off a great volume of water, and are navigable to a considerable distance from the sea; but they have not yet been explored, except Pegu, which is a part of the Irrawaddy; and of the Irrawaddy, which, in 1825, was discovered by the Chinese, and is navigable by small vessels. The Irrawaddy is four hundred miles from land to land, and at the mouth of the river are three small islands, which together with the other islands and rocks which it passes, make the Irrawaddy, and part of the river, navigable for a greater distance than any other river in Asia. It is navigable for a distance of thirteen hundred miles, and the current is rapid; the river is subject to sudden changes, and is, like the Yangtse or the Peiho, navigable for a great distance, and is said to be the most navigable of all the rivers of China.
mountain-mass, before they arrive at the low plains of Hindustan. Below the Punjaub (or Pancha-nada, i.e., the five great rivers), which may be regarded as the cradle of the Indus, like the Nile, is not enriched by any considerable tributary; and its delta, which was once so famous for its civilization, is at present in a neglected state, and has partially been changed into an extensive sandy desert, which during the Indian summer, amounts to upwards of 1500 miles, and it drains a surface of more than 400,000 square miles.

Such are the ten or twelve extensive terraces of eastern Asia, differing as they do in altitude and position, and traversed by large river-systems, display a great diversity of natural productions, and have given a different turn to the progress of civilization among the nations which inhabit them. This diversity is illustrated by one another and partly surrounded by the lowlands. But these latter are not flat low countries. Mountain-ridges and table-lands often rise in the middle of them, though they do not attain such a height as those of central Asia. Such a table-land is found in southern China, where it constitutes the mountain-region of Yün-nan, Su-chuan, and Kuang-si; in India beyond the Ganges, where it occupies Lao; and on the peninsula within the Ganges, where the table-land of Deccan is doubtless the most remarkable and at the same time the best known of these subordinate highlands.

This plateau of Deccan occupies with its elevated plains, which at an average rise from 3000 to 4000 feet above the sea, a considerable portion of the triangular peninsula between the Arabian sea and the Bay of Bengal. The mountain-range, known by the name of the Ghaouts, forms the western edge of the table-land, and separates it from Ceylon, which, like the great plain of Malabar, is characterized by its numerous harbours. On the northern side, where the Vindhyas mountains stand, it sinks in steep terraces extending through the provinces of Central and Bundelkund, till it passes into the great plain of northern Hindustan. Towards the east its descent is formed by gentle slopes and terraces, as the course of all its rivers shows, which run off from the high plains to the flatter and more arid and arid and the most enter the plains, which, though surrounded by shoals and without harbours, has become the favourite place of European colonizers.

This table-land of Deccan is much favoured by nature. Its insolated position is quite independent of the highlands of central Asia; it is placed between two seas and in the conflict of the monsoons, and cooled by sea-breezes. Moreover, its surface being formed by a series of terraces, which lie within the tropics, it enjoys all the advantages of tropical climate, yet the salutary coast the luxuriance of vegetation is displayed in the cocoa-palm, the mango-tree, the cinnamon-laurel, and the pine-apple; it thence passes through forests of tea-trees to the rose, the apricot, and the peach. On the cool summits of the mountains it offers to the observer the fruit-trees and grain-fields of Europe, flax-plantations, and rich meadows. It is easy to comprehend, that these numerous valleys, and great advantages, rarely if ever so closely united, determined at an early period the civilization of its inhabitants, and impressed on it a peculiar character.

Among the three peninsulas with which Asia terminates on the south, and which remind us of the three peninsulas of Europe, Greece, Italy, and Spain, on which civilization has made such rapid progress, the peninsula of Deccan has doubtless contributed most to the progress of social improvement. The same advantages are enjoyed by the adjacent countries of the Indian Archipelago, the size of which is greater than the form of its surface, and may be considered as an appendage of it. The similar results arising from the extensive group of the Sunder Islands with respect to the adjacent countries of China, Japan, and Australia, are equally remarkable.

We shall now give a general view of Western Asia, the Highland of which, though much smaller in extent, forms the second principal feature in the physical character of this continent, and is peculiarly so in its configuration. Through its whole length, and from its western part extends the dominion of the Turks, and its eastern division contains Afghanistan. It is materially distinguished from the Highland of Eastern Asia by being more generally cultivated, while exhibiting extensive tracts of desert, and is naturally divided into three large parts. The eastern part is the high table-land of Iran, which runs south into the Persian Gulf, and north into the Khorasan, the ancient kingdom of Media, towards the south in Kasmiria and Persia, and even in the western districts, as in Kurdistan, which formed a part of ancient Assyria. This strip of desert is on the south-eastern corner of the Highland, comprehending the ancient provinces of Gedrosia and Arabachia, which at present forms a part of Beluchistan and attains its greatest elevation in the table-land of Kélaz, which rises, according to some estimate, to 7000 feet above the level of the sea. Its eastern and extremely rapid descent towards the valley of the river Indus, which is formed by steep rocks and feeds no rivers, is without cultivation and even without roads except one, and which is only inhabited by savage tribes of Afghan origin who have no historical records. The road alluded to is that from Candahar, through Pasheen, Quetta, and Baugh, to Shickor-poor. (See Conway's Overland Journey to India.)

The northern edge of the Highland, which extends along the southern shores of the Caspian sea and the deep plains of Bucharah, is historically famous for containing the Bactrian, the Parthian, and Sassanian Empire, the last of which was narrow and desolate, offering a passage for the conquerors descending from Iran to Turan. This country has for many centuries been the abode of warlike mountain tribes, whose chieftains and armies march in the巩man, which passes on the north, have extended their dominion over the extensive plains of the table-land. This was the policy of Nadir Shah and of Feth Ali Shah, who, sensible of this peculiar circumstance, fixed their residence on the north side of the table-land, and the town of Ghul, Candahar, Herat, Meshed, Nishapoor, Teheran, Rai (the ancient Phraes), Cashin, and Tauris.

The southern border of the table-land of Iran is still more remarkable. On the west it is bounded by the low and narrow coast and the wide plains watered by the Tigris and Euphrates, by a broad mountain tract, which beginning at the mouth of the Indus extends to the place where the river of Maceus breaks through the rocky masses of the high table-land, enter the low plains. This mountain tract consists of from three to seven ridges, running parallel to one another and separated by as many narrow longitudinal valleys, which sometimes extend many days' journey in length. Sometimes they themselves are, like the Jura mountains in France, composed of limestone, and rise like terraces from the low coast higher and higher. Beyond them extend the wide table-lands. There are but few built near one of the passes which are towards the entrance of Persia, a country which on this account may be considered as a fortress erected by nature for the defence of the nations which inhabit it. Among these narrow mountain passes the road from the coast is called the Gursun or 'war region' through the great staircase of mountains, the cool table-land in the interior called Sirhind, three roads have acquired some celebrity in this country, which, without outlet, are the eastern, the middle, and the western mountain road.

The eastern mountain road begins at the harbour of Ben-der Abassi, about 15 miles from the entrance of the Gulf of Persia, and leads northward to Kerman and Soolia, situated on the cool table-land, in a spot which abounds in springs and is covered with fruit trees, though on all sides surrounded by desert plains, in which it lies like an
oasis in the midst of the Libyan Sahara. From Gambroo a road also leads past Lar to Shiraz. (See Herbert's Travels, p. 124, &c.)

The middle mountain road begins at the town of Aboubeh or Behbah, on the shores of the Persian Gulf, and leads first over a lower ridge to Kazrun, near Shahpooor, the residence of the Sassanides (of king Sapor I., A.D. 240), which is situated in the first valley; from this point it passes over the town of Zarrineh to the residence of the Arabian caliph, which is built in a wider and richer valley; farther through winding mountain roads and narrow ravines to the valley in which the ruins of Perseopolis still stand on Maumonia. Some time after, which of road, to the northern direction, again traverses some narrow passes through high rocks, which are full of monuments of the early ages of Persia, till at last it issues out of the mountain region and enters the extensive tablelands, in which lies, at a short distance at which that immense lake is situated from the crest of the mountains, but also to the singular fact that its level is more than 300 feet below the surface of the ocean.

The most remarkable and characteristic feature in the surface of Persia is the absence of any considerable river, though this country occupies a space at least equal to that of all Germany. This does not arise from a want of spring enough water, which is abundant almost everywhere, but renders this country cultivable in most districts; but it is owing to the want of extensive valleys traversed by running waters. This want has deprived it of an extensive river system, and consequently of the most powerful means provided by nature for a continual progress in civilization. To this circumstance it must be attributed, that the nations inhabiting Iran never got entirely rid of the character peculiar to a pastoral life and the continual change of abode, though it must be admitted that from time to time they have exhibited a considerable degree of mental culture.

At the western extremity of Iran, between the innermost departments and the Caspian Sea, past the fifteenth meridian, the table-land narrows to nearly half its former extent, but it increases in elevation. To the east of this line extensive plains form the prevalent characteristic, but to the west, mountain masses rise higher and higher. Here begins the mountain region of the Caspian, and here, too, are the lakes of Urmia and Van, and the sources of the rivers Zab, Tigris, Arsas, and Euphrates. The table-land is replaced by mountains, which rise to an enormous height, and by elevated valleys between them. To the north of the Azbarian, the fire-region, the native country of Zoroaster. On the north-west both the mountain ranges and the table-lands are again united in the compact mountain region and high table-land of Armenia, of which Azbarian forms only a lower terrace. The countries of Asia, which extend west of Armenia, resemble in their structure Europe rather than Eastern Asia. The surface no longer presents such considerable masses, which rise to a considerable elevation, and extend over a great space; it offers to the view more separated and distinct masses, which form as it were individual limbs. We may distinguish four different divisions of this kind.

The first is the elevated and mountainous table-land of Armenia, which extends in the form of a triangle between the angles of three seas, the Caspian, Black Sea, and the Gulf of Alexandretta. Its plains, on which the town of Constantinople, Tarsus, and Hamadan, and terminating again at Taurus, lies along the internal slope of mountain ridges which border the table-land of Iran on the south, analogous to that series which we have observed along the northern boundary of the mountain range. By these two lines the boundary is marked which separates the region of the natural fastnesses, of the mountain passes, of the battle-fields, of the pastures, and of the country adapted to the chase, which is formed by the mountain terraces, from the interior with its cultivated plains. This is the general aspect. The table-land itself is traversed by some ridges of hills, which extend mostly in a general direction east and west, and attain only a moderate height above the plain; it is the lower valleys, the impression on the surface, which more or less are covered with green meadows, or scanty pastures or steppes, and in a few places with sandy deserts or a soil impregnated with salt.

Fraser, on his route through Persia from Abshureh to Teheran, determined the elevation of many points above the level of the sea, and his statements give a very instructive view of the continually changing surface of Iran. Abshureh is built on the shore of the sea in the sultry Gumrie, and has a river which flows through the low lands of Susiana, lying on the first mountain terrace, is 2772 feet above the level of the sea. The highest point of the pass Deshti-i-Arjun, above Shiraz, rises to 7200 feet. The town of Shiraz itself, which is built on the second mountain terrace, is 4284 feet above the sea; its climate is favorable to the vines; the roses grow to the size of trees, but the palm does not succeed. The highest point of the pass over the third mountain ridge above Perseopolis rises to 6666 feet. Intensive agriculture is restricted to this third terrace, which is 4140 feet above the sea. From this level the mountain passes lying farther north near Kohrood rise nearly 2000 feet higher. Towards Koom we find the greatest depression in the opposite land, here the highest sin; the mountain passes, which at an average, perhaps rises to the height of about 2000 feet above the sea, and descends with steep slopes towards the north and south. Towards the west the descent is gentle, being traversed by long fertile valleys traversed by abundant streams till it terminates in the sandy shores of the Caspian, full of promontories and indentations, marking the termination of the ranges which run from east to west in this peninsula. It extends, as we have already observed, like a bridge for the passage of nations between Asia and Europe; it
may be compared with the Pyrenese peninsula in many respects. [See Anatolia.]

Another country connected with the Highland of Western Asia, is formed by the Syrian mountains, which running towards the south contain Mount Libanus, and thence continue to the elevated cone of Mount Sinai, an isolated mountain mass, which is a rare occurrence in Asia.

Western Asia, though indented by gulfs and arms of the sea, which make peninsulas and head-lands, is not favourable to the formation of extensive river systems, which only occur around the Tigris, the Euphrates, and the Euphrates and Tigris; the north branch of the Euphrates comes from near Erzerum, and the east branch from the western extremity of the table-land of Iran, where the country rises to an alpine region, or to a complete mountain system, with diverging ridges and intervening elevated valleys. The Tigris rises on the south side of the high range, along the north side of which the east Euphrates flows. The Euphrates, the great division of the Tigris, has a large basin, and墙上 its whole line. When these rivers have forced their way through the Taurus, the Euphrates north of Rumkala, and the Tigris above Mosul, they begin to converge and some of their branches do not actually unite in the ancient Babylon. Their waters traverse the same delta, and enter the Persian Gulf by one channel.

We cannot refrain from making notice of this remarkable fact of those two rivers in Asia. We find that in the valley of the Nile civilization descended along its banks from one royal residence to another, from Moer to Thebes, and thence to Memphis and Asis. But in the valley of the Tigris and Euphrates, instead of a single residence in Asia, we find double residences, double civilization, and double political systems, as Babylon and Ninive respectively on the Euphrates and Tigris; Delhi and H Lassan, with Brahmanism and Buddhism, on the river-systems of the Ganges; and on the double river-systems of China, the southern and the northern empire, Ma-chin and Khatai. When in the progress of time civilization descended these streams, and met at their confluent, or where they approach each other, the different degrees of perfection which it had attained, and the different turn it had taken, must have produced, as the nations came in contact with one another, a beneficial effect. The same observation applies to the fourth great system of the valley of the Tigris as the basin which, in the centre of Asia, the same fact is repeated in the royal residences of Samarkand and Bokhara.

Like the table-land of the Deccan, which forms a projecting, but independent and isolated limb of the highland of Eastern Asia, the peninsula of Arabia projects from the highland of Western Asia, and may be considered as an entirely independent member. As the Deccan is separated from the highland region by the bowlad of Sind, so Arabia is divided from the mountain-system of the Taurus by the lowland of Syria, which extends to the S.W. of the Euphrates. On the south of this lowland the country again rises, and assumes quite a different character. This constitutes the highland of Arabia, which, in the form of a trapexium, contains the table-land of Nejd, the native country of the Wahhabites, a cold country, connected on the south with the elevated Yemen or Arabia Felix, which descends on the extreme west by the Persian Gulf, and is the west is steep, and formed by parallel mountain-ridges, with well-sheltered valleys between them, in which the famous towns of Mecca and Medina are situated. This part of the country is better known than the similar steep descending part of the south highland to the east, and thence to Muscat. The eastern declivity, which appears to descend with a gentle slope towards the Gulf of Persia, and surrounds the islands of Bahrin, noted for their sugar, consists of a sand, the native of the Arabian horse and the Arabian camel. On the borders crossing it on the west the mild climate allows plantations of coffee, and the low and marshy country, and salt marshes produce, like the Gums of Persia, the date palm, which does not grow either on the table-land of Nejd or on that of Iran.

Arabia exhibits characteristics entirely different from those which mark the other parts of Asia. As already indicated by its geographical position, it is the great boundary between Asia and Africa, and partakes in the distinguishing qualities of both. Even its inhabitants, the original Arabs, resemble no nation so much as the mountaineers of Abyssinia, who inhabit the upper country on the opposite side of the Red Sea, and are savage akin to the Caledonians of the British isles, equally well-formed in their body, and probably nearly equal to them in their mental faculties. The Chinese, confined to their own territory by the nature of the country which surrounds them, have no commerce with a world by seas and mountains, feel no inducement to abandon their fertile and extensive country; they therefore never concerned themselves about other nations, and excluded foreigners from their country. The Hindus were not disposed for his own India. In Arabia, on the contrary, we placed a country in which all the advantages with which Asia is gifted by nature are concentrated, early acquired a high degree of civilization; but he has never passed the boundary of his native land, and, with equal indifference, has received all foreigners who have entered the country as conquerors, merchants, colonists, or missionaries. The Arabs, on the other hand, whose native country spreads out between two great sea-empires, have been forced, not only to spread beyond the, and at one time extended their dominion to the most western point of Africa as well as to that of Asia. By far the greater number of Arabs are dispersed without the peninsula, which extends to the Omman sea, and which prepared them for the endurance of every climate. Its sultry coasts resemble, in soil and natural qualities, the arid deserts of Libya; the moderate climate of the terraces approaches that of Deccan, Iran, and Catalonias, and the cold Nejd does not affect its inhabitants. Arabia formed a third highland of Central Asia, on which we find the Arabs dispersed to a great distance from their native country.

We now pass to the third great division which the surface of Asia exhibits, the highlands without the highland of Central Asia, and the middle basin, which is situated without the highland regions and the valleys formed in the extensive terraces around them. These latter, according to a rough estimate, may occupy a surface of about 4,300,000 square miles, or more than one-fifth of the whole extent of Asia, and consequently there remain about 6,000,000 square miles for the surface of the lowlands. These lowlands lie spread around the more elevated parts of the interior, and occupy countries of great extent along the sea, that is along the course of the great river-systems traverses these often widely-stretching plains with many great windings and with very little fall. In these plains the great empires, by which the history of this part of Asia is marked, have been founded and extended, and they have been the seat of the greatest power, and continued for the longest period of time. The extensive low plains are six in number; they are different in their natural character, and in no way connected with one another.

The first is the great Chinese Lowland on the eastern shore of Asia, along the Pacific Ocean, beginning at Peking and extending along the Yellow Sea or Whang-Hai, southward past Nanking to the province of Kiang-si. Lying south of the 46th parallel, and extending nearly to the tropic, it enjoys a temperate climate, and exhibits the most advanced state of agriculture, the most extensive system of canals, the most active internal navigation, and is the richest and most populous granary in the whole world.

The second is the Indo-Chinese Lowland, which, lying between the Gulf of Tenkin and that of Siam, extends from the tenth degree of north-latitude to the tropic, and comprehends the kingdom of Cochin-China. The boundary, however, is not yet ascertained. It unites the advantage of being situated south of the tropic with those of being plentifully provided with water, and it is therefore exceedingly well adapted to the culture of rice. A part of its surface is inhabited by people of pure Mongolian stock.

The third is the Lowland of Hindustan, or Sind, which comprehends the northern part of India, and extends in the form of a triangle between the Gulf of Bengali and that of Gavatot. It includes the country of the Ganges, Sind, and Indus, and is overlooked by three table-lands, those of Tibet, of Iran, and of the Deccan. Being situated out of the torrid zone, but near the tropic, it enjoys all the advantages of a tropical climate, without its disadvantages. Many of the greatest states of Asia, and variety of the natural scenes which surround it on
all sides; it is no less populous than that of China, which it far exceeds in the number of different nations inhabiting it, and that of royal residences and centres of civilization, (Delhi, Agra, Benares, Calcutta, Lahore, Mussoorie, Ajmer, etc.) nearly all of which are placed near its centre. In the western half, however, of this region, a narrow tract of land is covered with moveable sand, not unlike the Sahara.

The North Lowland is that of Syria and Arabia, which on its eastern extremity is bounded by the innermost corner of the Gulf of Persia, on the west by the mountains of Syria, on the south by the table-land of Nejd, and on the north, (Aimere, etc.) nearly all of which are placed near its centre. The northern half is watered by the river-system of the Euphrates and Tigris, while its southern half suffers much from want of moisture, and presents an arid and desert aspect.

The first two lowlands are inhabited, the second two continental. The Chinese and Indo-Chinese Lowlands are for the most part surrounded by seas, exposed to the continual action of high tides, and frequently drenched by the moisture brought by the winds from the east and south-east. The lowland of Hindustan, and that of Syria and Arabia, on the contrary, border only on narrow bays, and are on the south and on the north overtopped by high table-lands always enjoying a dry atmosphere. Hence it is that each region exercises a distinct influence on the vegetation and animal life. In China and the peninsula beyond it, the vegetation is in a great degree the product of the inhabitants and customs of the inhabitants of islands; but in India and Babylonia they are like the inhabitants of inland countries. The southern half of the lowland of Syria and Arabia is surrounded by the Arabian desert, and is therefore called the Arabian Desert. Though situated without the tropic, it displays a tropical nature; and divested of the peculiarities by which Asia is distinguished, it partakes more than any other country of the features that characterize Asia generally.

The fifth is the northern or Siberian Lowland. It is the most extensive of all, occupying more than half the area of all the lowlands of Asia taken together, and extending almost the whole length of the continent from the Ural Mountains to the Pacific Ocean. Though traversed by extensive rivers, it derives little advantage from this circumstance, as it contains only the northern third of its surface (between 50° and 60° N. lat.) of habitable and cultivable land; this part has been colonized in all its extent by European settlements, the most numerous in Asia. The northern and most extensive district, Lapland, is a bleak and desolate region, beyond the limits of the cultivable world, and belongs rather to the polar region than to that division of the globe which has received the name of the East. The Lowland of Siberia, though its maritime boundary exhibits no great variety of features, is marked off from the rest of Asia by the Ural Mountains, which, in a great degree, influence the whole continent of Asia, which doubtless would have presented quite a different aspect, if high mountains had risen on the northern shores of Siberia, and formed its boundary towards the Pole.

The sixth Lowland is that of Bucaria, which is entirely continental, not being in contact with any part of the ocean, and only watered by inland seas, the Caspian and the lake of Aral. It is the greatest extent of the continent in the direction of the system of the double rivers which traverse it. Beginning at the innermost angle, formed by the western edge of the table-land of Tibet and the northern edge of that of Iran, the imagination of the traveler extends beyond the limits of the Caspian Sea. The ICARIA has been considered as an intermediate form which connects Central Asia with Europe. Its extensive plains, which are seantly watered, are a kind of mean between sandy deserts and agricultural soil, and their surface is mainly formed of gravel. They are well watered in the spring, with some covered with grass, and without wood, in which are scattered, like oases, a few trees of cultivated ground. Such a country is the natural abode of nomadic tribes. Deprived of all natural resources, it is the scene of that continual warfare, commerce, developed by artificial irrigation and immense labour, and rather characterized by the vast want of natural capabilities, this lowland is very remarkable in an historical point of view. Being placed in the centre of very extensive countries, and surrounded by different nations, it has been involved in all the greatest historical events; it was here that the conquerors, such as Cyrus and Alexander, who proceeded from the west, or those of China who came from the east, the Bactrians, Ghaznavides, and Great Moguls, who advanced from the south, and the Russians from the north, have found a stop to their farther advance.

The natural poverty of this country, and the comparative richness of those surrounding it, together with the want of fixed abodes, and the various political changes of the neighboring nations, have induced its inhabitants to pass its natural boundaries. Whist their neighbours, the Chinese and Hindoos, never left their country, but took root there like plants, and became stationary nations, the inhabitants of this lowland, for all centuries, nations of change and migration, who, since the times of the Scythians, Goths, Alans, Uzes, Comanes, Petchenegs, Turks, and Tartars, till nearly our own times, have inundated Europe from time to time, and changed its face by destroying, impairing, or retarding civilization. Their own country, meanwhile, was not exempt from great changes, both as respects the nations which inhabitated it as well as the dynasties which governed it; and still, in our own times, they have been the object of political events by its geographical position and the obstacles which it opposes to the progress of the three great empires of Asia—the Chinese on the east, the Russians on the north, and the British on the south.

In thus bringing the whole surface of Asia into one view, we find it composed of six lowlands, different in their nature, and independent of one another; they spread between the Caspian and the Gobi desert; caselngas and oxeyes, in Mongolia; yu, or oriental jade, in Turkestan; different kinds of jasper, in the Altai mountains; pearl-stone, marble, on the shores of the Gulf of Okhotsk; beryl, in the mountains near the lake of Baikal; lapis lazuli, in the same mountains, as well as in the Hindu Coosh, and on the banks of the Oxus; topazes, in the Ural mountains; cireony, chrysobytry, sapphire, on the island of Cyprus; rubies, in Ceylon and in Badakashan; turquoises, in Khorasan; diamonds, in Deccan, Borneo, and the Ural mountains.

Mineral. Precious Stones.—Rock-crystal, in the greatest variety, amethysts, in the Altai, Himalaya, and Ural mountains; gold, in the mountains of the Gobi desert; and the Gobi desert; caselngas and oxeyes, in Mongolia; yu, or oriental jade, in Turkestan; different kinds of jasper, in the Altai mountains; pearl-stone, marble, on the shores of the Gulf of Okhotsk; beryl, in the mountains near the lake of Baikal; lapis lazuli, in the same mountains, as well as in the Hindu Coosh, and on the banks of the Oxus; topazes, in the Ural mountains; cireony, chrysobytry, sapphire, on the island of Cyprus; rubies, in Ceylon and in Badakashan; turquoises, in Khorasan; diamonds, in Deccan, Borneo, and the Ural mountains.

Vulcanic products are met with on the Sunda Islands, in Japan, in the volcanic islands of Java, Sumatra, Borneo, and the highland of Armenia, and in western Anatolia.

Steatite, earth-flax, asbestos, and coal, on the flint porcela-
upper branches of the Ganges, and in the N.W. of Anato-
olia.

Meta—Gold in Japan, Tibet, Yun-nan, Cochin China, Tonkin, Siam, Malacca, Borneo, Assam, Ava, and in the Urals, mountains: many rivers bring down gold in their sands; silver in China, Da-uria, Japan, Armenia, Anatolia, and the Ural mountains; tin in Malaca, Annam, the Sunda Islands, and the empire of the Burmans; mercury in China, Japan, and Java; as the aborigines of South America, the Iroquois, and Assiniboins; gold in China, Japan, Nepal, Siberia, and Armenia; and the Ural mountains; tin in Malaca, Anam, the Sunda Islands, and the empire of the Burmans; mercury in China, Japan, and Java; as the aborigines of South America, the Iroquois, and Assiniboins; gold in China, Japan, Nepal, Siberia, and Armenia.

Extensive layers of fossil shell-fish are found on the highest table-lands of Tibet, from 16,000 to 18,000 feet above the sea, at the surface of the solid formation in Siberia are full of animal remains of the old world, as the elephant, mammoth, rhinoceros, &c.

V. The Man of Asia.—As Asia is the most extensive of the great divisions of the globe, it is likewise far superior to the rest, if we consider the number of its inhabitants, their variety, and historical fame. Upwards of 400 millions are dispersed over its surface; consequently, twice as many as the inhabitants of Europe, and more than eight times that of the inhabitants of America, which continent in its area approaches nearer to Asia than any other.

Many questions may be asked respecting the population of Asia, whether its present diminution is the result of the Mongoloid invasion, or that it was ever more populous than at present? How many of its inhabitants were destroyed during the wars of the Mongols? How far has its population decreased, owing to the depredations exercised by the Turks in the western countries? How many nations have already become entirely extinct, or exist in very small numbers, as the Philistines, the Pheni-
cians, the Babylonians, the Parsees, the Lydians, the Bac-
trians, the Medes, the Sogdians? More than forty nations were passed over by the Mongoloid invasion, according to the statements of the annalists of that time; and some have become nearly extinct in our times, as the Doms in the Himalaya range, the Miao-tse in southern China, the Tungus in northern China, the tribes of the Tun-
gusse, eastern Turks, and Samboides in the mountains of Sayanak, and others in Mount Caucasus. These questions cannot be answered with any degree of probability.

But we may safely assert that the number of foreigners who have settled in Asia is extremely small, compared with the numbers who have left it to inhabit other divisions of the globe. We may estimate the number of Europeans in India at a hundred thousand, as the average number of the des- cendants of the Cossacks included, at two millions, which prob-
elly exceeds the truth; and the Greeks of European origin, inhabiting Anatolia, at one million and a half, or even two, though they are not the numerous Poles who inhabit the Mountain Asias.

Few settlers have gone to Asia from Africa and America, and still fewer from Australia. The Egyptians never settled in Asia, but the Arabs settled in Egypt. Ne-
gro slaves are dispersed over Persia, Arabia, and Hindustan, but they are few in number. Abyssinians, indeed, from time to time, entered Asia in crowds; they came, however, not as a nation, but as mercenary soldiers in the service of Arab emirs or of Indian rajahs; and their descendents, like those of the Portuguese, have entirely merged in the native popula-
tion. America, at all events, has not much increased the population of Asia: the Tchukitchas, on the most north-eastern peninsula of Asia, who belong to the family of the Indians, as the aborigines of their language indicate, suppose, have perhaps not passed the sea into Asia, but are rather aborigines of Asia.

Thus we find Asia, like all other large divisions of the globe at this time, possessed by nomad, semi-nomad, and sedentary foreigners, the two great divisions of mankind in an his-
torical point of view. Asia has been the principal country from which emigration has spread, so far as the history of man is known: it has been the parent of nations who have left descendants to form, in other countries, a new character of social life.

If we consider the inhabitants of Asia according to the physical division of three principal races, the white (or Cau-
cean), the yellow (or Mongolian), and three intermediate races, namely the dark brown (or Malay), the negro-like (or Papuas, also called Austral negroses), and the copper-coloured (or American), we find that the greatest number of these races, and of those nations which connect them, are dispersed over the surface of this continent. They cannot always be exactly distinguished by the form of the skull, the hair, or the complexion of their skin. The three principal races border on one another in the elevated valleys of Central Asia, where the skulls of the Caspianians show their Caucasian origin; whilst those of the Khots, or in-
habitants of the Altai, and those of the Tatars, are Austra-
lian. But perhaps these Doms are only the most northern repre-
sentatives of the Austral negroes, which are dispersed through the peninsula beyond the Ganges and the Sunda Islands, as well as in the islands of Sumatra and the peninsula of Malacca. All the races enumerated are found in Asia, except the copper-coloured races of America; the Caucasian prevails from the centre of the continent toward the west and north-
west, and the Papuan likewise from the centre towards the east and north-east.

We shall not pursue further that division of the nations of Asia which is derived from the history and the gene-
alogies of the most celebrated nations, and which we shall pursue by their physical character, but rather follow that which re-
results from the spoken languages. But we must also ob-
serve, that these three points do not always exactly coincide, and that many difficulties are still to be solved by further investigation. Still we think that the division which is based on the internal structure of the languages, is as far as the investigation of this matter has been carried, the most cer-
tain and safest, and that the nearer or remotest kindred is shown by the difference in different nations, which must be indicated by it. Adopting, therefore, the division of nations according to their languages, the following groups may be enumerated in Asia.

The first in the order of historical importance is the Semitic nations. These are the Syrians and the Chaldeans, or the ancient Aramaeans; the Phoenicians—though the number of the pure and unmixed families belonging to this people may be very small—probably descend from an antient country, especially near the Libanus; the Jews, who from Palestine have been dispersed over all Asia as far as the coast of Malabar and the northern provinces of China; the Arabs, who from the desert of Sinai, and from the mountain Asias, are mixed with other nations, are dispersed through all western Asia as far as the mouths of the Indus and the sources of the Oxus.

It has only recently been demonstrated that the languages spoken by the aborigines of the countries on the Ganges and Indus, and even the peninsula within the Ganges, as well as those of Persia, and farther to the north-west the nations of Europe, as the Slaves, and those of German origin in the west and centre of Europe, display a great affinity in the grammatical structure as well as in the roots of numerous words. To this group belong the inhabitants of India, who speak the numerous dialects or languages derived from or connected with the Sanscrit. This remark applies also to the nations of Iran, as the Persians, perhaps the Kurdes, Beluches, Gipies, and even the Buddhians, &c., though many of them have been mixed with other nations of Turco-Mongolian or Aryan origin. Besides these we must enumerate the Ossetes (or Iron, the dec-
sendants of the Alans) in Mount Caucasus, and some nations of Slavish origin inhabiting Asia, as well as the great number of nations of Tartar origin, which have been mixed with others.

The Armenians either belong to this group, or constitute a separate one. But the researches on the grammatical structure of their language have not yet been carried far enough to determine this point with any degree of cer-
tainty. From the mountainous territory of Armenia to the native country they have been dispersed through the central and southern countries of Asia as far as China, and may in this respect be compared with the Arabs. The latter indeed are also met with in Europe, but the Armenians are found in Europe even as far as the middle course of the Danube river, but everywhere only as pacific settlers.

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The Georgians form a separate group, inhabiting the Caucasian isthmus, between Mount Caucasus and the river Kur; besides the proper Georgians in Imerethi, three branches inhabit the Mount Shenkive, and the Lazies; the latter occupy the eastern shores of the Black Sea, and are the descendants of the ancient Colchi. Different from them are the nations which inhabit the Caucasus ranges, and many admittances. They are divided into three principal tribes, the eastern Caucasian or Lesshiens, the middle Caucasians or Mitschkoljes, also called Chekhes, and the western Caucasian or the Cercassians and Ahasins, all of which are again divided into different smaller tribes, as is usual among mountaineers. The Turkish nations form one of the most extensive groups. The greatest number of them occupy Central Asia, on the borders of the Indian Ocean, of Hami, and the countries about the lake of Lop, and extending to the west through Turkestan, where they are called eastern Turks. Farther to the west, in the low land about the lake of Aral, they receive the name of Turkomans and still farther in Asia Minor, and in the Ottoman empire of Europe, they are named Turks or Ossamis. These nations may be considered as the principal stock of this great division, but its branches extend to the north and south of the native nations, and are manifoldly interwoven and mixed with them; and although the physical structure of their body sometimes may display the most remarkable differences, these are soon effaced by the Turkic or Persian origin, and are understood by all of them. The Turkmans or Truchmenes, a pastoral nation, divided into innumerable tribes, form the principal stock of the inhabitants of northern Persia, on the west side of the Caspian Sea, in Shirwan, Asia Minor, Khiva, and Bucharia, where a tribe of the eastern Turks, who are the original inhabitants of the centre of the table-land of eastern Asia (in Khotan, Yarkand, Turfan, Kashghar, and the Tamerlane district of the Turkes), have the third greatest district of the dominion of Turkestan and Bucharia. The Kirghises were formerly under the name of eastern Kerkis (Kazak or Haks), the neighbours of the Mongols, and inhabited the upper course of the Yenisei and the Altai mountains, but they have been obliged to emigrate towards the west, where they occupy at present as pastoral tribes the steppes, which have received from them the name of the Steppes of the great, middle, and little Kirghis tribes. The Basilikas are settled in the southern branches of the Ural mountains. Besides these, many other nations and tribes, commonly called Turkish Tartaric, or Tartaric Siberian, or only Tartaric tribes speak Turkish dialects, though they may have been connected with the Mongolic tribes. Among these may be enumerated the Nogais on the banks of the river Lena near Mount Caucasus, who partly occupy also the Crimea in Europe; the Kumuds in the region of the Kalmucks, who occupy the middle and upper part of the river Aral; many tribes commonly called Tartars settled in Siberia, between Toboluk and Yenesey; the Barabines wandering about on the steppes of Barabits, the Kusnes on the river Tom; the Katashmes, Belyrtes and Biruses in the mountains of Sayans and the banks of the Upper Yenisei; the Temelutes, about the lake of Telezkoi, and lastly the Yakutes, who form the extreme link of the Turkish nations towards the north-east, and occupy the banks of the middle course of the river Lena, on both sides of Yakutsk, and even extend to the mouth of that river.

The nations of Samoedic origin occupy two different countries distant from one another. In the southern division inhabits the banks of the Upper Yenisei and the mountains of Sayans, where the remnants of the formerly very numerous Samoedic nations have remained in that country, of which they were the aborigines; they are divided into four tribes, the Urankhais (or Souy of the Chinese), the Motores, the Koulbes, and the Karakasses. The northern division is settled along the Polar Sea to the north of the Lower Tunguska, and extends from the mouth of the river Yenisei to that of the Obi, and farther west to the northern confines of the country, as far as the White Sea; so that these tribes, which properly are called Samoiedes, are separated from the above-mentioned tribes of their family by Turkish tribes and by Yezenians, who inhabit the country lying between them.

The Yezenians are an isolated and small tribe, whose abode is confined to the valley of the river Yenesey in its middle course between Abakan and Turukhansk, and who are mostly, like the tribes of the mountains of Sayansk and of the Altaï-range, like them were obliged to emigrate towards the north, when other nations which lived in their neighbourhood began to press upon them. The Yezenians may have been extremely common in the countries in the north and north-west of Asia.

The nations of Finnic origin belong less to Asia than to Europe, which are dispersed from the western declivity of the Ural mountains through the valley of the Upper Volga, as far as Lapland. Two tribes of this origin are found in Asia, the Vogules and the Ostiaks of the Oby river, who may be comprehended under the general name of the Siberian Finnic tribes. The Vogules inhabit the Ural mountains eastward to the middle course of the Oby, so that they separate the northern Samoiedes from the Turkish tribes inhabiting the western districts of Siberia farther to the south.

The Mongolic stock of nations branches out into three great divisions—the proper Mongol, the Buristes, and the Olit or Kalmucks. The proper Mongols are settled on the northern coast of the desert of Gobi, and tribes chased with the defence of the boundary of the Chinghiz or Persic origin, and are dispersed over all the countries between the lake of Khukh-Nor and the banks of the Volga, are again divided into four branches, and are known in Europe by the name of C almucks, which was given to them by the Russians. The most extensive of these branches was once formed by the Zunkares, who, in the middle of the last century (1757), in their war with the Chinese, were entirely destroyed, and their original nationality on the banks of the river Ili and of the lake of Balkash, on the south-west of the Altai mountains, which for some time had been entirely uninhabited, though it contains extensive pastures, was afterwards occupied by tribes called the Mongolic or Tungus tribes. But some of their tribes remained on the banks of the Volga, and others are dispersed through the whole western part of Asia, between the Altai and Khukh-Nor. The third principal branch of the Olit, the Khos-kods, are less numerous, and inhabit likewise the countries surrounding the lake of Khukh-Nor or the Blue lake. The fourth great branch of these Mongols, the Turbet, are settled still farther to the east, on the upper course of the Huang-Ho.

The Tungusse form one of the most extensive families of nations in the north-eastern countries of Asia, occupying that part which lies to the east of the Russian Samoiedes on the Polar Sea, of the Yezenians, of the Uriankhai on the upper course of the Yenesei river and on the mountains of Sayans, and to the north-east of the Mongolic tribes. From the upper course of both Tunguska, they extend to the Polar Sea and the river Olenek, and thence over the middle course of the river Lena, and from the eastern extremity of the lake of Baikal over the river Witim as far as the shores of the Gulf of Okhotsk, where they are called Lambutes, or inhabitants of the shore. Towards the south-east they occupy the countries lying on the middle course of the Amur or Subogljan Oola and the banks of the Sungari Oola to the boundary of the peninsula of Korea. But neither the Amur to the south, nor the Lena to the north, extend sufficiently far to the south, so the Tungusse extend to the shores of the sea; the latter being inhabited by the Aino, a tribe not belonging to this stock. The branches of the Tungusse are very numerous, in some territories, not so numerous as to form itself conspicuous except that tribe which occupies the south.
eastern corner of the country inhabited by them, and is called Mantchoo, which conquered China in the middle of the seventeenth century, and still governs that country. These Mantchoo Manchus are found dispersed over all the provinces of the Chinese empire, where they constitute the military nobility.

The north-eastern part of Asia from the mouth of the Lena to the Amur, at present the whole of Amuria is occupied by three nations, who speak quite different languages, though they live near one another on a country of comparatively no great extent. These nations are the Yakghihreis, on both banks of the Amur and the Ussuri, the Kturetes, from the Kvarka river to the Amur river, and round the Gulf of Penshinsk; and the Tschuktsches, inhabiting the most northern extremity of Asia. Between the latter and the Eskimo tribes in North America such an affinity exists, as to lead us to believe both the former are the remnants of former inhabitants of America. The Kamchtaltes too, who have given to, or received their name, from the peninsula which they inhabit, form a separate group of nations, speaking a peculiar language.

The tribes which are comprehended under the name of Kuriles, or Aino, are placed to the east of the Tunggooses, or more exactly at the mouth of the Amur river and on the coast which extends to the south as far as Corea; they inhabit likewise the islands lying along this coast and extending southward to Yesso on the north of Japan, and northward under the name of Kuriles to the southern cape of Kamchatka. Through these islands and to the southward of them is dispersed over a very extensive coast, they have a common language.

The Japanese speak a language peculiar to themselves; and though their civilization exhibits a striking similarity to that of the nations of the north-east of Asia, they have been weaned from it by the latter, but to have risen entirely from the peculiar character of the Japanese. Both their language and their civilization are confined to their islands, with the exceptions of the islands of Yesso, to whose inhabitants certainly belong to the same stock, but their language is said to be different.

The Coreans, or inhabitants of the peninsula of Corea, consisting of both the Korean and Manchus tribes, who have inhabited the mountain-range which forms the northern boundary of the peninsula, and then were called Siampi; at present they are confined to the peninsula itself by their neighbours, the Mantchoo, who occupy the country farther north, and are quite different from them.

The Chinese constitute the most numerous and the most civilized nation of eastern Asia, forming by far the greatest part of the population of China itself, and possessing a very rich civilization. They have also dispersed over the other countries subject to the power of Pekin, and even beyond this boundary, where, however, they have only settled in more modern times. They have likewise formed many settlements on the island of Formosa, as well as on the Sundas islands, in Siam, Malacca, and in Ceylon.

The Tibetans, or inhabitants of Tibet, who call themselves Bhot or Bhota, constitute a very numerous group of tribes, which are far dispersed over the table-lands of eastern Asia, to the north of the Himalaya mountains, but all of them are very little known; it seems, however, that they are divided into many branches extending to the west, east, and north-east.

The different nations which occupy the peninsula without the Ganges, as the inhabitants of Amam, i. e. of Tonkin and Cochinh China, those of Siam, Pegu, and Ava, or the Burmans, are still very imperfectly known; their languages, however, as well as their customs, which have only within late years become an object of inquiry. The Malays are better known; they perhaps once occupied the mountain region of the peninsula of Malacca, but at present are only settled on the Sundas islands and the southern extremity of that peninsula. They speak a distinct and cultivated idiom, which is far diffused, on the west as far as Madagascar, and on the east over the islands of Sunda and the Philippines, and to the most eastern island groups of the Pacific Ocean.

These are the principal groups of nations inhabiting Asia; but in the inland countries of that continent there still exist somes, as the Fooba, the lower races which have not yet been subjected to a close investigation. Such are the Miao-Cio in southern China, the Goands in Decean, the Laos and Garayn on the peninsula beyond the Ganges, the Siapush in the Hindoo-Coch mountains, and some others.

VII. Political divisions.—As nearly everything belonging to the geography of Asia appears to be formed on a colossal scale, the political relations of the different states which have taken possession of its extensive natural divisions are the same. We may state with certainty that the political relations of the different countries in this region are largely influenced by the political relations of the great empires of Europe; the Chinese and the Indian empires appear to be governed by the same system of laws, and are divided into provinces, districts, and cantons. We may also state with certainty that the political relations of the different countries in this region are largely influenced by the political relations of the great empires of Europe; the Chinese and the Indian empires appear to be governed by the same system of laws, and are divided into provinces, districts, and cantons.

Asia, according to an approximate estimate, contains from nineteen to nineteen and a half millions of square miles, including the mountainous countries of Russia and China, and half a million and a half of square miles, or more than one third of the surface of Europe. If we subtract the axial, or the Caspian Sea and the lakes of Aral, Balkal, and Balkhash, which together occupy a surface of about 5,400,000 square miles, the surface of continental Asia is reduced to about seventeen millions and a half, which may be supposed to be inhabited by from 490 to 500 millions of souls. Europe, according to a rough estimate, occupies 11,000,000 square miles, is inhabited by about 180 millions of souls; therefore, though Europe contains only one sixteenth of the surface of Asia, its population is equal to more than one third of the population of Asia. The surface of America, which is inhabited by about 50 millions of souls, would make up one third of the population of Asia. The surface of Asia, which is inhabited by about 50 millions of souls, would make up one third of the population of Asia. A very extensive tract, which is possessed by the two largest monarchies of Asia, are very thinly inhabited, while other portions of that continent have an excessively dense population, which gives them great weight in their political relations with the neighbouring nations.

The Russian empire extends through two of the great divisions of the globe, from the Atlantic Sea to the Pacific Ocean, and contains about 7,400,000 square miles, with a population of about 55 millions; more than two thirds of its surface, namely, 5,600,000 square miles, and only one fifth of its population, or 11 millions, are within Russia itself. The provinces of this great empire are divided into the four great Tartarian kingdoms of Kasan and Astrakhan, which by some geographers are assigned to Europe, and the wandering tribes of the Kirghises, which are estimated at 300,000, and the mountainous region of the Caucasus, at about half a million. Besides the two great Tartarian kingdoms of Kasan (the ancient Bulgar), and Astrakhan (the ancient Kaptshak), the Russian empire contains Siberia, the southern boundary of which is not exactly fixed; the Caucasian provinces, three in number, which lie on both sides of Mount Caucasus and constitute a military government: the steppes of the Kirghises, a protected country; and the islands of the Indian archipelago, and islands in the polar region of the Pacific Ocean, as far as the north-western shores of North America. Up to the year 1822 Siberia was only under the orders of military governors: but at that period it was placed under a civil government, and divided into two great provinces or general departments, Western Siberia, which comprehends the governments of Tobolsk, Omsk, and Tomsk; and Eastern Siberia, to which belong the governments of Irutsk, Yenesesik, and Yakutsk, with the maritime towns of Magdalen and Kamchatka; and it is observed that, since this change has taken place, the settlement of European colonies through Northern Asia, to the east of the Urals, has considerably increased.

The Chinese empire is limited to one of the great divisions of the globe—Asia, but it comprehends more than one fourth of its surface, namely, upwards of five millions.
of square miles, with a population amounting at least to 235 millions; but if we may rely on the population list published by Professor Poggendorff, the great imperium of China, by its vast geographical extent, is the largest in the world, amounting to 361,733,110 individuals, consequently upwards of a hundred millions more than we have supposed. Its extent is greater than that of all Europe by nearly twice its area, and its population is four and a half times that of Europe, if we follow the statement of the Chinese government, or is equal to it and the whole population of the Russian empire in addition, if we follow the more moderate supposition. The subjects of the Russian emperor in Asia do not exceed 1:40th of the whole population of that continent, but those who obey the Emperor of China may be considered as constituting one-half of all its inhabitants. Contrary to what the empires of Persia and Turkey, nearly equal in extent, the amount of their population is widely different, and the Russian empire occupies a very subordinate political relation. China occupies the first place among the political bodies of Asia, and in this position it has maintained itself for two thousand years, whilst the power of Russia does not yet reckon two hundred. But every part of the immense surface of the Chinese empire is not of equal importance. In the Russian empire the Ural mountains are the natural boundary of its empire, whose head is placed in Europe, but whose limits extend through the whole north of Asia as far as Kamtschatka, and are a mere appendage, which adds very little to the internal strength of the empire. Nearly of the same circumstance may exist in China. The head of the Chinese empire is at a short distance from the Pacific Ocean, on the eastern side of the table-lands of the Gobi and of Tibet, in the rich and fertile province of Kweichow, or in the northwestern part which is properly called China (Chin). But all the other provinces to the north of the Great Wall and to the west of its western extremity, must be considered as an appendage, which is comparatively very little political importance but forms an insuperable barrier to intercourse with the neighbouring monarchies. We must consider all the countries extending over the Chinese table-lands, the boundaries of which are nearly coincident with those of the table-lands of eastern Asia. The Chinese empire accordingly comprises the greater part of some countries, besides some of less extent; and with respect to their political relations towards the government, they may be divided into three classes. The first class comprehends China Proper alone, the permanent seat of government and the residence of the sovereigns, either in the southern capital (Nan-king), or in the northern (Pekin), as at present. The second class is composed of three great kingdoms, subject to the court of Pekin.—Manchuria on the north-east, the native country of the present dynasty, which is of Tungoose origin; Mongolia on the north and north-west, or the native country of all Mongolic tribes; and Harbin or Manchuria, Kama, and the maritime Tatar or Buriat, or rather Chinese Turkistan, which are the proper natives of the western Turkish Tartar tribes. The third class is composed of the provinces which have only in these institutions, as such of Tibet, Bhoutan, Undas, Ladakh, and other small countries on the table-lands towards the south and west; and on the east the peninsula of Corea and the island of Formosa, as well as the Ligneous or Liew kiew isles.
ment of the Protestant creed, which was erected here more early than in other places, exercised on the neighbourhood. They have also a small settlement at Scarampore, on the Ganges.

The settlements of the Dutch were formerly dispersed over the coasts of both peninsulas of India, as well as over the rivers of the interior of the country. They were all held by them by degrees; and since 1821 they have been limited to the islands. Their power begins on the west with Sumatra, and extends over Java, as far as the Moluccas, or Spice Islands. These possessions comprise a surface of more than one million of square miles, and contain nearly five millions. They are divided into seven governments: Batavia, with the seat of the general governor, and Sumatra, Ambonaya, Bandia, Ternate, Macasar, and Timor.

It is the number of the European nations, among which the north, east, and south, and centre of Asia is divided; but besides these, there still exist some sovereignities, which, though not powerful enough to influence materially the political affairs of that continent, possess considerable importance in their immediate neighbourhood. Such are the empire of Ava or Birma, with a surface of perhaps more than 250,000 square miles, and a population of fourteen millions; the kingdom of Asam, with about a million of inhabitants, whose race, however, is dependent on the British in Calcutta; and in its neighbourhood, a few small states in the mountains, as that of the Garrows, Munipore, Cashar, &c.; farther, the kingdoms of Siam and Annam, which are the Medin princes of the Ganges, Pegu, Cochin China, and Tonkin, some petty but independent princes on the peninsula of Malacca, on which the British only possess the town and harbour of Singapore, with its suburbs; to which a great and a considerable number of petty sovereignities are added on the Sundan islands. Still we have to notice the most eastern of all Asiatic countries, Japan, which consists of many islands, comprehending an area of more than 300,000 square miles, with a dense population of five millions.

The political relations of western Asia are quite distinct from those of its eastern countries. Other political bodies are here predominant. The influence of the British on the north, and of the French on the south of Africa, is here more or less subordinate; and the empire of China has no weight at all. In the lowlands, on the banks of the Gihon and Sir Darya, political power is subject to continual changes and divisions, which put a limit to the extension of the influence of the Chinese empire, though it projects like a wedge between Siberia on the north and India on the south. This territory of the nomadic tribes, with their agri-cultural districts, is one vast expanse of an extent which, with the country of the Massagette of the ancients, the Khurasan and Mawar-al-Nahar of the Arabs, the Zagatai of the Mongols in the middle ages, and contains at present the states of Bokhara, or Uzbekistan, and Khiva, each of which may contain perhaps a million of inhabitants, a great number of petty sovereignities in the mountain regions, as Khokan, Badakshan, Turkistan, Tashkend, &c. All these countries must be considered as placed without the political relations of eastern, as well as of Western Asia, and cannot be enumerated among the civilized kingdoms, which have attained a fixed and determinate form of government.

The nations whose power is prevalent in western Asia are the Persians, the Arabs, and the Turks. Persia, which occupies the centre, would doubtless exercise a decisive influence, if it still formed one entire and undivided empire; but for more than a century this country has been divided into two sovereigns, Eastern Persia, or Afghanistan, and Western Persia, or the country of the Medes. The political power of the latter is besides diminished by its southern portion, called Beluchistan, which comprehends half of its surface, and perhaps one-third of its population, being in a great degree a northern portion of the vast desert of Persia, and farther by having lost nearly entirely some of its provinces, as Herat on the west, and Cashmere on the east, which at present are united to it by very slender bonds. Both countries possess a power and fighting capacity, which is important which is secured to them by their geographical situation, as being the countries through which the commercial intercourse between eastern and western Asia is carried on, which influence is still considerably increased by their being placed between the dominions of the Russians on the north, of the Turks on the west, and the British in India on the south.

Arabistan, the country of the Arabs, is of very little weight in the political affairs of Asia, and has always been so since the fall of the caliphate. The Saracens are for the most part divided into wandering tribes, who are mostly independent of one another, and therefore cannot act in union and with effect. Some of them are subject to the Turkish empire, but the Arabs and Turks are at perpetual enmity and war, and there are frequent secessions. Though this country is very thinly peopled, its inhabitants may be estimated at from ten to twelve millions, and it is divided into four considerable sovereignies, and a great number of petty states, each of which is governed by a petty sovereign, and is a mixture of different races, which however are often more or less dependent either on an Arabian prince or a foreigner. The four great sovereignies are formed by the religious political government of the Wahhabites, in the centre of the country, the Nejil, which indeed seems entirely destroyed in 1817, but which again, as has already been the case more than once, raises its head, and begins to exist as a separate political body, though it is in some measure subject to the active pasha of Egypt. The next most powerful monarchs, besides them, are the Imam of Yemen on the southern shores, and that of Mouscat on the south-eastern corner, who, no less than the Shiriff of Mecca, and a great number of petty princes, is engaged in war against the Turks, who claim them as their subjects. At the present moment it may be said that the power of the Turkish emperor over Arabia is only nominal.

The Turks, who, next to the Persians, are considered as the three great powers of western Asia; but its power in Europe having considerably declined, especially of late years, this has had a corresponding effect on its political relations in Asia; and it can no longer be said that this empire extends over those countries lying in the three great divisions of the ancient world.

Not many years ago, the surface of the Turkish empire was estimated at 900,000 square miles; but since that time, which has seen the fall of Napoleon on the continent, and the whole of this empire, has been lost; Greece has been separated from its territory in Europe, and even of the countries belonging in Asia to the Turkish empire, which, on a surface of about 450,000 square miles, contain about twelve millions of inhabitants, a great province, Syria, has been yielded up to the pasha of Egypt. The other provinces, divided into pashalies, are not in any intimate connexion with one another, nor even with the central power, and a great number of the inhabitants of the pashalies of Erzerum, which protects the northern boundary of the empire against Russia, have been transplanted to other countries. Many of the nations which inhabit the provinces lying on the boundary, are those of the Turks, and are much more difficult to keep in subjection than the pashas themselves.

ASIA. POTAN IN OF. With reference to the character of its vegetation, Asia may be conveniently divided into seven regions, namely, 1. the Siberian: 2. the Tartarian: 3. the Cashmerian: 4. the Syrian: 5. the Himalayan: 6. the Indian; and 7. the Malayon or Equinoctial. There are certainly no very precise limits between these, but nevertheless they may be taken as representing so many well-marked features of the Asiatic Flora, as expressing the most important differences of climate which divide the world into two chief parts.
parish beneath that dreadful temperature, their very blood being frozen in their veins.

In a country where this degree of cold exists, vegetation must of necessity be in a certain degree limited and restricted, for the greater part of the country, even towards the south, is covered with a perpetual snow. But the high table-land of Cashmere, with its perpetual snow and rain, is one of the exceptions to this statement.

In Cashmere the rice, spelt, and barley are intimately mixed, and the wheat is not at all different from that of eastern India.

The climate is also very mild, and the winters are but little felt, for the perpetual snow on the mountains is so extensive that the vernal equinox is rarely reached by the climate.

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Cashmerian region, passing even through southern Persia into northern India, and finding its eastern limits in the Great Indian Desert, of which Delhi may be considered as the extreme point, is a botanical region that requires to be distinctly marked off, and is abundantly given, from its commencing with Syria on the west. It also comprehends the greater part of Turkey in Asia, and the north of Arabia. It might almost be called a Southern Turritarian region, for its peculiar appearance is caused by a great number of shrubs and small trees, which are usually associated in its summer vegetation, by aridity and cold. At its western extremity the Syrian region resembles the north of Africa and the south of Europe in many of its plants; on the east it is occupied by species belonging to the Tauric and Caspian regions, and more Indian in their character; for instance, it appears from Mr. Royle's list, that near Delhi such plants as species of sitaphra, eulalia, coccus, and lepidophyceae, which consist principally of Indian species, are intermixed with fagionis, gisivias, capers, comme's thorn (Amhat), sesmis, and several shrubbery heliotropes, which are truly Syrian. Desolation is the characteristic of a very large part of this region; destitute of water, and searched by a fierce sun, it is physically impossible for the vegetation to consist of any but stunted shrubs or starved and withering herbs. The trees are few and thorny, and scantily clothed with foliage; the very herbs are spiny from want of power to develop the soft green cover grown in and around the more southern regions, and they are shaggy with long hairs, which nature gives them as a feeble means of sucking up the scanty moisture of the atmosphere. Amongst these barren regions, though not a single species of tree, only form a sad contrast with the dreaminess of the scene beyond them, and by no means diminish the truth of the picture we have drawn. Sine may be considered as the most south-eastern part of the Syrian region, whose vegetation of uncultivated tracts is described as of a miserable description. Great quantities of a sort of tamarisk, intermixed with thorny acacias, a deformed euphorbia, the flowers of which are still more unpleasant than its branches, and useless stems, market trees (melias), and peepals (Ficus religiosa), constitute the principal features of the scenery.

V. From countries like these we turn to the rich and varied series of that stupendous mountain-edge which, under the name of the Himalaya, forms an eternal barrier between Tartary and Hindostan. Of this fine region, which may hence be called the Himalayyan, an invaluable account is given by Mr. Royle in his Illustrations of the Botany of the Himalayan Mountains, to which we are indebted for the principal part of our data regarding the vegetation of India. In consequence of the rich and humid plains that lie at its feet, and its great extent, it is easy to say that many of the more vigorous and temperate plants, the forerunners of which ascend the sides of the hills till they lose themselves among the latter, in their turn give way, as the snow is approached, to truly Alpine vegetation. In the Himalayan ranges the snow reaches down to the north of China and Japan and the higher ranges of the Neppal, so strong is the resemblance between the plants of these countries and the north of India in their leading features. As the Himalayas are ascended from the plains, the pine-apple is found no longer to flourish; mangos and custard-apples suffer from cold; the plantain is only able to exist in consequence of the numerous coverings formed by the shrubbery, and the abrupt changes of climate from those of the plains of Upper India, consisting almost entirely of dicotyledonous species, which lose their leaves in the cold weather as completely as trees in more northern climates. Two species of Phormica, or orate, form the only palms that are met with in the Himalayas at all, being found wild and wild. But within the Himalayas, at elevations of 2000 feet and more, are valleys which, being within the influence of the tropical rains, have a peculiarly atmospheric phenomena which make the words of Mr. Royle to be expected in a climate of which the mean temperature is so low. Here accordingly are found oranges in a wild state, arborescent plants related to the cashew-nut, cassias, but not readily found. But within the limits of the mountain a great number of the grasses, trees (Sclerourobata), and shrubby euphorbias; among which are found abundance of sessilemnine plants and many epiphytcal orchids. Cane-palms (Calamus) reach these valleys, but ascend no higher; and are met by a pine (Pinus longaeva), which is found itself amidst tropical forms and a few straggling clumps, willows, roses, violets, and other European-looking plants. Mr. Royle mentions 4000 or 5000 feet as the average height at which tropical trees entirely disappear. It is in the mid-altitudes of this belt that the most lovely features are to be seen. Here in many places occur in the rainy season a few lingering tropical herbs, which are protected from the cold in winter by the earth in which they grow; several shrubs, forming carpets of various colored flowers, among the many fragrances of balzams; while the trees are oaks, sycomores, elms, hornbeam, and pine-trees, and the shrubs berberies, roses, and honeysuckles, all of Indian species but European forms; this rather hushed, but still very buffetting, and very occasional, saxifrages, crowfoots, geraniums, and violets, with gentians, primroses, and labiate plants. It is this belt that is inhabited by the dearful rhododendron, and on its lower edge by those wild cactuses and tea-like plants which render it probable that the tea-plant itself with all its commercial wealth might be transferred from China to the British dominions in India. At 9000 feet elevation is found the curious Rosco phus alpinus of Mr. Royle, which is a most remarkable instance of an Alpine species of this kind almost every other species of which is tropical. The third and upper belt only ceases with vegetation, which on the Himalayas is prostrated to an elevation unknown in any other part of the world, for the trees that grow from the second belt, trees of rhododendron and Quercus lanata are first passed through. To them succeed pines and firs of various kinds; of which the most remarkable species is Pinus excelsa, which is the pine of the region, and Pinus rigida, which exist in a splendid state at 11,000 and 11,500 feet of elevation; oaks in great variety, yews, birches, sycamores, and poplars, together with Rhododendron campa nulatum, roseum, and cardalianum, and then a thick covering of snow, with the Himalayan bamboo (a very curious circumstance), levelled with the ground. To these succeed forests of Quercus seneacarpa; and finally the limits of vegetation are marked by a few starved yews and junipers, which, in extreme situations, dwarf species of Rhododendron, Andromeda jas tigia (the heather of Mr. Fraser), and Sibux Lindleyana. It is curious to find on these mountains some plants, the general conformation of which is first Chinese and then American; instances of which occur in the genera Trigritis, Abelia, Canthuta, and many others, which are Chinese, and in Tri ocnum, which is completely American. The agriculture of this region is as singular as the other parts of the vegetation; wheat is sometimes cut at the top of a mountain, and rice at its foot. Maize, millet, and many small grains constitute the 'rain-crop'; capiaceous, turnip, and ginger, are grown in the mountains; wheat is cultivated as high as 19,000 feet, and even 12,000 feet according to Captain Webb.

VI. In the Indian region should be comprehended all those countries which, like Hindostan, are capable of bearing coffee, indigo, sugar-canes, palms, and other ordinary products of a tropical district, without excessive humidity; I mean the countries which include Arabia Felix, Burma, Siam, Cochin China, and the continental lands connected with these countries. What is called jungle is met with in most parts of this region. In the very hot part of the year, an extraordinary current of warm moist air is brought in from the south, and producing indented during the rainy season, as well as by the hill-streams frequently over-flowing their banks, are generally in a moist state, and have hence been called the Turrai or moist district. The products of some of these countries are known upon this, and a dense mass of vegetation where there is little circulation of air, produce a heated and moist atmosphere highly favourable to the production of tropical plants. From the southern and eastern parts of this belt, on the coast of Malacca, on Des. Rox.
burgh and Wallach obtained their splendid specimens of tree-ferns.

In these damp and swampy forests eternal pestilence reigns; so that the native wood-cutters are often unable to remain in them more than a few days at a time, fivers and bowel complaints universally attacking them after a short exposure to their baneful influence. It is here, however, that some of the most remarkable and valuable of the vegetable productions of the Indian timber-trees; and amidst the vapours arising from the beds of the mountain-torrents that meet with the fogs and drizzle through the forests abound numerous species of ferns, together with those singular plants called by botanists Orchidea ephiphytes, which cling by their aerial roots to the branches of trees, and astonish the traveller by their brilliant colours and gauzy forms.

In the cleared ground, where the soil is exposed to the rays of the sun and the earth is dried by a free ventilation, palms and evergreen trees of remarkable kinds are met with. Mangoes are planted in the villages, Palmyra-trees (Borassus flabelliferum) are in many places extremely common; coconut-nuts and Gomuto palms (Arenga sarcochara) are of frequent occurrence; a coarse grass overruns the plains, except in cultivated spots, which are occupied by rice, sesamum, cotton, hemp, sugar-canes, yams, indigo, maize, the betel and other peppers. In place of epiphytal orchideae the branches of trees are occupied with parasitical ferns, which in India are of great size; the trees have, however, the advantage of not being set at defiance the dry atmosphere with which at one season of the year they are surrounded. Tobacco arrives in some places, as on the coast of Martaban, at such excellence as to be sent to the Chinese, and to require a protection against that it should not have been an article of export. Add to these area palms, plantains, and bananas (Artocarpus integrifolia), guavas, and jamus-rosea trees, and a tolerable notion will be had of the evergreen forest of the plains and slopes. The forests of this country is, however, so vast, that no general description can give an idea of its richness and variety.

Among the most remarkable features in the Flora of India is the Banyan-tree (Ficus indica), the branches of which emit roots which descend to the earth, where they fix themselves, and become in time large trunks. When a banyan tree becomes old, and acquires a great number of such trunks, it will have the appearance of a great forest. Many cases are cited of trees of this sort arriving at a prodigious size; the following, mentioned in the Journal of the Asiatic Society as growing in the territory of Mysons, will give a good notion of the surprising magnitude they sometimes attain. A tree thirty-five or sixty feet in height, and its branches cover an area of seventy-six yards in one direction and eighty-eight in the other, while the drops now dependent from, or rather supported upon, the boughs number four hundred and twenty-one, of which some are of enormous size. The place exhibits on all sides vast branches broken off, which have been evidently once connected with thirty trees, now dissolved from the centre stock; but the original connexion can still be sufficiently traced to render unnecessary the testimony of the villagers, who state that they and their fathers have been in the habit of dismantling these trees by separating the intermediate parts for the construction of rude cart wheels, for which, from their size, they are well suited. On measuring the transverse diameters of the whole area, they are found to contain more than 100 yards each; and thus a square of foliage and shade exceeding 360 English yards in circumference.

Ceylon may be referred to the Indian region, notwithstanding its insular position. It produces cinnamon forests, nutmegs, and coffee; satiwood and ebony trees are found in abundance in the jungle of that island, while the forests of the island abound generally in other kinds of timber valuable for naval and other purposes. A kind called Wallapore is spoken of by Mr. Brooke as greening from the north, and containing great numbers of birds, which, being crossed by the funnel-like caves, are the greater part of the inhabitants of these regions, who are often confined to the sea; some of the woods are said to be crossed by the waters of a vast ocean—the features of this Flora are essentially different from those of the continent of India. The atmosphere is in a state of perpetual humidity, acted upon by a vertical sun; the land is little cleared, and allows but slender opportunity for the sun and wind to dry it. Many of the islands are little better than a mass of jungle, or at all events these dense and pestilential woods occupy a considerable portion of the surface. Many of the islands are intrenched with rank after rank of the living palisades of the mangrove, rooting into the mud, and surrounding the taller stems of the Nypa Palm, Barringtonias, and several other one-leaved vaquios trees. These woods are so dense that the sun never penetrates them; so entangled with climbers, coarse grasses, bamboos, and cane-palms, that no human being can ever find his way through them. On this account, and so damp that the parasites actually struggle with the leaves of the trees on which they grow for mastery over the branches; spice-trees, nutmegs, and cinnamon, camphor-trees (Diplocarpum), and the ferns, here find their home; and in the depths of their recesses are sometimes nourished the fungus-like form of the huge Rafflesia flower. On the mountains are many species of oak, dammar pines, rhododendrons, and magnolias; and at the summits the crownless; valerian, bilbergias, herbberies, brambles, honesuckles, gentians, and other well-known European forms.

The cleared ground of these countries is occupied with a great variety of tropical trees, more or less valuable, growing along with the mangoest, durian, and rambutan, many-headed pines, jacks, and shaddock, which attain their highest perfection here only. Even in the smaller islands, with its vegetable productions, there are scarce any extent are richly clothed with wood, chiefly palms; among which the cocoa-nut is of such importance, that it is doubtful whether some of the Malayal islands would be habitable without it, from their want of water; the inhabitants propitiate their god for its rain, and never any other beverage resemble themselves.

(See Journal of the Royal Geographical Society of London; Journal of the Asiatic Society of Bengal; Roye's Illustrations of the Natural History of Malaya; Malte Brun's Geography; Gmelin's Flora Sibrica; Wallach's Plantae Asiaticae Rariorae; Reinwardt über den Charakter der Vegetation auf den Inseln des Indischen Archipels.)

ASIA. ZOOLOGY OF. Considered in relation to its extent, the continent of Asia and its islands contain a greater number and variety of animals than any other quarter of the globe. We may, therefore, expect, from the diversity of soil and climate, the alternations of heat and cold, of drought and moisture, of mountain and lowland, of luxuriant forest and bare plains. Nor is it only in the number and variety of its zoological productions that Asia is pre-eminently distinguished; its intrinsic value in the economy of human society, the prominent part which they played in the early civilization of mankind, and the universal importance which still attaches to them, are sufficient to distinguish it from the rest of the world as the most civilized and refined, as well as among purely pastoral nations, make the consideration of Asiatic zoology an object of interest not less to the historian, the antiquary, and the general inquirer, than to the zoologist. In fact, the great majority of the domestic animals which enabled man to till the earth, to extend his power, and to transport his commodities to distant regions, which first gave to civilized man that mastery over the productions of nature that, perhaps more than all his other attributes, distinguishes him from the savage, and which still continue to furnish him with food and raiment, are of Asiatic origin: the camel, the horse, the ass, the ox, the dog, are all of eastern derivation. It is, therefore, of the first importance to look for the original types of these useful animals. Naturalists have wasted much time in endeavouring to discover the wild sources from which some of our most common and useful domestic animals were derived; had they looked for the origin of the dog, the cat, the sheep, and the goat in those regions which witnessed the first dawn of human civilization, and in which these valuable servants were first domesticated, no doubt they would have found their search would probably have been attended with greater success; for it is but natural to suppose that the wild species, if they still exist in a state of nature, are to be found in the district where they originate by the waters of the globe.

The numbers, and relative distribution of Asiatic mammals, are expressed in the following table:
Thus it will be observed, that of 1346 known quadrupeds, 422, or very nearly one-third of the whole number, inhabit some part of Asia or its dependent islands; but of these it will be further remarked, that 288 only, or about two-thirds of the whole, are peculiar to that continent, the remaining 134 extending into the neighbouring countries of Europe and America. Indeed it may be generally observed, that the zoological productions of the northern parts of these three continents respectively, if not absolutely identical, are at least extremely similar, even in their most minute features; northern Asia, in particular, from its relative position, as situated between these two almost parallel parallels, partakes equally of the productions of both; and it is probably to this circumstance, more than any other, that we are chiefly to ascribe the comparatively small number of its own productions as well as the peculiarity of this continent, when compared with those peculiar to Africa or America. Africa, for instance, contains 300 quadrupeds; yet out of these 50 only are found beyond the boundaries of that continent: America, again, out of no fewer than 537 species, as already observed, Asia, out of 422 species, has no fewer than 134 equally common to Europe, Africa, and America. It will be likewise observed, from the foregoing table, that the horse and Man, and Man itself but as the horse, is the most rich in the number of its Ruminants, compared with the whole number of known species. This is precisely the reverse of what we have already observed regarding the zoological productions of America, nor is the circumstance without importance to those who study the progress of society and the development of civilization in these two continents.

The elephant, though never bred in a tame state, ought to be considered at the head of the domestic animals of Asia. The inhabitants of India appear to have known and practised, when Alexander the Great visited the country, the very same methods of capturing and training the elephant which are employed at the present day. Their ancient writings mention this animal as a domestic servant, and he is constantly represented in the same character upon their coins and on their picture subjects. Alexander, during his expedition into the north-west parts of India, found the armies of the native princes attended by their war elephants, just as the European invaders of the same country have done in later times; and from that period the elephant appears to have been constantly employed by the successors of Alexander in western Asia, and also by the Carthaginians, and Pyrrhus, the king of Epirus, who fought against the Romans in Italy. Immense troops of wild elephants are still found in the northern parts of India, in the Malay peninsula, in Ceylon, and probably in all the large islands of the Indian Archipelago. Those which are employed in the wars of the French in India and the Sandwich islands have evidently exceeded seven feet and a half a average height, are obtained in the upper provinces, principally from the vicinity of the great saul forest, which skirts the lower ridges of the Himalaya chain for some hundred miles, and in which these magnificent creatures are particularly abundant.

The common domestic animals of Asia present more varieties of species, and attain to greater individual perfection of form, than those of any other quarter of the globe. The horse, the ass, the camel, and probably most other species, are originally natives of the central plains of this extensive continent, and, though not found in a state of nature, are still proverbial for their symmetry and spirit. In Arabia, particularly, the horse is, of all other animals, the object of most especial care and value. No Arab, however poor in other respects, is without this noble animal, which is at once his friend and companion, the sharer of his riches or poverty, and the partner of all his toils. Subsisting on the same food as his master, which, during their long expeditions in the desert, is often limited to dried dates, tepid water, and a degree of temper and endurance above that scarcely exceeded even by the camel or dromedary, lodged in the same hut, and careering with the fondness of a child, the Arabian horse is never subjected to the performance of any mean drudgery. In a servile laborious life, he is never to be seen; and indeed to his master in his temporary employment, is of little service and less importance. The Arabian horse is, in fact, the spirited animal of his nation, the proudest and most expensive of their possessions. He is in short the idol of the saddle, and the object of the greatest care in his feeding and breeding. This mode of treatment has a corresponding effect on the habits and character of the animal. In no other part of the world do the horses display so much strength, intelligence, and spirit as in Arabia; the pupil and constant associate of man, he almost seems to have caught a spark of human reason, readily comprehends and executes the orders of his master, and returns with delight and evident satisfaction the attentions bestowed upon him. The nomadic and pastoral nations, which have from time immemorial occupied the central plains of Asia, are universally an equestrian people; they may be almost said to live on horseback, and indeed would be impossible for them to carry on the rapid expeditions for which they have been in all ages remarkable, or to traverse the steppes of Asia, without the aid of this noble animal. Nor do these people employ the horse as a beast of burden; they use it in the chase with their favourite food, and the milk of the mare is the greatest dainty of a Tartar feast. Wild horses are said to exist in the interior of Tartary, where the inhabitants hunt them for their skins; but it is uncertain what instance, as in the similar report of the existence of wild asses in the same localities, cannot be implicitly relied upon, as travellers imperfectly acquainted with zoological distinctions frequently confuse the names of certain of others which resemble them in form and appearance, without attending very closely to their specific difference. In the present instance, it is more than probable that both the wild horse and wild ass of eastern travellers are to be considered by reason of their large size and form, which inhabits the same regions, and has always retained its original freedom.

The asses, like the horses, of Asia are of larger proportions and more generous spirit than those which have been transported to other countries. That central Asia was originally the habitat of both these animals there can be no doubt, not only because we find them there domesticated at the earliest periods of which we have any account, but likewise because the Asiatides are, and, as far as we know, always have been, equestrian nations, whilst, in the neighbouring continent of Africa, the species was probably introduced by the Egyptians, archaic or at least modern. The horse, indeed, was early known and used in Egypt, as we know from the monuments and from written history. But the negroes of interior Africa, and, generally speaking, the whole southern part of the continent, are to this day the substitute of either beast of burden, the horse, or indeed the ass, can be sent a greater contrast than the comparison of the degraded and degenerate ass of Europe with the same animal bred in his native country. Instead of the dejected, shaggy coat, pinched dimensions, and miserable half-starved appearance which he presents in these countries, the ass of Persia, Syria, and the Levant approaches nearer to the larger size of the horse, and partakes much of his beautiful symmetry of form, noble carriage, and unrivalled speed.

It appears extremely probable that the camel and dromedary are likewise of Asiatic origin. The wide extent of the Arabian continent during the middle ages introduced the latter species into most parts of northern and central Africa, where it has been ever since established, and of the greatest use in crossing the sandy deserts which separate the inhabited regions of the north from the interior of the continent. Wherein the camel, still the chief, and the dromedary by having two humps on the back instead of one, appears to have been in all ages more limited and confined in its geographical distribution than the latter species. The camel is not so well known as the dromedary; the latter is found among the Tartars, from the confines of Siberia to the northern ridges of the great Himalayan chain; whilst the dromedary spreads not only over Arabia, Syria, Mesopotamia, and Persia, but extended into India, and probably even into

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China. These animals are mentioned among the earliest lists of the flocks and herds of the patriarchs: and it is not a less ancient matter; for as in the case of most other domestic animals, not the slightest trace seems to remain of the original wild stock from which the species was first reclaimed. Professor Pallas, it is true, reports the existence of a kind of the ox in the neighbourhood of the Arctic, which he never met with himself, but which is frequently heard of; and Baron Cuvier conjectures, with much more probability, that the reports refer to some of the wild animals to which the inhabitants of these regions, from religious prejudices, attribute their liberty at the celebration of particular festivities.

Of the ox kind, no fewer than four distinct species have been, from time immemorial, domesticated in different parts of the globe. Of these, the short ox (Bos indicus), though usually confounded with the common of western Europe, is in reality a very distinct species; differing not only by his longer legs, and the large hump which marks his shoulders, like that of a dromedary, but likewise by his voice, and even by some details of internal construction. This animal, from his superior height and more slender proportions, perhaps the most symmetrical and graceful of all the different species of the ox genus, has been from the earliest times the guarnet of the table of the Indians; and there is a strong resemblance between the worship of Apis among the ancient Egyptians, and that which the followers of Brahma paid to the Indian ox, as an insective deity. The kine of the Egyptians may have originated from the wild cattle of the north, but the wild race of Indian cattle are not equally regarded as objects of religious veneration: these attentions seem to be exclusively bestowed upon a particular breed; and the greatest care is taken to maintain the purity of this sacred race, and to preserve it from all individual mixture. The common domestic Indian cattle, however, are not regarded with the same religious sentiments. They are the usual beasts of draught and burthen in the country; and, from their great speed, are frequently used for the carriage of the sadhu, even by the Europeans, who have settled in the upper provinces. The intercourse which India always seems to have maintained with other commercial nations of antiquity was the means of introducing this beautiful and useful animal into more distant regions; and we now find the oxen both treading in the streets of Persia and Syria, and mixed with the common flat-backed species of the west, in Madagascar, Abyssinia, and generally along the whole eastern coast of Africa.

The Yak (Bos grunniens) is another species of ox which has been long domesticated in central Asia. It has always formed the common cattle of the Tartars, and is well described by Ellian under the name of Poephagus. It is this animal which forms the tails of the white horses which the Turks make their military standards, and which are employed all over the East, under the name of cowhies, for the purpose of driving away the flies and creating a refreshing current of air about the luxurious inhabitants of India; these insects, with the rest of the insects of luxury, are frequently set in silver or gold handles; and as they are an indispensable appendage to the state of a great man, they form one of the regular articles of import between Tibet and India, and are frequently sold for enormous prices. The use of these cowhies is of very great antiquity throughout all eastern countries.

The Buffalo (Bos bubalis) is a third species of ox, long domesticated in the southern and eastern parts of Asia. India and China appear to be the original climate of this powerful animal; it is still found wild in all the great forests of both these countries, and is probably the only domestic quadruped of which zoologists have clearly ascertained the original source. The wild buffalo, called aresa by the Indians, is said to be only inferior to the elephant in size; and from his ferocity and malignant disposition is much dreaded by those who reside in the vicinity of his haunts. Combats between the buffalo and the tiger were formerly a favourite sport of the native princes of animal life; and consequently the use of flesh as an article of food, they are turned to no account by the inhabitants; by whom, however, they are not regarded with the horror and detestation which attaches to them among the following of the Asiatic, as the Indians abstain from the use of pork for the same reason that they abstain from eating any other kind of flesh; not from any peculiar antipathy which they bear to the animal itself. The hog is regarded by the Chinese as the greatest luxury; and it is well known that the dog and the hog
were the only domestic animals which their first discoverers found among the Polynesian islanders. It appears probable, however, that the dog was introduced into the islands of the South Sea, by early navigators, and which was found spread over all the various archipelagoes of the Indian Ocean, is in reality a different species from our common European dog, though closely allied to it in form and appearance.

The flora and fauna of the great division of the world, is subject to an almost infinite number of varieties. Troops of this animal, called in India papia dogs, inhabit every village, and without acknowledging any particular master, know and obey the inhabitants, warn them of the approach of wild beasts and robbers, and perform the common offices of public scavengers. Legacies are frequently left for their support by the pious Hindoos; and hospitals are built for them, and provisions of every kind are offered to them. But besides these public troops, which may be considered as the property of the state, there are various varieties of sporting and other dogs kept by private individuals in different parts of Asia; of which the principal are the large mastiffs of Tibet, and the greyhound of Persia. The flesh of the dog is a common article of food in China, as it formerly was in the islands of the Indian Ocean; and it is said to be a most amusing sight to the few Europeans who have obtained access to the large cities in the interior of the empire, to witness the anti-typhus with which these sagacious animals pursue their enemies the butchers, when they appear in the public streets.

The human dog (Canis lupus) has been a favourite domestic among the Asians; and the Mohammedans, in particular, who consider the dog as unclean, lavish all their attention and care upon these finer, gentler, and more sagacious animals. In the central or Chaharas, Cashan, and Bhotan, as well as in Angora and other districts of Asia Minor, the fur of the cat assumes a long silky texture, of great beauty and fineness; and individuals of the esteemed colours are frequently sold for extravagant prices on the commercial point of the town, and brought under the name of Persian cats; they are much more gentle in disposition than our common domestic cat, but are less useful, and decidedly inferior to the dog as a pet or companion.

Of the wild Mammals peculiar to Asia, we have already observed that there are, comparatively speaking, a greater variety than in any other portion of the globe. The true apes (Cercopithecus) are, with a single exception, the Chimpanzees (P. troglodytes) of Africa, peculiar to this continent; as are likewise the Squirrel, an extensive tribe which differs from them only by the possession of a very long tail. The second in importance of the Apidae is the Macaques (Macacus) are likewise a purely Asiatic genus of quadrupeds, and appear to supply on this continent the situation which the baboons fill in Africa. They swarm in all the woods of India and China, and are remarkable only for their malevolent dispositions and their disgusting manners.

Of the Lemur tribe, two genera, Nycticebus and Tarsius, inhabit Asia; all the rest of this numerous family, as we have observed in the last volume of this work, are restricted to the zoology of Africa, and are found in the island of Madagascar, and along the eastern coast of the neighbouring continent.

Among the Cheiroptera, or Bat kind, the pteropids, or large frugivorous species, are almost exclusively Asiatic; as are likewise the Leporidae, or, as they are commonly called by travellers, flying foxes. Both these genera inhabit the woods and forests of the intertropical parts of Asia, chiefly those of the great Indian Isles; unlike the generality of winged quadrupeds, they are of diurnal habits, live entirely upon leaves and fruits, and are eaten by the natives. The more common species of nocturnal and insectivorous cheiroptera swarm in every part of Asia; to some of these (Ursus syriacus), lately discovered on Marco Polo's first voyage, is the common pouch (Urocyon molotus) with an opposable thumb on the hind feet, which inhabits the Malayan peninsula.

Among the Carnivorous animals of Asia are three or four distinct groups, each of which is divided into different species. One of these (Ursus syriacus), discovered by M. de La Viotière, has been already mentioned by the sacred writers; the others inhabit the Himalayas and other more eastern mountains, except one species (U. labiatus), which is found in the jungles on the plains of India. Besides these, the common brown bear of Europe, and the larger species of bears which inhabit the northern parts of Siberia, China, Kamchatka, and along the shores of the Frozen Ocean, is among the most formidable of the carnivorous animals. The black bear (U. arctos), the American bear (U. americanus), and the American black bear (U. americanus), are peculiar to the continent of North America, and are considerably smaller than their counterparts in Asia. Among the sea animals, northern Asia produces the saithe, the ermine, and various other species of musclle; the sea-otter, the most valuable of all, has been hitherto found only in the northern parts along the coast of Asia, and the shores of America, from the parallel of Japan northward, as far as navigators have yet been able to penetrate. The tiger, the most savage and formidable of the carnivorous animals, exists only in the forests of Birmah, Sumatra, and Java. The Riman-dahan (Pelis macrolevis), a large species but lately described, inhabits Siam and Sumatra; and the leopard and panther are common among the forests of India. The lion also has lately been found in the province of Guzerat; but, unlike the African variety, it is without a mane, and appears to be altogether a much less formidable animal. The striped hyena is common in all the warmer parts of the continent; and various species of wild dogs and foxes are everywhere abundant, although not remarkable for size.

The Marsupial animals are for the most part confined to Australia; a few species, nevertheless, extend throughout the long chain of islands which nearly unite this continent with Asia. The left-handed wallaby (Macropus bernardi), the brush-tailed phalanger (Brushtailed phalanger), the first of the genus ever discovered, having been described and figured one hundred and fifty years ago by Le Bruyn; the other five marsupials enumerated in the catalogue belong to the Macropodidae, and are distinguished from the Australian phalangers, by having the tail partially or entirely naked and scaly.

Of the numerous Rodentia which inhabit every part of Asia, very few indeed are deserving of attention, either in a practical or commercial point of view. The species of hares (lepus), and an equal number of lagomachines, or hare-rats, are the only Asiatic animals of this tribe which Europeans are acustomed to consider as fit for human food; the rest consist of a small species of wood-rats, the spruce-moles (of large size and prettily variegated with stripes and shades of different colours), rats, gerbous, hamsters, marmots, flying-squirrels, and two or three different species of porcupines. The gerbous (Cerco), of which ten or twelve species are found in the deserts of the interior, burrow along in the sand, at the root of some plant or shrub, and are almost the only animals which enliven the long and dreary wastes which the traveler frequently encounters in Asia, hopping along on the hind legs like a bird, and crossing a sandhill with the rapidity of an arrow. The flying squirrels (Pteropus) inhabit the forests of the whole continent, from Siberia to Java, and are remarkable for an expansion of the skin, which, at the approach of danger, is thrown out to the length of forty or fifty yards, in passing from tree to tree; it acts like a parachute to prevent too rapid a descent, though it is incapable of being moved like the wings of birds, and consequently of exerting the proper function of flying.

The Edentata of Asia are confined to two species, both belonging to the genus Manis or Pangolins, frequently called scaly ant-eaters by the traders. These singular animals in fact resemble the real ant-eaters of the American continent in every thing but their external covering, which, instead of the ordinary hair of quadrupeds, consists of a succession of parallel rows of large indurated scales, that lap over another like the tiles of a housetop, and are capable of being elevated or depressed at the will of the animal. One of the Asiatic species is clearly indicated by Daid (libi. xvi. cap. 6) under the name of Phattage.

Among the Pachydermata of Asia, or the wild oxen, nothing has been already noticed. Three different species of rhinoceros are known to inhabit the continent of India, and the great islands contiguous to the Malayan peninsula. The continental species of the Rhinoceros (R. unicornis) inhabits the island of Java (R. javanicus), have but one horn; the Sumatran rhinoceros (R. sumatrensis) resembles the African species by having two of these excrecences, for they cannot be properly called horns. Of the genus Equus, the common horses have been already mentioned, as in all probability originally indigenous to the central plains of Asia. One other species, the Dziggetal (E. m.
tallio lustre of its plumage. The gold and silver pheasants (Phasianus pictus et mokheumenae), so common in the avaries of Europe, are indigenous in China, as are likewise the collared pheasant (Ph. torquatus), and a new species (Ph. Rehviati) lately discovered, remarkable for the great length of its neck. The ostrich is a native of South Africa, inhabiting the countries near the Kalahari Desert, but no species of ostrich is found in Asia. The common domesticated ostrich, Ostrich (Struthio camelus), is a species of Ostrich (Struthio camelus), being a hybrid between the common ostrich and another species, the Rhea (Rhea americana). The ostrich is a large bird, about the size of a horse, and is distinguished by its long neck and legs. The ostrich is found in the southern part of Africa, and is well known for its ability to run very fast, sometimes reaching speeds of up to 70 km/h. The ostrich is also known for its large eggs, which are the largest in the world. The ostrich is an important source of meat and is also used for its feathers, which are used for making hats and other products. The ostrich is also a symbol of freedom and independence in many cultures.

**ASIA MINOR.** [See Anatomia.]

**ASIATIC SOCIETIES.** Asiatic Societies are learned bodies formed for the especial purpose of instituting and encouraging inquiries into the geography, history, languages, literature, &c., of the inhabitants of Asia. The most important of these societies is the Asiatic Society of Bengal, founded at Calcutta by Sir William Jones, in January, 1784. Its transactions and dissertations are read at its meetings, and are embodied in the Asiatic Researches, the first volume of which was published at Calcutta, 1788, 4to.; the latest that has been received in Europe is the seventeenth volume, printed in 1832.

Lately a separate physical class has been formed in the Asiatic Society, the members of which are engaged in the study of the Asiatic minera] and the zoology, meteorology, mineralogy, and geology of India; its transactions are published apart, under the title Asiatic Researches: Transactions of the Physical Class of the Asiatic Society of Bengal (published at Calcutta, 1825; 2do. ed., with notes, 1833, 4to.). Since the year 1829 the proceedings of this society have been published in a monthly periodical, The Journal of the Asiatic Society of Bengal, edited by James Prinsep, a publication which, from its cheapness and from the well-chosen variety of its contents, seems particularly calculated to awaken a general interest for the objects of the society.

At Paris an Asiatic Society was formed in the earlier part of the year 1829, by the well known French orientalists, Silvestre de Sacy, Abel Rémusat, Saint-Martin, Châzy, &c., under the patronage of the Duke of Orleans (now King of the French). The transactions of this society were, from 1829, 1824, published in a monthly periodical, Journal des Monumens et des Beaux-Arts de l’Inde, containing an account of the discoveries and the results of the researches carried on in India. It was continued until 1843, 4to. Since the year 1832 the proceedings of this society have been published in a monthly periodical, The Journal of the Asiatic Society of Bengal, edited by James Prinsep, a publication which, from its cheapness and from the well-chosen variety of its contents, seems particularly calculated to awaken a general interest for the objects of the society.

A similar institution was formed at London in March 1829, and was incorporated under the denomination of the Royal Asiatic Society of Great Britain and Ireland, by a
ASKER, ANNE, a lady of an honourable family in Leicestershire, whose father was serjeant at law, Ascough or Ascue, has obtained mention in most histories of England, as one of those sufferers, who, before the final completion of the Reformation, abjured in part the doctrines of the Romish church. She was more highly educated than was ordinary in her day, and the spirit of the scriptures were made a subject of study and meditation by her, as a means to support her views and her faith. She set her hand to a recantation, by which she acknowledged that the natural body of Christ was present in the sacrament after the consecration, whether the priest were a good or an ill man; and that, whether it was presently consumed or reserved in the box, it was the true body of Christ. (Hist. of Reformation, B. iii.) Her recantation, however, was not satisfactory, or at least not effectual, for she was soon apprehended again, examined closely as to her belief and doctrine, and committed to Newgate, where she was to have been executed. But, under the influence of the local government, she was released. She afterwards appeared in the courts to assert her freedom and to protest against the power of the Church of Rome. She was supported and encouraged by those who were similarly disposed.

The state of the Jews, while subjected to the Seleucids, or Greek kings of Syria, was considerably less adverse to that of the modern Greeks under the dominion of the Turks. The Jews, like the modern Greeks before their last revolution, had, during this period, no political existence. Priests were the organ of every interest. The high-priest in Jerusalem, as well as the patriarch of Constantinople, were the heads of their respective nations.

The Jews had for many years been subject to the arbitrary rule and cruelty of the Syrian kings, when Mattathias and his five heroic sons, John, Simon, Judas, Eleazar, and Jonathan, commenced their victorious resistance to the attempt of Antiochus Epiphanes to compel the Jews to exchange their ancestral monothetic faith for that of the Syro-Macedonian oppressors. This struggle is described in the books of the Maccabees, which are included among the books of the Apocrypha. It is also detailed in the Antiquities of Josephus, from Book xii. cap. v. to the end of Book xvi. [See Maccabees, xii. 36.]

The power of the Asmonæan dynasty lasted from the year a. c. 166 to a. c. 37; but the family survived the dynasty. It arose from the pious heroism of the Maccabees. Their rise was not without their descent from the court of foreign sovereignty; they united in their persons the functions of the high-priest, the chief civil magistrate, and the chief commander of the army. Their power was based upon the grateful esteem of the Jewish nation, which was wont to hereditary monarchy into independence. The later Asmonæan monarchs adopted the title of king, but they lost, with the pious virtue

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charter which is dated August 11th, 1244. Its labours are published under the title Transactions of the Royal Asiatic Society of Great Britain and Ireland, of which, up to the present moment, two volumes, and two parts of vol. ii. have appeared. With a view to give a wider circulation to its proceedings, the society has determined in future to publish a Quarterly Journal, besides the Transactions, the first number of which is now in the press. The society possesses a library of Oriental books, which is mainly supported by the liberality of its members and friends. The library contains some most valuable and scarce books and MSS. Among the latter, a collection of Sanscrit MSS., formed by Colonel Tod Rajchman, and presented by him to the society, deserves particular mention. It includes a MS. connected with the Royal Asiatic Society is the Oriental Translation Committee, instituted in 1828, which has for its object 'to superintend the publication of translations of works in the oriental languages, and also occasionally of original texts, free of expense to the authors.' (Regulatiuns, &c. 1832.)

The literary societies of Madras and of Bombay, though originally instituted for more general purposes, deserve to be noticed here, as their labours have in a great degree been directed towards the same objects as the Asiatic Societies of Calcutta, Paris, and London. The Madras Literary Society was founded in 1784, and the Bombay Literary Society in 1805. The former has as its principal object the promotion of education, and the latter, the advancement of literature. Both societies have published a number of useful works. The Madras Literary Society was established by Dr. B. G. Babington; but shortly after its foundation the society was deprived, by death or by removal from India, of several of its most able contributors. A Society or Literary and Musical Society was established at Calcutta in 1807, and a Monthly Magazine was published at London, 1837, 4to. The society has since been connected with that of London, under the denomination of the Madras branch of the Royal Asiatic Society. Of the Transactions of the Literary Society of Bombay three volumes have been published; and the Asmoneus Haamadzwi, a work on the history of the family of Asmonæus, was published in 1829. This society joined the Royal Asiatic Society, and is now designated as the Bombay branch of that institution. At Batavia a society of arts and sciences was formed by the governor, and the transactions of this society were published in Dutch under the title Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen; and a Bi-weekly Journal was also published. The latest that we have seen is the fourteenth, published in 1833.

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of their ancestry, the love of the nation, and subsequently, by family discord, the kingdom itself.

The genealogy of the Aramaean family is as follows:—

<table>
<thead>
<tr>
<th>Mattathias</th>
<th>John</th>
<th>Judas Maccabaeus</th>
<th>Eleazar</th>
<th>Jonathan</th>
</tr>
</thead>
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Judas, Mattathias's daughter, married to Ptolemy, Governor of the Castle of Dæcous.

After the death of Mattathias, Judas, at the head of those Jews who had fled to the wilderness, made a foray (c. 163) against Antiōchus Epiphanes, overcame and killed Apollonius in battle, and thus became chief of his people. The next year he vanquished Lyaias and Gorgias, two other generals of Antiōchus; he then purified the temple and restored the former worship. Antiōchus, hearing of the defeat of his troops, swore that he would destroy the whole nation. As he was hastening to Jerusalem he died miserably, b.c. 164 or 165. Antiōchus Eupator, his son, made peace with the Jews, but the war was renewed. In a battle against him, Eleazar, one of the younger sons of Mattathias, perceiving an elephant armed with royal harness, and supposing that the king was upon it, ran through the enemy's ranks, crept under the elephant, and slew it. The dying elephant fell upon him and crushed him to death. Demetrius Soter having put to death Antiōchus, usurped his kingdom, b.c. 162, and conferred the high-priesthood on Alexicus. In a battle against Bacchides, one of the generals of Demetrius, Judas was killed. [See Judas Maccabaeus.] Jonathan succeeded his brother, and after some years of commotion, was made high-priest b.c. 153.

Jonathan entered into an alliance, b.c. 169, with the usurper, Alexander Balas, who pretended to be the son of Antiōchus Epiphanes, against Demetrius, who soon fell in battle. Demetrius Nicator, the eldest son of Demetrius Soter, became king of Syria by the death of Alexander, b.c. 164. Tyrphon, who wished to give the crown to Antiōchus, the son of Alexander Balas, made an alliance with Jonathan; but wishing to usurp the kingdom, and fearing that Jonathan would not suffer it, he killed him by treachery. [See Synesius Attal.] Synesius, b.c. 164, shook off the yoke of the kings of Syria, and took the city of Gaza and the fortress of Jerusalem. He made an alliance with Antiōchus Sisætes; but it was soon after broken, and Antiōchus sent Cendebeus against him. Simon, now too old to go to war, resigned the command to his sons, by whom Cendebeus was defeated. Ptolemy, the son-in-law of Simon, aspiring to reign in his stead, invited his father and brothers-in-law to a feast, at which both Simon and his sons were assassinated, b.c. 135. [See Simon Mattathias.] John Hycanus, the third son of Simon, not being with him when he was murdered, Ptolemy sent to Gaza, in which place he was, to kill him. John, aware of his design, seized his emmissaries and put them to death. Ptolemy now called Antiōchus Sisætes to his assistance. They besieged Jerusalem, which being reduced to a state of famine, John was obliged to capitulate. John went afterwards with Antiōchus in an expedition against the Parthians; and for his exploits against the Hycanians was summoned Hycanus. [See John Hycanus.]

Antiōchus, the son of Hycanus, became high-priest after the death of his father. Hycanus bequeathed the sovereign authority to his wife, but Antiōchus caused her to be shut up; and, contrary to former custom, he himself chose both the diadem and regal title, b.c. 106. He afterwards undertook an expedition against the Hycanians, whom he be in a great measure subdued, and introduced among them the practice of the Jewish religion. Being attacked by illness, he returned to Jerusalem, leaving his vengeance upon Antigonus to finish the war. The wife of Antiōchus took advantage of the absence of Antigonus to weaken his influence with his brother; and she endeavoured to excite in her husband's mind the belief that Antigonus sought to obtain the royal dignity. Antiōchus, having entered the war to a successful close, returned to celebrate the feast of Tabernacles, when Antiōchus summoned Antigonus to his presence. The approach to the palace was by a subterfuge of some palaces. This Antiōchus placed guards, the orders to despatch Antigonus if he should present himself armed, but to let him pass if unarmed. The wife of Antiōchus, who desired the ruin of Antigonus, privately informed her husband that Antigonus wished to see him in his armour. Antigonus, entertaining no misgivings, came armed, and was murdered on the spot. The remorse of Antiōchus for his brother's murder aggravated his disorder, and he died at the close of the first year of his reign. Three of his brothers whom he had kept in prison were set at liberty on his death. The eldest, Alexander Jannæus, succeeded him in the royal title and office, b.c. 105. [See Alexander Jannæus.] Alexander Jannæus reigned twenty-seven years, and was succeeded by his wife Alexandra, b.c. 79. His son Hycanus became high-priest. Alexandra reigned, nine years. Upon her death, b.c. 70, the government devolved upon Hycanus II, a prince of a weak character and inactive disposition. Antiōchus, dreading lest the influence which the sect of the Pharisees possessed over the mind of Hycanus should impair the royal authority, gained to his interest the commanders of the fortresses, and having caused himself to be proclaimed king, marched to Jerusalem. He was killed by the soldiers in the midst of the ensuing battle, being abandoned by his soldiers, he threw himself upon the mercy of his brothers, who granted him permission to retain the office of high-priest, and allotted him an ample revenue. However, he consented to resign the regal dignity, but after some time, being assisted by Aretas, king of Arabia, he attempted to resume his former rank. Aretas besieged Jerusalem; but Hycanus was induced to yield up the city, having gained to his party Scouras, one of the lieutenants of Pompey. Aretas was obliged to raise the siege and to return to defend his own dominions. Thus commenced the Roman power in Judæa. The authority of Antiōchus had not yet been sanctioned by the Romans; and on the appeal of Hycanus, Pompey, having heard the arguments of both parties, decided in favour of Hycanus, whom he reinstated in the government under Roman protection. Antiōchus Ptolemaeus, the son of Hycanus, was beheaded by the Romans; and the territory of Antiōchus Seleucus was accordingly issued strict orders that nothing having the semblance of attack should be suffered to occur, in order that the Jews might have no pretext for disturbing his preparations. Pompey carried Antiōchus to Rome, and made him appear in the triumphal procession which celebrated, among other victories, the Jewish conquest. Antiōchus found means to escape from Rome, and returning to Judæa, excited fresh commotions. Gabinius, the Roman general, took him prisoner, and condemned him to death a second time to Rome. On the breaking out of war between Pompey and Caesar, the latter sent Antiōchus to Judæa to proclaim peace with that country on the part of Caesar. He was poisoned shortly after his arrival at Jerusalem.

The government of Hycanus was disturbed by continual commotions, which he could not obtain the ability to prevent. Caesar gave him many of the neighbouring towns, and allowed him to rebuild the walls of Jerusalem; but Hycanus derived little advantage from this concession. Herod, Antipater, the Idumean, wretched from all but the name of ruler. Antigonus, the son of Antiōchus, to revenge the death of his father, procured the assistance of the Parthians; and for his expeditions against Hycanus was summoned Hycanus prisoner, and, in order to disable him for exercising the sacerdotal functions, cut off his ears. The king of Parthia treated Hycanus with humanity, and sent him back to Jerusalem; but he was again sent to Antipater, the son of Antipater the Idumean, being informed that Hycanus maintained a correspondence with the chief of the Arabs, caused him to be put to death b.c. 50,
the age of eighty. On the death of Hyrcanus, Antigonus became king; but being soon after besieged by M. Antony, at the expiration of three years from the commencement of his reign, he was put to death by the Romans, n.c. 37, to make way for Herod. Herod had ingratiated himself so much with Julius Caesar, M. Antony, and the Romans in general, that with their assistance he was enabled to supplant the Asmonaeans, and to commence a new dynasty A.D. 37. To confirm his authority, he married Mariamne, granddaughter of Hyrcanus I. and made her brother Aristobulus III. high-priest, reserving to himself the regal power; but finding that Aristobulus retained many partisans, he caused him to be drowned n.c. 35. It is worthy of remark, that the historian Josephus was descended from the Asmonaean family.

Mariamne, who was distinguished by her beauty and talents, was murdered by order of Herod on an unfounded suspicion of conspiracy and adultery. Her sons were also put to death on a charge of rebellious designs. But the Asmonaean family did not end entirely with their power, for we read in the commencement of the auto-biography of Fl. Josephus, "By my mother I am of the royal blood; for the children of Asmonaeanus, from whom that family was derived, had both the office of high-priesthood and the dignity of a king for a long time together. I will accordingly set down my progenitors in order. My grandfather's father was named Simon, with the addition of Psellus: he lived at the same time with that son of Simon the high-priest, who first of all the high-priests was named Hyrcanus. This Simon Psellus had nine sons, of which was Matthias, called Ephialtes: he married the daughter of Jonathan the high-priest, which Jonathan was the first of the sons of Asmonaeanus, who was high-priest, and was the brother of Simon the high-priest also. This Matthias had a son, called Matthias Curitus, who was born in the first year of the government of Hyrcanus; his son's name was Joseph, born in the ninth year of the reign of Alexander; his son Matthias was born in the tenth year of the reign of Archelaus; and I was born to Matthias in the first year of the reign of Caesar Cesar. I have three sons: Hyrcanus, the eldest, was born in the fourth year of the reign of Vespasian, Justin in the seventh, and Agrippa in the ninth. These are the last traces of the Asmonaean family. The best sources of information concerning the Asmonaean dynasty are contained in The Five Books of the Maccabees, with Notes and Illustrations, by Henry Cotton, D. C. L., Archibishop of Casel, Oxford, 1834. Two of these books belong to the Apocrypha, which are frequently annexed to the Old Testament. See Josephus, Antiq. xii. 6—xvi. end.; Comp. ed. Breithaupt, books iii. and iv.; ed. Munster, from the commencement; Franc. Peretz. Bayer, de Numis Hebraeo-Samaritana, Valentin, 1781, p. 181, fol.; Franc. Perezi. Bayer, Vindiciae Numorum Hebraeo-Samaritanae, 1790, fol.; Eschleusen Spainsheimi Dissertations de Prestandia et Urne Numismatist, London, 1704, vol. i. p. 61, &c.; Doctrina Numorum Veterum conservata a Josepho Eccehi, pars i., vol. iii. pp. 441—481; Annales Regum et Rerum Syriac Numism Vetebus illustrati ab Erasmo Froelich, Prolegomena, pp. 74—91; Description de Medailles Antiques, par T. E. Monnet. tome v., pp. 555—564.

In the British Museum there is a number of Asmonaean coins, from which the following drawings are taken.

[Silver. British Museum.]

[Bronze. British Museum.]

The legend of the larger coin, which is of silver, are, if expressed in the usual square character, מִשְׁלוֹם—Shimelot; הָעֵצָבִים אֵלֶּה—the liberty of Jerusalem.

On the smaller coin, which is of brass, we read—יִשָּׁרָיָה—liberty of Zion; יִשָּׁרָיָה = second year.

ASP (Aṣpeta Haje, Dausdin), a species of noxious serpent, celebrated as the instrument of death which Cleopatra is said to have selected to terminate at once her amours and her existence. The asp (Aaron) is often mentioned both by Greeks and Roman writers; and from the discrepancies which are observable in the accounts given by different authors, it seems probable that two or three different species of poisonous serpents were known to the ancients under this common name. From various circumstances, however, and particularly from the description of Pliny (Nat. Hist. lib. viii. cap. 35.), it is evident that the most common and celebrated is the species to which the modern Arabs give the name of El Haje, or Haje Nasheer. This animal measures from three to five feet in length: it is of a dark green colour, marked obliquely with bands of brown; the scales of the neck, back, and upper surface of the tail are slightly ciliated, and the tail is about one-fourth part the length of the whole body. The haje is closely allied to the cobra capello, or spectated snake of India, the chief apparent difference being its want of the singular yellow mark on the back of the neck, from which the latter species derives its name. In other respects these two serpents are nearly of the same size; they are equally venomous, and both have the power of swelling out the neck when irritated, and raising themselves upright upon their tails to dart by a single bound upon their enemies.

These habits render it probable that the puff-adder of the Cape of Good Hope, so called from its custom of puffing out or distending the neck and throat when disturbed or provoked, is no other than the haje or asp of Egypt; or at least a very closely allied species; but the two animals have never been properly compared, and till this is done the question of their specific difference or identity must remain undetermined.

The poison of the asp is of the most deadly nature. Pliny, in the passage above referred to, gives the following account of this celebrated serpent:—"The neck of the asp is capable of distension, and the only remedy against its bite is the immediate amputation of the wounded part. This animal, otherwise so much to be dreaded, has a sentiment, or rather a kind of affection, truly wonderful. It never lives alone, the male and female being constantly found together, and if one happens to be killed, the other seeks with the utmost fury to avenge its death. It knows and selects the destroyer from among crowds; it follows him to great distances, surmounts every obstacle, and can only be deprived of its revenge by the most speedy flight, or the intervention of some rapid river. It is difficult to say whether Nature has been more prodigal of evils or remedies. For instance, she has
bested upon this reptile, so terrible from the deadly effects of its poison; its indifferent vision, its eyes being placed on the sides of the head so as to prevent it from seeing straight before it, that it is frequently trodden under foot before it is aware of its danger. Forskal, a Swedish naturalist, who has written on the animals of Egypt, informs us that the jugglers of Grand Cairo have the art of taunting the baxe, as those of India do the cobra capello, and teaching it to dance for the amusement of the populace; taking care, however, to deprive it of its poison fangs, though even then it is capable when heated of the habit which this serpent has of erecting itself when approached, made the ancient Egyptians imagine that it guarded the places which it inhabited. They made it the emblem of the divinity whom they supposed to protect the world; and accordingly it is represented on their temples sculptured on each side of a globe.

ASPA’RAGUS. [See ASPHODEL.] ASPARAGUS, a genus of monocotyledonous plants belonging to the natural order asphodelaceae. It is easily recognized by its very narrow leaves, which drop off the branching stem as soon as they begin to wither, by its small greenish-white or yellowish regularly-formed flowers, and by its seeds being enclosed in a pulp fruit.

Unlike the principal part of monocotyledonous plants, and especially of those which belong to asphodelaceae, the stems of the different species of asparagus branch like those of dicotyledons become hard and woody; sometimes them twine and scramble over other shrubs, and certain species even hook themselves to their supporters by means of their stiff and spiny branches which are stunted and distorted by they.

These species are natives of the temperate and tropical regions of the old world, but they are not found wild in either North or South America. The most remarkable one is the common cultivated asparagus which is found in sandy and maritime places in most parts of the middle and south of Europe, the Crimea, and also of Siberia and Japan. It is too well-known a plant to require description, and we shall therefore occupy ourselves exclusively with the method of cultivating and using the heads.

An asparagus plant consists of a cluster of feathery roots connected by the stem, where a quantity of buds are formed, from which branches are yearly emitted. The heads are thick branches in a young and tender state; their quality depends wholly upon their size and rapid growth. These are the simplest considerations that are involved in the cultivation of asparagus; the question is how the largest how and the most rapid growth and become attained.

One of the natural situations in which a asparagus plant is when wild, it will be obvious that it should have a light soil which offers little resistance either to the emission of its roots or the protrusion of its stems; the soil should also be rich in nitrogen, and both heavy and water retentive. Accordingly gardeners take care that all stiff loam, or stones, or solid masses of earth are separated from the soil of their asparagus beds, and that they are completely drained by having trenches 2 feet deep cut between the beds.

To give vigour to the shoots, manure is added as great a quantity as the cultivator can afford to apply it; when the seed is sown, or the young plants finally placed in the situation in which they are to produce a crop, an abundant supply of decayed manure, or of bones, or of parings of horses' hoofs, is buried below them; and they are also annually topped with finely pulverized manure, when the beds are arranged in the winter. Attention being paid to these circumstances is one of the things all vegetation needs to cultivate; but no art or skill will produce precisely the soil which is most favourable for its growth. This exists naturally in some places in the finest of all possible states, and it is there only that it is to be obtained in its greatest perfection; as in the rich alluvial soil of Battersea, Mortlake, and other places round London: in some of these villages it is produced of such extraordinary size that 110 heads in a state fit for the kitchen have been known to weigh 16 pounds. There is one, however, who thinks that this gigantic asparagus is a peculiar variety; but it is ascertained that, on being removed into less favourable soils, it gradually loses its vigour and degenerates into the common kind.

The most convenient breadth for asparagus beds has been found by experience to be 4½ feet, and the least depth for the intermediate trenches 2 feet. The beds are either planted with seedlings one year or two years old, buried six inches beneath the surface, and standing about a foot apart, or sown at once and the seedlings afterwards thinned to such a distance; the latter method is the most simple and the most effectual.

In this country it is frequently forced, but seldom with much success; the heads being usually small and stringy, without sufficient succulence. For this purpose an asparagus bed is dug up, and the plants transferred to a place heated with dung, where they come up in a fortnight or three weeks; but the heads are always much injured by the operation of transplanting, the little success that attends this method is easily accounted for. In many parts of the north of Europe, especially about Riga, a far better method is adopted. The forcing takes place in the asparagus beds themselves without disturbing the roots; the trenches are filled with hot dung, and the beds are covered with the same material about six inches deep; if the weather is very severe, the beds are also covered with frames, but this is rarely necessary in England. Treated thus, asparagus is as fine as if it waited till May to make its appearance. But when this method is practised the heads cannot be cut down at the natural time in the same season. In order to recover from the effect of forcing, they must be allowed to grow as freely as possible during all the succeeding summer, so that they may form a new supply of food for the support of the heads the succeeding spring. Where it is wished to have exceedingly large heads of forced asparagus, pieces of bamboo, or any other hollow tubes, should be put over the shoots when they first make their appearance. The latter will thus acquire a length of as much as eighteen inches without losing their tenderness.

ASPA’SIA. At the select companion and adviser of Pericles, and the associate, and, according to Plato, the instructress, of Socrates, this person claims a degree of notice to which she would perhaps not otherwise be entitled.

Asparagus was a native of Miletus, and the daughter of Arixocus. Of her early life we find no notice. She gained entire possession of the affections of Pericles, who divorced his first wife with her own consent, according to Plutarch, in order to marry Aspasia. We are told little of her beauty; much of her mental powers and cultivation. Plutarch says that Pericles resorted to her because she was a wise woman, and had great understanding in matters of government; and that, in spite of her mode of life, the Athenians who frequented her society would carry their wives with them to hear her talk. Socrates sometimes visited her in company with his friends. (See Xen Mem. II. vi. 36; and the Menexenus of Plato.) The Menexenus is written to introduce funeral oration ascribed to Aspasia, though the conclusion of the dialogue seems to intimate that the author did not mean that ascription to be implicitly believed. Socrates, however, as one of the speakers in the dialogue, gives Aspasia the high praise of 'having made men of the orators, and one eminent over all the Greeks, Pericles, the son of Xanthippus.'

ACAPDASIA

On this and similar authority we learn that Pericles was indebted to Aspasia for much of that mental cultivation in which he excelled all men of his age. Her moral influence, if the scandalous chronicles of antiquity be true, was less beneficial. She is accused of having led the Ahe-
nians, by her influence with Pericles, into two wars. One of those was the Samian war, n.c. 440; an interference in behalf of Miletus, the birth-place of Aspasia, to secure to it the possession of Priene, contested by Samos. Thucy-
dides, in his history, Preface p. 115, gives no hint that the Athenian leader was guided by any such corrupt in-
fluence: he merely says that the Milesians, being worsted, came to Athens, and accused the Samians; their com-
plaints being seconded by a strong desire on the part of the Athenians to render the Samian government more democ-
ratical. Aristophanes charges Pericles with having in-
volved the country in a quarrel with Megara, by a non-
intervention in the quarrel between the townsmen of Megara and of two young attendants upon Aspasia. (See
Acharn, 523, ed. Kust.) Other comic writers, among whom Plutarch names Cratinus, were not slow in taking ad-
vantage of her real or supposed influence, and called her the new Olympias, Deliane, Juno, with epithets of no civil
nature appertaining thereto. Hermippos, the comedian, pro-
secuted her on the more grave charge of not believing in the gods, and besides, of being instrumental in debauching free
women to the dishonour of Pericles. (See also Plutarch’s
Pericles, c. 24.) We are told on the same authority
(that of Plutarch), that nothing but the personal exert-
ions, the tears, and entreaties of Pericles procured her acquittal. Her enemies, however, unfavourably like, the As-

cias and Aspasia, depend on the authority of late writers,
as Plutarch and Athenaeus: contemporary writers contain
no hint of them, with the exception of the comic writers, whose tragi-comical, scenes, and the adventures after the death of her lover and patron, except that she transferred her affections to Lysicrates, a man of low

origin and vulgarity mind, who, however, by her instruc-
tions, according to Plutarch, became after the death of Pericles for a time the господин в семи венах. (See
Plutarch’s Pericles, c. 24, 30, 32; and Bayle.)

ASPECT, an astronomical term, now entirely disused,

plied to the various positions of the planets with respect to

one another, as seen from the earth; the position of the sun,

junction and opposition are the only two out of five names

of aspects which have been retained; the remainder being
called sextile, quarte, and trine. At conjunction two

planets are said to have the same longitude; at opposition:

the aspect is sextile; when ninety, quarte; when 120,

trine; when 180 degrees apart, or opposite, they are in

opposition. The following are the characters which are used.

Name of Aspect. Character. Diff. of Longitude.

Conjunction d

Sextile 60°

Quarte 90°

Trine 120°

Opposition 180°

ASPEN. [See Populus.]

ASPEN, or ASPRE, a small Turkish coin, and money

of account. As a coin it is worth something more than an

English halfpenny; as a coin, it is rather a smaller

aspect of the Prince’s name under which it was struck. Three

aspects make a medina. The pay of the Janissaries, when

they existed, was from two to twelve aspers per diem.

Kelly, in his Universal Cambist, informs us, that at

Alep, and the seat of Scandaron, at Cairo, and at

Patras in the Morea, accounts are kept in piastras of 80

aspers: at Algiers, in saimes or doubles of 50 aspers: at

Constantinople, in piastres, sometimes divided into 80 and

some other parts of 120; at Rome, in zecche, 120, 150, 200,

cononias, in piastras of 120 aspers: at Tripoli, in piastras of 52

aspers: at Smyrna, the general division of the piastre is

into aspers, the number of which varies; thus the English

and Swedes divide the piastre into 80 aspers; the Dutch,

French, and Venetians, into 100 aspers; and the Turks,

Greeks, Persians, and Armenians, into 120 aspers. (See the

Univ. Cambist, vol. i. pp. 4, 5, 72, 276, 307, 317.)

ASPHEMUS. (in Zoology), a genus of the family

Tubicolidae (Lamarck), furnished with a bivalve shell

incrusted, as it were, in a tubular testaceous sheath. This

tubular sheath gradually lessens in diameter to the ap-

zure which is farthest from the incorporate side, and

ends, and the aperture is dilated into a conical exit,

with a central fissure, and perforated with minute but

raised holes. The disk is bordered by a tubular frill. There

are but few species; and of these, Aspergilium Cuneum, known

to the native tribes in the Limpura kingdom, and ASPERM, GREAT, a village in the province of Lower

Austria, situated on an arm of the Danube, nearly opposite

to Vienna, but a little to the east of it, and containing about

900 inhabitants. It is celebrated for one of the severest

 contests which occurred between France and Austria, in

the short, though, for the latter of those powers, disastrous

campaign of 1809. On the 12th of May in that year, Na-

poleon had made himself master of the Austrian capital,

and the Archduke Charles had, subsequently to his repulse

at Eckmühl, retired again to this place. The former of these

Peter’s reached the city, close upon Vienna. Napoleon was not long in

possessing himself of two islands in that river, by which he

he threw his forces across it; and, on the 21st of May, of-

tened in the adverse battle on the possible events that

at the villages of Aserg, Eisingen, and Engersdorf. In this

position he was attacked with so much ardour by the

Archduke’s forces, that both Asperm and Engersdorf were

carried before nightfall. Asperm itself, which has since

been rebuilt, was converted into a house of ruin, after en-

during thirteen successive assaults. Easinglen and the

entrenched island of Lobau however remained in the hands

of the French; but the Archduke, having employed the next

night in deciding the channel of communication between

the island and the left bank of the river, renewed his attack

upon Easinglen the ensuing morning, and ultimately drove

General Massena and his broken troops back upon the

island. The French seem to have been more severely

contested may be inferred from the loss of the French,

which amounted to 30,000, or, according to the Austrian

accounts, 41,000 men, in killed and wounded; not more

between 8000 and 9000 and those for which the

sublime, and many other generals, were wounded. Never was victory, however,

by the sacrifice at which it was purchased and the excess of

confidence which it created, more fatal to the fortunes of the

French, than during these two days’ struggle; and Massena, Besaides, and, many

other generals, were wounded. Never was victory, however,

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French, than during these two days’ struggle; and Massena, Besaides, and, many

other generals, were wounded.

ASPHALTITDES, LACUS. [See Dead Sea.]

ASPHALTUM, (a Greek word, ἀσφαλτος, of unknown

etymology,) formerly known by the name of pitch, or

compact mineral pitch, is one of the varieties of bitumen,

arising from the decomposition of vegetable matter. (See

Naphtha.) It occurs massive, of a dark brown or black

colour, with a very tough, fibrous, and brittle fracture.

It is opaque, and exceedingly brittle at a low temperature,

but softens and fuses by the application of heat; in density

it varies from that of water to 1-6. It may be recognized

by the following characters: it is insoluble in alcohol, but

soluble in many organic solvents and in chloroform; it

forms a good and useful varnish; its combustion is

rapid and brilliant, with the production of the bituminous

doour. It is found in most countries, but most abundantly on

the shores, or floating on the surface, of the Dead Sea; at Elit,

above Babylon, on the Euphrates; near the Tigris: in Tri-

nad in the West Indies it fills a basin of three miles in

circumference and of unknown depth. There is a pit

spring in Zante, which we know to have been at work for

above 3000 years. (See Herod. iv. 193.) It is also found

in limestone at Bleiberg in Carnithia; in beds of sandstone in

Albania, and in veins in the Hartz in Germany; in Derby-

shire, Shropshire, and several other counties. The prin-

cipal colouring matter of the dark indurated mili, or shale,

which is found in coal districts.

ASPODELE, or the sawdust tribe, are monocer-

otyloidean plants, which form a very natural assemblage,

for the most part easily recognized, although in certain

species and genera it approaches other orders so closely

as to be distinguished only with great difficulty. They

all have regular sawdust, three of nearly equal size and colour, six (very seldom three)

stamens, and a superior three-celled ovary, with only one

style. Their fruit is either dry or succulent; and their

seeds have a brittle coat.

Aphodisius, known from juncum, or the rush tribe, by

their larger and more coloured flowers, and by the hardness
of the root's seeds, from Ely truncatus, or the lily tribe, by the smallness of their flowers, and the latter character; and from melanthus, or the olecuhum tribe, by their single style, and by their anthers being turned towards the ovary. They may be formed into two subdivisions.

The first, or the *clavulose* subdivision, in which there is no true stem, and which consists entirely of bulbous species; the roots being emitted and persisting annually. To this belong the onion, garlic, and their allies, together with the hyacinth, squill, and star of Bethlehelm (*ornithogalum*). A great quantity of species are favourites with the horticulturist, on account of their early appearance with the horticulturist, and their easy cultivation.

The second subdivision, consisting of the true asphodels and those which resemble them, have no bulbs, but in their head clusters of flaky roots such as we find in the asparagus, which belongs to this subdivision; the stems of these are frequently woody, but in that case they are branched; *dracea*, or the gum-dragon tree, is a most remarkable instance of this, it having almost the appearance of a dicotyledon when deprived of foliage. This subdivision also contains aloes, with their thick flaky leaves and forked stems.

**Asphodelus**, the genus from which the foregoing natural order takes its name, comprehends some handsome hardy perennial plants, with flaky finger-like roots, and upright undivided annual stems covered with long leaves; they are among the most highly developed of the monocotyledonous plants of northern countries. The most remarkable species are the following: A. luteus, or the common yellow asphodel, is a beautiful perennial, very often seen in cottage-gardens, or on the outskirts of shrubberies. It grows wild in Barbary, Sicily, Dalmatia, the Peloponnesus, and even spreads into the Crimea. Its stems are from three to four feet high, not branched, and covered all over with long narrow bluish-green leaves, which have very broad, sheathing bases. The flowers are handsome, deep yellow, with a green streak on the outside of each petal. The fruit consists of red pulpy berries.

Very nearly related to this are, *A. capillaris*, which differs chiefly in its very narrow leaves, shorter bracts, and extremely narrow divisions of the flower; and *A. Sibiricus*, figured in the *Botanical Register*, plate 1507; which is principally known by its dwarfer stature, earlier and paler flowers, more glaucous leaves, and shorter bracts.

*A. albica*, or the white asphodel, found all over the southern provinces of Europe and the basin of the Mediterranean Sea, is as frequently seen as the first, and in similar situations: its flowers are white with a reddish streak on the outside of each petal, and are disposed in branched clusters.

*A. ramosa*, or many garden, seems merely a branched state of this species; and several other reputed species with white flowers are also, in all probability, not distinct.

**ASPHYXIA**, a Greek word (ασφυξία) which signifies a cessation of respiration, originally applied to the state of disease in which there was a suspension or loss of the heart's action, and a consequent failure of the pulse; but the term is now used to denote a suspension or loss of the power of respiration. In the state of death the respiratory actions are either temporarily suspended, or have wholly ceased; a state necessarily inducing such a change in the nature of the blood as is incompatible with the continuance of life. The blood which circulates in the two great systems of blood-vessels, veins, and arteries, is essentially different [see BLOOD]; that in the veins is incapable of supporting life; that in the arteries is the proper nutrient and exsistent of the system. The object of aspirating from the dissected venous trunk is that the blood returned from the system to the right side of the heart is venous; when it has circulated through the lungs, and thereby been brought into contact with atmospheric air, it is changed into arterial blood. Of all the conditions necessary to the action of vital organs, that of receiving a due supply of arterial blood is the most indispensable. If a ligature be placed around the trachea (windpipe) of an animal, so as completely to prevent the access of air to the lung, and if at the same time the eye be opened, 1807; the carotid arteries which springs from the arch of the aorta (see *Aorta*), and which passing along the neck to the head, is the main channel through which the brain receives its supply of arterial blood, it is found that in a definite time the blood flows in this artery has ceased to flow, and has become venous. Taking the average of a great number of experiments performed on dogs for the express purpose of ascertaining this fact, it is found that in about three-quarters of a minute after the complete suspension of air from the lung, the blood in the carotid artery begins to lose its vermilion colour. After a minute and a quarter, it has become obviously dark.

In the space of a minute and a half, no difference whatever can be perceived between the blood that has reached this artery, and ordinary venous blood: in this space of time, therefore, the system of an animal from whose lung air is excluded is brought completely under the influence of venous blood.

While the blood is thus changing from arterial to venous, the function of the brain is greatly affected. Sensibility diminishes as the blood darkens, and when it has become quite dark the power of sensation is wholly abolished, and the animal is placed in a state of prostration.

The influence of the circulation of venous blood upon the muscular system is no less powerful than that upon the nervous, for the muscle can no more perform its function without the stimulus of arterial blood than the brain.

When, in the case of a horse, the circulation of venous blood is sent out to the system, the heart is always the first muscle that feels the effect of this abstraction of its accustomed stimulus; because venous instead of arterial blood is instantly brought into direct contact with the sensitive surface of its left cavities [see *Heart*], and because venous instead of arterial blood is sent by its nutrient arteries (the coronary, which are the first branches given off by the aorta) into its very substance; and this blood, as has been already observed, is incapable of affording the requisite nourishment and excitement. Accordingly, the action of the heart is always greatly affected from the very first moment that an animal is brought under this condition. At first its action is quickened, sometimes rising to its natural standard of rapidity and strength; but what it then gains in velocity it loses in strength, and in all cases within three minutes after the complete exclusion of the air from its lung, it sinks to twenty-five, and it often falls still lower. Immediately before death it invariably becomes very slow and feeble, sometimes rising to its natural standard, but what it then gains in velocity it loses in strength, and in all cases within three minutes after the complete exclusion of the air from its lung, the action of the heart has become feeble; this feebleness gradually but rapidly increases, until the whole of the heart it is said that the action is at all palpable by the finger. But though the heart be the first to feel the effect of the abstraction from the system of its
usual stimulus, yet the blood which is transmitted to all the other muscles of the body is alike incapable of exciting them to contraction: the muscles of respiration suffer with the rest, so that the respiratory movements, that is, the alternate enlargement and diminution of the cavity of the chest, indispensable to the entrance and exit of fresh currents of air, cease. In this manner are abolished, though not quite simultaneously, yet in rapid succession, the functions of the respiratory system; that is, the alternation of a rich supply of blood to the lungs, and a poor circulation round the system. The circulation fails and the pulse sinks, the muscles termed sphincters, that is, muscles placed at the mouths of certain cavities in order to close their passage, that their contents may not escape; they are at first relaxed; the rectum and the urinary bladder evacuate their contents; often violent convulsions now come on, and immediately before the extinction of life the faces and urines are expelled with great force and violence.

The phenomena attendant on the state of asphyxia, and which are characteristic of it, are now sufficiently manifest. It is impossible to raise the thorax so as to draw in air, that is to inspire; nevertheless, violent though vain efforts are made to accomplish this object; but although no air can be introduced into the lungs, yet a small portion can be expelled from it, so that the lung is ultimately brought to the extreme state of expiration. Complete exclusion of the air is rapidly followed by the exhaustion of the pulmonary function, by the diminution and the ultimate cessation of the heart's action, together with the diminution and ultimate cessation of the respiratory movements; and when these changes have terminated in death, the lung is found to have a small air space, the expiration of the countenance is peculiar; the face is swollen; it is either of a reddish violet hue or of a livid colour, and the eyes are clear, bright, and preternaturally prominent. Stinkespeare's description of this state is physiologically correct:

"But see! his face is black and full of blood; his eyes shut like a stranger; his hair appear'd; his nostrils stretch'd with struggling; his body was white with cold; and angry for life, and was by strength subdued."

As the animal heat is longer retained than usual in death from other causes, so the coming on of the stiffness consequent on death is longer protracted; but when it has once come on, it is retained for a proportionately longer period.

The morbid appearances in the internal organs observable on dissection are, in the brain, turgescence of the blood-vessels, especially of the veins, which are gorged with blood; the blood itself is preternaturally fluid and of an unusually dark colour. No diseased appearance is commonly found in the cavities of the brain, nor is its substance materially injured by the passage of each class, and the general system requires them. In the pulmonary organs, the mucus or lining membrane of the larynx, trachea, and bronchi, are unusually red; the bronchial divisions are of a violet or reddish-brown tint; the lungs are of a blackish-brown colour, and when cut into, large drops of a clear and transparent fluid exude from them. In the organs of circulation, the heart is the organ chiefly affected. Its veins are gorged with dark blood; dark-coloured blood is found both in its right and in its left cavities, but it is invariably accumulated in a larger proportion in its right than in its left cavities; generally there is at least one-third more in the right than in the left. In the abdominal organs, the liver, the spleen, and the kidneys, are gorged with dark and fluid blood. Thus the blood in all the organs of the system is always unnaturally fluid in consistence and dark in colour.

Causes. From what has been stated it is obvious that whatever is capable of preventing the admission of air to the lungs, or of arresting the chemical action of the air upon the blood, is capable of producing the state of asphyxia.

1. Various circumstances are capable of acting in the first mode. 1. Whatever affords a mechanical obstruction to the action of the air in the lungs, or resists the admission of air upon the chest. 2. Whatever affords a mechanical obstruction to the duo expansion of the lungs, while the respiratory muscles still act with the requisite energy, as the accumula-
tion of a fluid in the lower part of the chest, or the diminution of the cavity of the chest by the inwards and upwards, it will be found to terminate in the Hebrew cheth.

[See ASHPACH, pp. 379, 380.] In the comparison of several languages, it is important to bear in mind—first, that the aspirated letters are often convertible with another;
and secondly, that they are severally interchangeable with the mediaeval and tenures of the same organ. Thus, 1st, ch of the Greek language often corresponds to h in the Latin: chem (χειμ, χευματος) Gr., hem-ς Lat., winter; chan-Gr., humi Lat., on-the-ground; chori-chattus) Gr., fora Lat., a sedentary.

2. In Greek corresponds to S in Latin, hem-ς Gr., septem Lat., seven; her Gr., sex Lat., six; hyper Gr., super Lat., above, (upper). 3. th in ordinary Greek to ph or f in the iotic dialect and Latin, pher Gr., fora Lat., a sedentary: thib ord. Gr., phib in Homer, press; thura, a door, fora-s Lat., out of doors; tharas (or thrasus) Gr., forte Lat., bold; thee Gr., fte Lat., bialc. 4. th into s, as sica, god, in the roman dialect, instead of these. 5. th in ordinary Greek to ch in other dialects: ornith ordinary Greek, ornich Doric, a bird. Hence in the same language icht (d-μα) and icht (χι-νος) enter into the two forms which signify a step; ech and ech into the two forms of the verb signifying to go, [χι-βω, ι-βω. Hence too the different forms of the Greek and Latin names for Carthage, Carthagen-Gr., Carthag-̂on Lat., in which the second interchange of d and g compensates for the inverse change of the aspirates ch and th. 6. f in Latin corresponds to f in Spanish, faba Lat., haba Sp., a bean; fabula-ri Lat., habla-r Sp., to talk; for-er Lat., hac-er Sp., to do; fost (fatum) Lat., haco Sp., fate; formoso (formosus) Lat., hermoso Sp., beautiful. For the relation of se and s, see Or. \n
Di-

GAMMA.

Secondly, the several aspires are, as above stated, interchangeable with the mediaeval and tenures of the same organ, and they are also found by themselves in every language. The most deserving of attention are perhaps those which exist between the English and German:

in, in German, corresponds to ch, ch, in English. final g, English, t, y, ch, final ch, English, silent gh, ch, k. final t, English, th, d. initial d, English, th in think. initial s, English, t. initial x, English, s. final s, English, th. final b, English, th.

pf, English, p.

final f, English, t.

initial v, English, v.

as Grimm's Dialekte Grammatik, or Becker's German Grammar, English edit. (p. 26).

ASPOSE, a small island, situated in the Gulf of Bothnia, belonging to the Russian province of Finland. It forms a promontory about a hundred Finns. 60° 17' N. lat. 26° 77' E. (Klini.)

ASPERDO, in zoology, a genus of abdominal malaco-

cystic parasites, characterised by the horizontal flatness of the head, and the enlargement of the anterior part of the trunk. They are without the usual ungual projections of the shoulder. They are further distinguished from the Silures of Linnaeus (from whose extensive genus, indeed, they were originally separated by that great naturalist himself) by the proportional length of the body, and the eyes placed in the upper surface of the head, and the intermaxillary bones concealed beneath the ethmoid, directed backwards, and furnished with teeth only along their posterior margin. Asperdo is, no doubt, the common horse, not being cartilaginous, which have not mov-

able opercula, the bones of which these organs are composed being soldered on either side to the tympanum and pre-

operculum. The opening of the gills is consequently formed by a single slit in the skin immediately behind the posterior side of the head; and their membrane is composed of six branchiostegous rays. The lower jaw is transverse, and the upper projects considerably beyond it, and forms a strongly attenuated muzzle. There is but a small dorsal fin, which is of small extent, and situated on the fore-part of the body; the anal fin, on the contrary, is very large, and occupies the entire length of the tail. This genus contains but a single species, the principal one, the Asperdo Linnaeus, inhabits the rivers and lakes of North America.

ASPROTOMATO. [See Acheleur.]

ASS, a well-known and useful domestic animal, whose good qualities are too frequently undervalued, from being contrasted with those of the horse, without considering the different nature of the treatment which these two quadruped)r receive—the care and attention bestowed upon deve-

loping the form and cultivating the spirit of the one, and the neglect and ill-treatment of the other. This species is little subjected. Buffon has well observed, that the ass is despised and neglected not only because we possess a more noble and powerful animal in the horse; and that, if the horse were unknown, the ass cannot be considered as a useful being, or one subject to his now neglected and despised rival, would have increased the size and de-

developed the mental qualities of the ass to an extent which it would be difficult to anticipate, but which eastern travellers, who have observed the ass in the animal kingdom, and among nations by whom they are equally valued, and the good qualities of each justly appreciated, assure us to be the fact. Indeed, the character and habits of these two quadrupeds are taken to cultivate the breed by crossing the finest specimens; even the wild ass is procured for this purpose, the pedigrees of the different races are carefully recorded, and the size, strength, and symmetry of the ass so much improved, that he is rendered equal to the horse for most purposes. When kept in some countries, the ass is used to pull the heavy loads in the world; their coat is smooth and clean; they carry the head elevated, and have fine and well-

formed legs, which they throw out gracefully in walking or galloping. They are used only for the saddle, and are im-

portod in vast numbers into Persia, where they are fre-

quently sold for four hundred livres; and being taught a kind of easy, ambling pace, are useful to the scoundrels, and used only by the rich and luxurious nobles.

The ass is, properly speaking, a mountain animal; his hoofs are long, and furnished with extremely sharp rims, leaving a hollow in the centre, by which means it is enabled to tread with safety on the loose and precipitous sides of hills and precipices. The hoof of the horse, on the contrary, is round and nearly flat underneath, and we accordingly find that he is most serviceable in level coun-

tries; and it is in this respect that the ass is altogether unfitted for crossing rocky and steep mountains. As, however, the more diminutive size of the ass rendered him comparatively less important as a beast of burdens, the ingenuity of mankind early devised a means of remedying this defect, by crossing the horse and ass, and thus procuring an intermediate animal, uniting the size and strength of the one with the patience, intelligence, and sure-

footedness of the other. The ass is, indeed, a very ancient beast; and if we may believe an extract from the works of Magno, a Carthaginian writer on Husbandry, preserved by Columbus, it would seem that instances were not rare in Northern Africa of this ani-

mal being fruitful, and continuing its species: a pheno-

menon, however, which was as unknown among the Greeks and Romans as it is at the present day.

If any reliance can be placed upon negative evidence de-

duced from the writings of Moses, it would appear that the ass was a common domestic animal among the nations of Western Asia, many ages before the horse was reduced to subjection. The earliest express mention which the learned historians make of this animal occurs on the deluge; on an occasion of Abraham's visit to Egypt, when, to use the words of Scripture, Pharaoh entreated him well for Sarah's sake; and he had sheep, and oxen, and he-asses, and maid-servants, and he-asses, and camels. No allusion is here made to the horse; and it is not pro-

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bable that Pharaoh would have neglected to include this noble and useful animal among the other rich gifts which he had bestowed on his guests. A vineyard, which he had possessed it in a state, of domestication; nor is it likely, if he had, that the sacred historian, so minute in other particulars, would have passed over this in silence. The conclusion therefore ought to appear to be, that in the time of Abraham the horse was not domesticated in Egypt.

It appears further, from the catalogue of Abimelech's presents to Abraham, from the enumeration of Abraham's effects on the spot, and from the catalogues of Jacob's riches, of his present to his brother Esau, and of the spoils taken from the city of Sechem, that the horse was unknown to the Syrian nations for many ages after the time of Abraham; but on all these occasions the ass is invi-

rable. It is also one of the most important combatants by which constituted the wealth of the patriarchs. Though thus early domesticated in the East, it was long before the ass was introduced among the inhabitants of Western Europe. Aristotle assures us that in his time there were no asses in Pontus, Scythia, or in the country of the Celts, that is in modern Germany and France; and we know that even in the time of Elizabeth this animal was extremely rare in England.

The wild ass, called Koulan by the Persians, is still common in many parts of central Asia. It stands much higher on its limbs than the common ass, its legs are longer and more powerful, it is a more abject, and a more symmetrical animal. The mane is composed of short erect hair, of a dusky colour, and rather a woolly texture; the colour of the body is a uniform silvery grey, with a broad coffee-

coloured stripe extending down the back, from the mane to the root of the tail. It is very hard to keep, and was generally kept as in the domestic variety. The Koulan inhabits the parts of Central Asia, from the 48° of North latitude to the northern confines of India. They migrate from north to south, and back, on the crouch of Ily, in summer. In summer they are commonly found about lake Aral, but in autumn they collect in vast troops under the conduct of a regular leader, and proceed towards the south, arriving at Tuch and Guzerat in October. In November, and returning northward again in the middle of spring. The Persians and Tartars hold the flesh of the Koulan in high esteem, and hunt it in preference to all other descriptions of game. Olearius assures us that he saw no few thousand Koulans slain in one day by the Schah of Persia and his court, the bodies of which were sent to the royal kitchens at Isphahan; and we know from Martial, that the epics of Rome held the flesh of the Ass, or wild ass, in the same estimation as we do venison.

From a passage in Pliny (ib. viii. c. 44) it would appear that the Ass, which inhabited Africa, and that the most delicate and best flavoured lalassines, or fat foals, were brought from that continent to the Roman markets. Leo Africanus repeats the same story of wild asses being found in Africa, but no traveller has since met with them, and, as far as we at present know, the species is confined to Asia. It has even retired from Syria and Asia Minor, where it was formerly found. [See Horse.]

ASSAFÔTIDÂ (In Botany. [See FURUL.] ASSAFÔTIDÂ (Febul.) ASSAFÔTIDÂ is a gum-resin, obtained from the roots of the Fehul asafotida, a perennial plant growing in Persia, in Khurasan, and in the province of Lar. In its origin bestowed upon Abraham, if the vineyards themselves by exposure to the air it becomes a clear brown colour, sometimes verging to red or violet, and of a waxy appearance. At the ordinary temperature of the air it is of the consistency of wax, slightly viscous or glutinous, and becoming soft with the heat of the hand, by which the grains are united into smaller or larger lumps, which, when broken, contain many almond-like pieces. The portions with the external description contain the best kind of asafotida, which is called asafeotida in grains.

The inferior sort is dark-brown, of a dull, fatty appearance, viscid, and greasy, containing portions of the stalks, and other impurities: it is called asafeotida in masses.

Segara, the authority for this unknown, is by many supposed to be a kind of asafeotida.

The smell of asafotida is penetrating, very disagreeable, and lasts some time. The taste is bitter, unpleasantly aro-
matic of an alllicious or garlic-like character. Its chief component parts are volatile oil, resin, and gum; and it is sometimes employed as a substitute for vinegar in vinegars, and for sal volatile in vinegar. It is sold in the bazaars of Persia in small packets with water, it forms an emulsion, from which the resin is gradually precipitated. Asafotida can only be prepared at the temperature of freezing (32° of Fahrenheit); but even after being powdered, though kept in a cool place, it is apt again to run into masses.

An artificial asafotida is sometimes formed of resin and garlice juice; but this has only a weak smell, and is more perfectly soluble than genuine. Asafotida acts on the human system as a stimulant, more especially of the nerves of the chest and abdomen. It also influences, like all gum-resins, the vessels distributed on the lower portion of the abdomen, or the pelvis. Though not so heating as some of the species, it might, if not expected, it not only directs the blood more powerfully to these organs, but ensures its uniform supply. It is also a valuable antispasmodic, in irregular action of the muscles either of the respiratory or digestive organs.

Its power of at once rousing the nervous system and promoting the flow of blood towards the enfeebled stomach and bowels, render it very serviceable in imperfect digestion, attended with constipation.

From a knowledge of its powers in such cases, the Romans employed it along with their food, as the Persians still do.

In hysteria it is extremely useful, both during an attack of spasms, and during the interval between the paroxysms.

In colic, and even iles, its action is often rapid and effectual, especially if thrown into the rectum: in this way cases of the most obstinate constipation, especially in hyste-

rical females, have been known to have great antiperistaltic action. In some cases of haemorrhage, it has been used successfully, and is a useful remedy which may be employed for the same purpose in cases of typhus and other fevers.

In asthma, in the later stages of hooping-cough, and in the cough of old age, in cough occurring in weakly subjects, not connected with inflammation or tubercles, above all, in all forms of the cough of bronchitis.

In the last-mentioned case, it is improved by combination with myrrh and preparations of iron, as it likewise is when employed to act on the uterine system.

It is also employed internally, as a means of keeping up counter-irritation; and a convenient plaster may be formed by adding 1-12th part of camphor to 11-12ths of asafeotida. For internal exhibition, pills, or tincture, or watery solution (which must be used immediately after it is prepared) are the ordinary forms of administration. In cases of organic disease of the heart, especially enlargement, and in fulness or congestion of the brain or spinal chord, or in any organic disease of these organs, it is improper.

ASSAHAN, a district and town situated on a river of the same name, in the Batra country, on the north-east coast of Sumatra. The town is in 3° 15' M. lat. and 99° 52' E. long. The river, which is above 4000 feet wide at its mouth, is shallowed and rendered navigable by an extensive sand-bank. The Portuguese had formerly a set-

tlement up the Assahan river, and the remains of an old fortification still exist, about 70 miles from its entrance, where a colony of emigrants from Java was once established.

The commerce of Assahan was formerly very considerable, but has now much declined. It is principally carried on with the Malays of the opposite peninsula, and with the English settlements of Penang and Singapore. The ar-

ticles of import are salt, opium, cotton goods, mutes, and gunpowder. The exports are various—dye-woods, rattans, wax, rice, and horses. A trade in slaves was formerly carried on from Assahan. As many as 300, mostly women, have been sent down from Java, and sold for slaves at Malacca; and the Assahan traders are curious to observe the small comparative value then placed upon human beings in the Eastern markets, where a horse sold for thirty dollars, while the price demanded by the merchants for their fellow-creatures varied, according to age, and bodily capability, from twelve to twenty dollars per head. Happily this trade has partaken of the general commercial depression.

The population of the whole district was estimated in 1832 at 70,000. Some, but not all, of the tribes who make up this number, are said to be addicted to cannibalism. [See Hamilton's East India Gazetteer.]

ASSASINS, a religious and military order, formed in Persia in the eleventh century. It was a imitation of the Ismalieists, who were themselves a branch of the great Moh-

Hammedan sect of the Shitite, the supporters of the claims of Ali's posterity to the caliphate. [See Ali ben Abi Ta']
But among the Ismaelites there were many who were Muslims only in appearance, and whose secret doctrine amounted to this: that no action was either good or bad in itself, and that all religions were the invention of men. These unbelievers were formed into a secret society by one Abdallah, a man of one of the great families of the race, who had a great influence in the religion of the Magi, and was a hater of the Arabs and of their faith. After several bloody insurrections against the Abbaside caliphs, the Ismaelites succeeded in placing on the throne of Egypt an pretended descendant of the line of Ismael, whom they had taken their name from. [See ISMAELITES.] This descendant, whose name was Obeid Allah Mehdeee, was the founder of the Fatemite dynasty, so called from Fatima, the sister of the Prophet. Under the protection of these princes a lodge of the secret doctrine was established at Cairo, and its members spread over a great part of Asia. Their ostensible object was to maintain the claims of the Fatemite caliphs to universal dominion, and to urge the destruction of the caliphs of Baghdad as usurpers. One of the adepts, Hassan ben Sabah, thought of turning these instruments to his own advantage. He had filled high offices under the sultan of the Seljouk Turks, but on being disgraced, he went to Egypt, where he was received with distinction by the caliph, became a zealous adherent of the Ismaelite lodge, and after many vicissitudes and wanderings obtained possession, by the aid of his brethren, of the hillside fortress of Chor Asir, where he established a court, and called himself Caliph, in Persia, and there (A.D. 1090) established an independent society or order, consisting of seven degrees, with himself at the head as sheik al Jebel, i.e. sheikh of the mountain. Under each degree there was 3dly, the dais, or initiated masters; 4thly, the refekks, or companions; 5thly, the sedawees, or devoted; 6thly, the laseeks, aspirants or novices; 7thly, the prop-tele, or common people. Hassan drew out for the dais, or initiated, a catechism consisting of seven heads, among which were—implicit obedience to their chief; secrecy; and lastly, the principle of seeking the allegorical and not the plain sense in the koran, by which means the text could be distorted into whatever legends or delusions one pleased. This did not proceed effectually with all fixed rules of morality or faith. But this secret knowledge was confined to a few; the rest were bound to a strict observance of the letter of the koran. The moral and religious discipline in the order were the freedoms—youths often purchased or stolen from their parents when children, and brought up under a particular system of education, calculated to impress upon their minds the omnipotence of the sheikh, and the criminality as well as utter incompatibility of orders and pleasures. The correct and holy Polo gives an account of this terrible tale, and his narrative is confirmed by Arabic writers, and Von Hammer inclines to believe it true in the main; others attribute the visions in the garden to the effects of the intoxicating preparations they used in the festivities. The name of Aza lions, which is that of an opiate made from hemp-leaves, is supposed to have been the origin of the word 'Assassins'; others derive the latter from Hassan ben Sabah, the founder of the order. The word becoming familiar to the crusaders was by them carried to Europe, where it was used as synonymous with that of stireus, or hired murderer; but the Italians have adopted it to signify a robber on the high road, without necessarily implying the crime of murder.

The sultan Mehmet Shah attacked them, the doctors of the law excommunicated them, but the sedawees carried secret death among their enemies; the sultan's minister, Nizam ul Mulk, was murdered, the sultana's daughter was ravished, Hassan was suspected by poison. The Assassins spread into Syria, where they acquired strongholds in the mountains near Tripoli; and the sultan of the Seljoucks was glad to come to an agreement by granting them several districts. Hassan ben Sabah having extended his order over great part of the Mohammedan world, died at Alamoat in 1124, after thirty-five years' reign. He bequeathed his authority to his son, who was also called Jellal ed-Deen. This prince renewed the war with the Seljoucks, and Aboos Wafa, his Dai al Kebir or chief in Syria, entered into a temporary alliance with Baldwin II. of Jerusalem, through the agency of Hugo of Payens, grand master of the Templars, against their common enemies the Seljouk Turks. After this, the Assassins were sometimes on friendly terms with Syria and Palestine, as well as with their Mohammedan neighbours. But in time they resorted to assassination. In 1126 the prince of Mosul was stabbed as he entered the mosque by Assassins disguised as dervises; soon after, a caliph of Bagdad was killed likewise, and also a sultan of Cairo, notwithstanding his Fatemite descent. In 1151 Raymond count of Tripoli was stabbed by the Assassins; it was suspected, at the instigation of his wife. At this time the Syrian branch of the Assassins had become in a manner independent of the Persian one. The sheikhs of the latter, successors of Bussong, continued to reside at Alamoat, but they were weak and profligate: one of them, Hassan, who had the rashness to disclose to public the mysteries of the order, was murdered in 1139; another, Makki, was made prisoner to the Normans, and was poisoned by his son Jellal ed-Deen, who succeeded him in 1177. Jellal ed-Deen was a man of more sense than his predecessors; he made his peace with the caliph, sent his ambassador to the war of the Crusaders in Syria, engaged inricks, and received the appellation of New Mussulmans. After the failure of the last great reign he was succeeded by his son Aledin, who, being murdered, the office of sheik al Jebel devolved upon Roked ed-Deen, Aladdin's son. By this time the caliph of Bagdad had applied to the great Mongol conqueror, Mengu Khan, who sent his brother Hulak to exterminate the murderous sect. Alamoat was taken, and Roken ed-Deen was made prisoner; the fortress Kidicoor resisted for three years, but was taken by the Mongols in 1268. This garrison, which had so long resisted the Mongols, was carried off in.flinked from the market-place of Tyre. 1192. The reasons for this murder, which some have ascribed to Richard of England, have been the subject of a long controversy, which Von Hammer does not succeed in elucidating. The Mongols kept the Christian prisoners in their capital, on the plea of fear. They levied contributions on the Christian princes for the safety of their lives; and they even demanded it of St. Louis, king of France, on his passing 'through the country. At his return from the Damietta expedition, they despatched an ambassador, who substantially refused. At last the Syrian Assassins were conquered, and their stronghold taken by Bibars, the Mamluke Sultan of Egypt, fourteen years after the destruction of the eastern branch in the mountains of Persia. The Kartham, by means of a bridge of boats, gained possession of many other castles and hill-forts in Persia. The sultan Mehmet Shah attacked them, the doctors of the law excommunicated them, but the sedawees carried secret death among their enemies; the sultan's minister, Nizam ul Mulk, was murdered, the sultana's daughter was ravished, Hassan was suspected by poison. 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violence, to do a corporal hurt to another. Thus, presenting a gun at a person within the distance to which it will carry, throwing a stone or other missile at him, drawing a sword and approaching him in a menacing manner, are given as instances of assault. An assault does not necessarily imply any corporal injury done to the party assaulted; pointing or snapping a loaded gun at a person behind his back, so that he is not aware of his danger, or trepanning a man while a blow is sustained. But it has long been settled law, that no words, however insolent and provoking, unaccompanied by an act of violence, can amount to an assault.

A battery, though usually called assault, consists of any kind of corporal injury, however small, designedly done to another by an actual contact with his person. The injury need not be done by the immediate hand of the party; nor is it material whether the act is wilful or not. If, provided it proceeds from a malicious and unprovoked design, a defendant is found guilty upon an indictment, and the court is informed that an act has been brought for the same injury, a nominal sentence is usually passed, unless the victim is able to show that the injury is not amenable to the circuit of a civil action. Though sanctioned by long usage, it is a relaxation of the strict rules of the criminal law, and is liable to much objection in principle, as enabling an individual to assume the character of a public prosecutor for the purpose of redressing a private wrong. This objection to the practice has been strongly animadverted upon by Mr. Justice Blackstone, and it is now much less frequent than formerly. (Blackstone's Commentaries, vol. iv. p. 362.)

The punishment of persons convicted of common assaults is fine and imprisonment at the discretion of the court, exercised upon the circumstances of each particular case. By a variety of statutes, assaults aggravated with respect to the person or property of the party assaulted were considered, were formerly punishable with great severity; most of these statutes were, however, repealed by the statut, 9 Geo. IV. c. 31, which authorizes an increased punishment upon certain specified cases of aggravated assaults. Thus, persons convicted of assaulting magistrates, officers, or other persons concerned in preserving wrecks, are, by the 24th section of that statute, liable to be transported for seven years, or to be imprisoned, with or without hard labour, at the discretion of the court. So, by the 25th section, persons convicted (1) of any assault with intent to commit a felony; (2) of any assault upon a peace or revenue officer in the execution of his duty; (3) of any assault with intent to resist, prevent, or hinder any officer in the execution of any offence against the law; (4) of any assault committed in pursuance of a conspiracy to make wages, may be imprisoned, with hard labour, for any term not exceeding two years.

The statute of 33 Henry VIII. c. 12, which punishes assaults in the king's palaces with the loss of the right hand and perpetual imprisonment, has been repealed by the above statute of the 9 Geo. IV. c. 31; but it seems that the punishment is thereby transferred to a common law to assaults committed in the actual presence of the king, or in his constructive presence in the superior courts of law, still remains. This subject was much discussed in a case which occurred in 1799, when the Earl of Thanet, and several officers of His Majesty's new-ordered garrison, being put in case of a riotous assault and rescue in a court of Oyer and Terminer and Gaol Delivery at Maidstone. Upon their being brought up for judgment, the court of King's Bench entertained doubts whether it was not imperative upon them to pass the specific sentence of amputation; but the attorney-general entered a Nulla prossequi as to those parts of the charge upon which the judgment had arisen. (See Howell's State Trials, vol. 27, p. 822.)

Actions for trivial assaults were formerly among the most frequent subjects of litigation in our courts of justice; and in order to discourage them, it was enacted by the statute 29 Geo. III. c. 92, that if an act was done with intent to commit an assault and battery, wherein the judge at the trial of the cause shall not certify upon the record that an assault and battery were sufficiently proved, the plaintiff, in case the defendant should suffer no more costs than the damages so found shall amount unto.

By a recent statute (9 Geo. IV. c. 31, sect. 27), persons guilty of common assaults may be convicted summarily by two magistrates, who are empowered to impose a fine not exceeding 5l. and to commit offenders to prison for two months. By the 26th section of the same statute, a certificate under the hands of the convicting magistrates that the complaint was dismissed as trivial, or that the assault and battery were so small that no redress could be had, the payment of the fine adjudged, or completion of the term of imprisonment for non-payment thereof, shall be a bar to all further proceedings, criminal or civil, for the same cause.

ASSAYING, a chemical operation, which differs from analysis only in the purpose and mode of procedure. The nature and proportions of all the ingredients of a substance are determined; but in assaying, the quantity of any particular metal only which the ore or mixture under examination contains is ascertained, without reference to the substances with which it is mixed or alloyed.

The operations of assaying are sometimes conducted entirely in what is called the dry way, or by heat; at other times in the moist way, or by acids and other re-agents; and in some cases both methods are necessarily resorted to in assaying the same ore or mixture of metals.

The term of assaying is sometimes restricted to alloys or mixtures of gold and silver; but in the present state of the art, it implies the method of testing the quality of the following metals also—copper, iron, lead, tin, and zinc.

The assaying of silver and gold is effected by a process called cupellation. Cupels are small flat crucibles made by pressing bone ash, moistened with water, into circular steel moulds, and they are dried by exposure to the air. The principle upon which the operation depends is, that all metals with which gold and silver are usually alloyed, are convertible into oxides by exposure to atmospheric air at a high temperature, whereas the precious metals remain unacted upon.

To assay silver by cupellation, it is requisite to obtain lead as free as possible from the impurities copper, tin, and iron; for, as it contains any of these metals, or as it is affected by cupellation, it contains only about half a grain of silver in a pound; and this portion may be neglected. The silver to be assayed is flattened and made quite clean; about thirty-six grains are to be weighed and wrapped up in the proper quantity of lead, which is kept upon it in case of the metal melting in the alloy; this, if coarse, is harder than standard silver, of a brilliant glossy appearance, and is flattened with difficulty on the anvil; if soft, easily flattened, and if a deal with white colour, a nearer approach to purity is indicated; the quantity of lead must then be apportioned according to the experience of the assayer, and varies from three to fifteen times the weight of alloy to be operated on. It is to be observed, that cupels do not absorb more than their own weight of oxide of lead, and also that if the quantity of this metal be too large, some of the silver is carried with the oxide into the cupel, and a loss of product is incurred.

The alloy and lead are to be put into a cupel when made very hot in a sal ammoniac oven. When this is done, the cupel is placed in the assay furnace; the mixture soon fuses, is covered with a coat of oxide of lead, becomes flattened, gives off fumes, and considerable motion agitates on its surface. The lead thus gradually oxidising and fusible is absorbed by the cupel, and carries with it the baser metals with which the silver was alloyed. The alloy is at first flat, but becomes gradually convex, and presents continually increasing shining points; when this happens, the cupel is to be brought back forward to the fire. The observation of the alloy must be repeated till it disappears, when the silver becomes insensible, and the operation is complete. Care must be taken to allow the assay to cool gradually, and its weight will determine the quantity of
fine silver contained in the quantity of the alloy subjected to examination.

The assaying of gold is performed, to a certain extent, exactly in the same manner as that of silver, and if the gold were alloyed with copper, the process would be as simple as that of silver assaying. Usually, however, gold contains silver, and this cannot be got rid of by cupellation; the purifying process is therefore that of dissolving the silver by dilute nitric acid, which leaves the gold perfectly pure, unless the silver is so small in quantity as to be protected by the gold from the action of the acid, which is very commonly the case. To obviate this difficulty, gold and gold alloy, supposed to be weighed, is to be reduced to the state of fine powder, and this is to have from twenty-four to thirty-six grains of pure silver added to it, and to be cupelled with one hundred and eight grains of lead. The button obtained is to be flattened into a plate of about one inch by half a line broad, returned into the furnace, kept for some time at a red heat, taken out and suffered to cool, and rolled up about the size of a guillotine. This is to be put in a manner with about three times its weight of nitric acid, of sp. gr. 1.25, and heated on a sand-bath. By diluting the solution of the acid the silver is dissolved, and the cornets, as they are termed, of gold, are left of a dull-brown colour, and without any metallic appearance; these are repeatedly washed with distilled water, and heated to a red heat, to free the clay crucibles to bring the residue into solution. The effect is that the gold having thus acquired their usual appearance and properties, are to be weighed, the absolute loss in weight indicating the purity of the alloy subjected to trial.

The crude gold is a mixture of copper, arsenic, tin, lead, zinc, &c., with a considerable quantity of earthy matter; and such are composed principally of a mixture of the sulphides of copper and iron, but small portion, if any, of other metallic or earthy minerals.

To treat the first subdivision of the sulphurous ores (which constitute at least 93-100ths of all copper ores sold in Great Britain), a flux should be prepared by mixing the following ingredients in the under-mentioned proportion:—

<table>
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<th>Part</th>
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| 2 parts | 1 | Fluer spar, 1 | Blasted lime, 1 | Borax, 1 | Red lead (impure tartar), 1 | Nitre, 1 | Mixed finely powdered and well mixed.

The sample of ore being reduced to a coarse powder, take 400 grains of it, and calcine it in a Cornish or Hessian crucible, at a moderate heat, and allow it to remain four or five minutes, stirring it repeatedly with an iron rod flattened at the end. During this operation the ore will increase considerably in bulk, and it should never be continued after this begins to take place, for the crucible, being too large to allow it to cool, fill the furnace with fuel, and put on the cover to increase the heat. When cool, mix the ore, without taking it out of the crucible, with about 400 grains of the prepared flux, and cover the surface of the mixture with common salt; introduce it into the furnace, and continue it therein, at a white heat, until the whole is well melted, which will be known by the surface of the mass assuming a smooth and quiet aspect. If the furnace is in good condition, the mixture will melt in from four or five line broad, returned to the furnace, kept for some time at a red heat, taken out and suffered to cool, and rolled up about the size of a guillotine. This is to be put in a manner with about three times its weight of nitric acid, of sp. gr. 1.25, and heated on a sand-bath. By diluting the solution of the acid the silver is dissolved, and the cornets, as they are termed, of gold, are left of a dull-brown colour, and without any metallic appearance; these are repeatedly washed with distilled water, and heated to a red heat, to free the clay crucibles to bring the residue into solution. The effect is that the gold having thus acquired their usual appearance and properties, are to be weighed, the absolute loss in weight indicating the purity of the alloy subjected to trial.

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The crude gold is a mixture of copper, arsenic, tin, lead, zinc, &c., with a considerable quantity of earthy matter; and such are composed principally of a mixture of the sulphides of copper and iron, but small portion, if any, of other metallic or earthy minerals.

The sample of ore being reduced to a coarse powder, take 400 grains of it, and calcine it in a Cornish or Hessian crucible, at a moderate heat, and allow it to remain four or five minutes, stirring it repeatedly with an iron rod flattened at the end. During this operation the ore will increase considerably in bulk, and it should never be continued after this begins to take place, for the crucible, being too large to allow it to cool, fill the furnace with fuel, and put on the cover to increase the heat. When cool, mix the ore, without taking it out of the crucible, with about 400 grains of the prepared flux, and cover the surface of the mixture with common salt; introduce it into the furnace, and continue it therein, at a white heat, until the whole is well melted, which will be known by the surface of the mass assuming a smooth and quiet aspect. If the furnace is in good condition, the mixture will melt in from four or five line broad, returned to the furnace, kept for some time at a red heat, taken out and suffered to cool, and rolled up about the size of a guillotine. This is to be put in a manner with about three times its weight of nitric acid, of sp. gr. 1.25, and heated on a sand-bath. By diluting the solution of the acid the silver is dissolved, and the cornets, as they are termed, of gold, are left of a dull-brown colour, and without any metallic appearance; these are repeatedly washed with distilled water, and heated to a red heat, to free the clay crucibles to bring the residue into solution. The effect is that the gold having thus acquired their usual appearance and properties, are to be weighed, the absolute loss in weight indicating the purity of the alloy subjected to trial.
melted, project about half a draem of flux (prepared as before), and the like quantity of common salt. Shut up the furnace for about two minutes, or until the flux is well melted, and then pour out into the mould as before. Separate the flux (which reserve) from the button; and if the latter be found to be flaky, instead of having that brilliant surface, of a yellowish red colour, exhibits a roughish surface of a dark red colour, and having firmly attached to it bits of a dark red slag, the refining process has been pushed too far. The button being fine, take it partly from the button and the calcined regulus, together with the flux and slag from the refining process, and mix these with three draems of red argol and a very little charcoal powder, and melt well in the crucible in which the refining is performed. This will give a small metallic button, which refine as before.

The flux above alluded to, which is used for refining, is prepared by burning together a mixture of three parts nitre, two parts red argol, and one part of common salt. This is best done by putting the ingredients into a large iron mortar, and stirring them with a red-hot poker until combustion ceases. The mass should be reduced to powder before it is quite cold, and should not be poured back into the bottle before it is cold. About half a draem of this flux and of common salt are usually taken, and this will generally be a sufficient quantity, but as much should be used as will perfectly cover the button when it is poured into the crucible; otherwise the metal will oxidize, which of course is to be avoided.

The ores of the second subdivision of sulphurites are best assayed by calcining them perfectly in the first instance, so that the first melting shall give a metallic button, instead of a regulus or sulphuret. To effect this, when the one has been calcined until the whole of the sulphur is driven off, it should be melted with a draem each of slaked lime and flour spar, the same quantity of borax and red argol, with alum and arsenic, and proceed with precisely as directed for calcined regulus.

Copper ores not containing sulphur, or only in very small quantity, may be calcined for a short time (a few minutes is sufficient), and melted as directed in the last section, except that the quantity of lime and flour may be reduced, and some scales of iron from a smith's forge added.

Lead.—The principal ore of lead is the sulphuret, commonly called galena; and the best in use is the cream-coloured or white lead ore, sometimes found in considerable quantity.

To assay the former ore. Take 400 grains coarsely powdered, mix it with 100 grains of iron filings or small pieces of copper, and add the flux and tartar; put the mixture into a Cornish or Hessian crucible that will hold double the quantity, and cover it with common salt to the depth of half an inch. Expose it to a yellowish-white heat for about ten minutes, or until the matter in the crucible has ceased to boil, and is become smooth; then either pour it out into a hemispherical iron mould warm and greased, or allow it to cool in the crucible.

If the ore is much mixed with iron pyrites, or earthy matter, the quantity of iron should be reduced, and a little flour spar and borax added to the other ingredients.

The carbonate is best assayed by melting it with half its weight of black flux and a little cream of tartar, covering the mixture with flour spar, and putting it into a crucible with the mixture in the crucible to the depth of half an inch with common salt.

The sulphuret, or pyritic ore. Let 400 grains be reduced to powder, and then carefully calcined, with small additions of small portions of charcoal powder, constantly stirring it with an iron rod, and so managing the fire as to preserve the ore from clotting. This operation should be completed in about ten minutes from the appearance of the sulphuret and arsenical vapours. When thoroughly calcined, file off from the stirring-rod any portion of the ore that may adhere to it, adding it, of course, to that in the crucible. Add likewise 40 grains of lime, 20 grains of flour spar, 150 grains of black flux, with a small quantity of niter, bones and cream of tartar; when these are well mixed, cover with common salt, and when melted quite smooth, allow the crucible to cool, when the tin will be found at the bottom.

Zinc.—The ores of zinc are of two kinds, the carbonate, or calamine, or blende (as it is usually termed, reduce it to pieces of the size of hazel nuts, weigh thirty-two ounces avoirdupois, and expose it under a muff, or in a large crucible, to a moderate red heat, until the pieces are red-hot throughout. When cold, reduce the ore, which will have become very friable, to a fine powder; re-weigh it and note its weight, mix it with its own bulk and one-half more of powdered charcoal, and press it down moderately tight into a Stourbridge clay crucible, which should not fill nearer than two inches to the top. Then add a little charcoal-powder and sand, mix it well, and set the crucible in an air furnace, and expose it to a bright-red heat for three hours, and then increase the heat to a yellowish-white for another hour; then take out the crucible and allow it to cool, collect the brass which will have formed on the outside of the clay crucible, and weigh it; and the difference of it that of the calcined calamine, the latter may be considered of good quality for commercial purposes. The arrangement may be varied by mixing the granulated copper with the calamine and charcoal, instead of putting it on the clay disc; but when the operation is finished, it will be more trouble to collect the grains of brass.

This is an operation that requires considerable nicety in the management of the fire, for if too hot, the metallic zinc is vaporised faster than the copper can combine with it; and, on the other hand, if not hot enough, the oxide will not be reduced. Attention to a few trials will give the requisite judgment.

The sulphuret, or blende, is assayed in the same way, except as to calculation.

Blende must first be reduced to a fine powder and carefully calcined upon the floor of a muff, so heated as to exclude any carbonaceous smoke or flame, stirring it constantly with an iron rod until it ceases to give any indication of sulphur. The powdered blende should not lie above one-fourth of an inch thick on the muffle, and the heat should be very gradually raised from a dull to a bright cherry red. When perfectly calcined, it must be treated in the same way as calcined calamine.
containing the Syriac text and a Latin translation, was begun by Ambrose, another learned Maronite living at Rome, and better known as Father Beneftici, being a member of the society of the same name founded by that father. It was composed by a Maronite nameless. This work is much esteemed, and the Latin is better than that of the other works of Assemani, who was more skilled in the Oriental than in the Latin language.—3d. Kalendarii Ecclesiae universae, in quatuor partes, auctore Fr. Ambrose, orientalium et orientis actuum, secundum annalium ejusque titulorum. four volumes quarto, Rome, 1755-7.—4th. Bibliotheca Judaica et Orientalis, four volumes quarto, Rome, 1763-4.

Assemani died at Rome in 1768, at the age of eighty. He left MSS., several historical dissertations, and other fragments, on the Christian population of the ancient patriarchate of Antioch, on the nation of the Coptics, on the Nestorians, and other Eastern sects, &c., which have been lately published by Monsignor Mai. In his lifetime he published a dissertation on the origin and religion of the antemohammedan Arabs, which he appended to his translation of Benbrabo’s Chronicle. Of Assemani’s friend Ambrose, we may here mention, that he translated from the Arabic into Latin the work of Stephen, Patriarch of Antioch, on the Origin and the Liturgy of the Maronites. [See MARS.

ASSEMANI. STEPHANUS EVODIUS, nephew of the preceding, was made Bishop of Apamea, and succeeded his uncle as librarian of the Vatican. He published the following works:—1st. Storia et instituzione di tre codici latine codicum MSS. Orientalium Catalogue, two volumes folio, 1742, with notes by Gori.—2. Acta Synodorum Mar- tyrum Orientalium et Occidentalem, two volumes folio, Rome, 1749. To this work, which he compiled from MSS. in the Vatican, he added the Acts of St. Simon, called Stylistes, in Chaldaic and Latin. He also began a general catalogue of the Vatican MSS., divided into three classes, Oriental, Greek and Latin, Italian and other modern languages. He published his first volume in 1756; a fire which broke out in his chambers having destroyed his papers. Mai has continued parts of this catalogue in his Scrip torum Veterum, nova collectio, of which the eighth volume has been lately published. Another member of the same family, called Joseph Louis Assemani, published the Alexandrine Missal, with the liturgy of the various churches of Egypt, old and modern: Missale Alexandrinum S. Marci, in quo eucharistica Liturgiae consue pia antiquae ac recenti Ecclesiarum Egypti, Graeci, Coptici, Arabi, et Syriacae exhibentur, quarto, Rome, 1734; and also a chronology of the Patriarchs of Chaldea. The Assemani had a rich library of Arab, Syriac, and Mithraic MSS., which he left to the XIII. papal library for the Vatican, and Monsignor Mai has lately given catalogues of them. The Syriac MSS. alone are 202 in number.

ASSEMANI, SIMONE, grand nephew of Joseph Sinait, was born in Paris, and studied in Italy, where he was many years professor of Oriental languages in the university of Padua. He published several works in Italian and in Latin on Arabic literature and history. 1. Saggio sull’origine, culto, letteratura e costumi dagli Arabi, written under the name of Simone Assemani, and published under the pseudonym of Muonelto, octavo, Padua, 1787.—2. Catalogo dei codici OSS. Orientalis nella biblioteca Nazionale, quarto, Padua, 1787-8. To this catalogue he added extracts from some of the works registered in it, such as the lives and histories of the Caliphs, of the Moslems, of the Christians, of the Persians, of the Turks, of the Abyssinians, of the Arabic, and Turkish monarchs, and also illustrations of the Cufic coins and other antiquities existing in the museum of the same family of Nani.—3. Globus Caesarius, Cufian-Arabico, quarto, Padua, 1789, being a description of the celestial globe in the Borgia museum at Venice, with a dissertation on the astronomy of the Arabs. It was this Assemani who first exposed the imposture of the Maltese Vella, who pretended to have found, in an Arabic MS. in the library of La Scala, a description of the Temple of the Sicanian Saracens. Vella made a translation of it, and published it at Palermo in 1789. (Codice Diplomatico di Sicilia edito il Governo degli Arabi, i voll. 4to. Palermo, 1768.) The doubtful book was dedicated in the name of Napoleon Assemani, to whom some of the proof sheets had been sent, pronounced the text to be unintelligible, except some lines which were Maltese instead of Arabic. At last Joseph Hager was sent for from Vienna to Palermo, and he having examined the MS. found it contained a narrative of the life of Mohammed, much interpolated with Maltese words, apparently with the intention of rendering the original text unintelligible. He delivered to his master that he was sentenced to imprisonment. (Cassadini Opere, vol. xvii.; Fundrumben dei Orienti, volume i.; and also Allgemeinen Literarischen Anzeigen for 1789.)

ASSEMBLY, GENERAL, OF SCOTLAND. [See General Assembly.

ASSEMBLY, NATIONAL. [See National Assembly.

ASSEMBLY OF DIVINES. [See Westminster Assembly.

ASSENT, ROYAL. When a bill has passed through all its stages in both houses of parliament, if it is a bill of supply, it is sent back to the charge of the officers of the House of Commons, in which it had of course originated; but if not a bill of supply, it remains in the House of Lords. The royal assent is always given in the House of Lords, the Commons, however, being also present at the bar, to which they are summoned by the Black Rod. The king may either be present in person, or his majesty may signify his assent by a letter patent under the great seal, signed with his hand, and communicated to the two houses by commissioners. Power to do this is given by the 3d Henry VIII. ch. 21. The commissioners are usually in the charge of the officers of state. They take their seats, attired in a peculiar costume, on a bench placed between the woolpack and the throne. When the king comes down in person, he is seated on the throne robed and crowned. The bills that have been passed through both houses by Royal assent are usually issued by the royal command and are sent up to the Lords of Parliament. When assent is given in the Lords, the bill is brought up from the Commons by the Speaker, and, in presenting them, especially at the end of a session, is accused to accompany the act with a short speech. In these addresses it is usual to recommend that the money which has been so liberally supplied by his majesty’s faithful Commons should be judiciously and economically expended; and a considerable sense has been sometimes made by the emphasis and solemnity with which this advice has been enforced upon the Lords. The royal assent is announced by the clerk of parliament. Having read the title, he says, if it is a bill of supply, ‘Le ro remercie ses loyal subjects, accepte leur bienveillance, et ainsi le veut;’ if any other public bill, ‘Le roy est veut;’ if a private bill, ‘Sot foi que il est destre.’ What is called an act of grace, that is, an act by which the royal favour or bounty is extended to any party, must be signed by his majesty before it is laid before parliament, where it is only read once in each house, and where, although it may be rejected, it cannot be amended. To such an act there is no further expression of the royal assent, but, having read its title, the clerk of the parliament says, ‘Les seigneurs, Segneurs, commissaires du Roy, Le ro en vous donne en sa Majeste et longue de...’ When the royal assent is refused to a bill, the form of announcement is Le ro s’avisera. It is probable that in former times these words were intended to mean what they express, namely, that the king would take the matter into consideration, and merely postponed his decision for the present. There has been no instance of the rejection by the crown of any bill, certainly not of any public bill, which had passed through parliament for many years. It is commonly stated, even in books of good authority (for instance, in ‘A General View of the British Constitution,’ 1776, p. 61), that the last instance was the rejection of the bill for triennial parliaments by William III. in 1693. Tindal, in his continuation of Rapin, says, ‘The king let the bill lie on the table for some time; so that men’s lives and expectations were much fixed on the issue of it; but in conclusion he refused to pass it, so the session ended in an ill humour. The rejecting a bill, though an unquestionable right of the crown, has been so seldom practised, that the house of lords never disputed it. But another instance occurred towards the close of the same year, which was more remarkable, in consequence of its being followed by certain proceedings in parliament, which are of importance in this connection. It is reported that the commons commonly called the Place Bill, the object of which was to exclude all holders of offices of trust and profit under the crown from the House of Commons. It was presented to the king along with the land-tax bill; and the day after be...
had ascribed to the one and rejected the other, the House of Commons, having resolved itself into a grand committee on the state of the nation, passed the following resolution:—

"The House of Commons, sitting in a committee of its whole number, agree to the act which was to redress a grievance, and take off a scandal upon the proceedings of the Commons in parliament, in an enemy to their majesties and the kingdom; and that a resolution was made that he himself, as well as if fewer instances have been in former reigns of denying the royal assent to bills for redress of grievances; and the grief of the Commons for his not having given the royal assent to several public bills, and in particular this bill, which tended so much to the welfare of the nation, and of the present war, after their having so freely voted to supply the public occasions."

An address conformable to the resolution was accordingly presented to his majesty by the whole house. Thus was passed the addition as referred to the confidence that ought to be preserved between himself and the parliament, but took no notice of what was said about the rejection of the bill. When the Commons returned from the royal presence, it was moved in the house: 'That application be made to his majesty for a further answer;' but the motion was negatived by a majority of 229 to 28.

Mr. Hatfield, in the second volume of his Precedents (editions 1718), quotes other instances of subsequent date to this. The latest which he discovered was the rejection of a Scotch militia bill by Queen Anne in 1707. In former times the refusal of the royal assent was a common occurrence. A private bill, the 116th and 117th, and 119th in sequence of the session, was rejected, and the 124th, but not a common occurrence, and the 125th, and 126th, and 127th, all private bills. It is remarkable in one instance of the Commons being rejected, forty-eighth.

It is the royal assent which makes an act of parliament a law. As by a legal fiction, the laws passed throughout a whole session of parliament are considered as forming properly only one statute (of which what are popularly called the separate acts are only so many chapters), it used to be a matter of doubt whether the rejection of the royal assent at the end of the session it was not given, did not make the act operative from the beginning of the session, when no day was particularly mentioned in the body of it as on that it should come into effect. In order to settle this point, it was ordered by the 35th George III. chap. 13, that the clerk of parliament should for the future endorse on every bill the day on which it received the royal assent, and that from that day, if there was not in it any specification to the contrary, its operation should commence.

It appears that the several forms of words now in use are not, as has been sometimes stated, exactly the same that have been in use at the first institutions of parliaments. For instance, it is recorded that Henry VII. gave his assent to the bill of attainer passed in the first year of his reign (1485) against the partisans of Richard III. in the more emphatic terms, Le roy le veut, en tous lieux. On some occasions of early days when assent was stated to have been given in English. Thus, to a bill of attainer passed against Sir William Oldhall in 1433 (the 31st of Henry VI.), the clerk is recorded in the Rolls of Parliament to have announced his majesty's assent as follows:—

'The king vole that it be hadde and done in maner and forme as it is desired.' And in 1459, in the case of an act of attainer against the Duke of York, the Earl of Salisbury, Warwick, and others, the same king gave his assent in the following form:—

'The king agreeth to this act, so that by virtue thereof he be not put from his prerogative to shew such mercy and grace as shall please his highness, according to his regality and dignity, to any person or persons, whose names be expressed in this act, or to any other that might be hurt by the same.'

In the time of the Commonwealth, an English form was substituted for those in Norman-French, which had been previously and are now the present form. On the 1st of October, 1556, the House of Commons resolved 'that when the Lord Protector shall pass a bill, the form of words to be used shall be these, The Lord Protector doth concern, on the request, till he hath done this, the House of Lords, the House of Commons, and was read a second time in the House of Commons, for abolishing the use of the French tongue in all proceedings in parliament and courts of justice, in which it was directed,' that is, La roy le veut, etc. In 1727, a law was made of these words, Be it enacted; Be it so enacted; Be it as is prayed; where these words, Le roi remettra ses bons sujets, accepte leur beneficence, et ains le veult, have been used, it shall therefore be, The king thanks his good subjects, accepts their beneficence, and that he will do so. As for the last word, these words, The king will consider of it, be used.'

Why this bill was rejected by the Commons,' says Hatself, 'or why its provisions with respect to proceedings in parliament were not carried into act will, I believe, be best explained by some fragment of account of the year 1731, that "All proceedings in courts of justice should be in English," I never heard any reason assigned.' For further information on this subject, see Hatself's Precedents, especially vol. ii. pp. 335-339 (editions 1818).

A Skinner, writing the properly ASHER, was partially written by English and French writers. Aisher was the principal author of the Babylonian Talmud, so called from the place of his residence. He was born at Babylon A.D. 355. He was the addressee of a pointed head of the college of Sora, in Babylon, at the age of fourteen; which, if this account be true, is an unparalleled instance of mental precocity. But whether or not full credit may be attached to this statement, Aisher was undoubtedly distinguished very early in life by intellectual powers and acquirements. He died A.D. 426, aged seventy-four.

Rabbi Abraham Ben Dior asserts, in his Kabbalah, p. 68, that since the deaths of Rabbi Judah, Hannan, or Rabbi Judah Hakkadosh, in no one place, has he had knowledge of the law, piety, humility, and magnificence. The compositions of the Mishna delivered by Aisher in his lectures to the students under his care were collected, and form the basis of the Talmud of Jerusalem. When the king gave licence to dictate to his pupils each year, in the month of February, a treatise, which he required them to study during six months, and when they returned to him in the month of August, to give him a view of their progress, or to hold arguments on their several sentiments on the subject of the treatise, removed their doubts, and replied to their objections, or confirmed their opinions by the testimony of former sages. The heads of the classes explained at length to the pupils their views on the subject of the treatise peculiarly by the master. Prizes were awarded to the most distinguished disciples. Aisher then delivered another treatise, which was in like manner studied during another six months, and in the month of February was discussed. From the matter thus collected, during a course of instruction which lasted sixty years, Aisher composed that part of the Babylonian Talmud which was immediately written by himself. It was continued by his disciples, the number of whom amounted to many thousands. (Compare the Ternach David, first part, in the years 4127 and 4187; Sefer Yuchasaim, fol. 117; Halicchoth Okeim, p. 18; Wolli, Bibliotheke Hebrew, p. 72.)

A Skinner, or ASHER DI MEVENKIS, called ASKER by Inglishus, and JOHN ASKER by Bale and Pits, was a learned monk of St. David's, whence (the name of that place in Latin being written Menapia or Mnevia) he got his name MNEVakis or MEVENKIS. He was British extraction, and Bale (edit. Basili, 1557, p. 125) says that his instructor in learning at St. David's was John Enigma. We have his own authority (De Reb, Gest, Divit, ed. Wise, p. 49) for his being related to an archbishop of St. David's of the name of Novis.

Asker was invited to the court of Alfred the Great, as is generally believed, in or about the year 886, but probably earlier, merely from the reputation of his learning. His own account is (p. 47), that those who were sent to fetch him introduced him to the king at Dene, in Wilts; and that the king not only received him graciously, but, at the first interview, pressed him to reside constantly at court. Asker modestly declined the proposal, alleging that it would be a reproach to him to leave a place where he had been nurtured and ordained to the priesthood, for the sake of obtaining preferment elsewhere. King Alfred then desired that he would appoint his time between the court and his monastery, passing six months at one, and six at the other; but Asker was unwilling to comply even with this. Therefore he fell ill at Winchester, lay sick there more than a year. He afterwards pursued his journey, and at length obtained the consent of his brother-monks to accept the offer, as they pronounced the time of residence there very pleasant, and more especially against the oppressions of Hemeone, one

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of the petty princes of South Wales, who had occasionally persecuted their archbishop. Then, however, requested Asser to prevail upon the king to let him reside quarterly at court and at St. David's, rather than that he should remain absent six months together.

When he came back, he found a king at a place called Leonards, related to him with every mark of distinction, and with whom he remained at once eight months, reading with him such books as the king possessed. (ibid. p. 50.) Asser states that, on the Christmas eve following, the king presented him with muniments of value, and gave the bishop every small thing, and himself, so that he should have greater. In a short time Asser had the church of Exeter bestowed upon him; and, at a later period, the bishopric of Sherburn, which, however, he quitted, according to the writer of his life in the Biographia Britannica, in 1833, though he always retained the title. Thenceforward he constantly attended the court, in the manner before stipulated, and is named as a person in whom he had particular confidence, by King Alfred in his will. Zachariah, the son of King Alfred, died before the accession of his father, as is stated to have happened in 885, since mention is there made of Eana, bishop of Hereford, who died that year. He bequeathed to Asser one hundred manceuses. (Will of K. Alf. publ. at Ox. p. 26.) Asser states that, by episcopal excommunication, he fixed his translation of Gregory's 'Pastoralis,' addressed to Wilfrid, bishop of London; and there the king does not call him bishop of Sherburn, but minitur bryce, 'my minister,' acknowledging the help received from him and others in that translation.

It seems to have been the near resemblance which the genius of Asser bore to that of the king which gained him so much of Alfred's confidence; and it was probably on this account that Asser, under the seal of the king, in 893, drew up the Memoir of the Life of Alfred, which we still have, and which he dedicated and presented to the king in the year 893. In this work we have a very remarkable account of the manner in which the king conducted his time and business.

Asser says that, one day (it was on the feast of St. Martin), having cited in conversation a passage from a particular author, the king was pleased with it, and would have him write it down in the margin of a book which he carried in his bosom: but Asser finding no room to write it there, and yet being desirous to gratify his master, asked Alfred whether he should not provide a few leaves, on which to set down such remarkable things as occurred either in reading or conversation. The king was delighted with this hint, and directed Asser, without delay, to put it into execution. Pursuing this method constantly, their collection began to swell, till at length it became of the size of an ordinary volume. This was the volume which the king called his 'Handbook,' or 'Manual.'

Asser appears to have continued at court during the rest of the reign of Alfred, and probably several years after; but he died in 896, when he was deacon. The Saxon Chronicle positively fixes the time to the year 910. The preferments and the works of Asser have both been subjects of controversy. The writer of his life in the Biographia Britannica asserts him to have been archbishop of St. David's (Kippis's edit. i. 410), which is much disputed. It seems clear, however, that Asser the monk, who is spoken of as a reader in the public schools at Oxford (Harpalfeal, Hist. i. 161), if such a person did exist, was a different person from the bishop of Sherburn.

Bale and Pitt give the titles of six works ascribed to our Asser. One is, of course, 'The Life of Alfred: the others are, 1. 'A Commentary on Boethius;' 2. 'Annales Britanniae;' 3. 'Aureusam, Sententiarum Enchiudicion;' 4. 'A Book of Homilies;' 5. 'A Volume of Letters.' The Commentary on Boethius probably means nothing more than an explanation of that author to King Alfred when the translation was sent to him. Asser also had a manuscript of the latter, published by Gale in his Script. xv. at Oxford in 1691, but are believed to be the works of a pseudo-Asser. The Enchiudicion is, beyond question, Alfred's Manual already mentioned. The existence of the two last works, the Homilies and Letters, is unsupported by any other authority. Many other works (but without specification) are said by Bale and Pitt to have been translated into English by Asser.

The 'Annales Rerum Gestarum Alfredi Magni' were first published by Archbishop Parker, at the end of Walsingham's History, fol. Lond. 1574, and reprinted by Camden in his Anglia, Normanica, &c. fol. Franc. 1603. They were again reprinted in an elegant octavo volume at Oxford, by Francis Wise, in 1772: the best edition.

The copy formerly in the Cottonian Library, marked Otho A. xii., was burnt in the fire at Westminster in 1731. (See the Annales,' published by Wise; Tanner's Bibliotheca Britannico-Hibern. p. 53; Biogr. Brit. art. Ayensy, also S. H. Bongr.)

ASSessment of Damages [See Tax.] ASSESSMENT OF DAMAGES takes place on a writ of inquiry before the sheriff or his deputy, and a jury impaneled in the county where the action is laid, in cases where the defendant suffers judgment by default, instead of pleading and joining issue in the action. In such cases, the defendant having admitted a liability to some extent, the only question is as to the amount; and the jury are summoned merely to enquire into and assess the damages, and not as to trials where issue is joined to try the issue as well as to assess the damages (tam ad triumdam quam ad inquendam). Such assessment is subject to be set aside on motion before the sheriff for any reason whatever, and in case the officer or the sheriff is improperly returned, or the sheriff has misdirected them in point of law, or the damages are excessive. (See Writ of Inquiry—Damages.) ASSESSMENT OF DAMAGES on the Norman French assizes (sufficient) is the real and personal property of a party released, which, either in the hands of his heir or devisees, or of his executor or administrator, is chargeable with the payment of his debts, and legal exigencies are either personal or real. The former, embracing goods, chattels, debts, &c. devolve on the executor or administrator; and the latter (including all real estate) descend to his heir-at-law, or are devised to his devisees. Assets are also distinguished into legal, or such as render the executor or heir liable to the payment of non-common law on the part of a creditor; and equitable, or such as can only be rendered available by a suit in a court of equity, and are subject to distribution and marshalling among creditors and legatees, according to the peculiar equitable rules of that court.

1st. As to personal legal assets. These include all goods, chattels, and moveables, which belonged to the deceased in action or possession at the time of his death, and which actually come to the executor's or administrator's hands; and also all things which come to the executors or administrators at any time in usu of them. Thus, a lease made by an executor, in possession of a covenant to lease to the testator in his life; goods delivered to executors under a contract to deliver them to a testator; damages recovered by an executor for breach of a contract made with the testator, are personal legal assets. So the young of sheep or cattle of which the deceased died after his death, is a personal asset, devolving on the executor by his carrying on his trade; the value of his mortgaged chattels, redeemed by the executor after his death, are assets of this description.

The laws respecting the property, in general, do not affect the question whether it is assets or not; it being a maxim that 'assets in any part of the world are assets in every part of the world.' Therefore, stock in foreign funds, or a leasehold for years in Ireland, must, in case of a deficiency of assets in this country, be sold by the executor to satisfy the creditors. By the 5th Geo. II. c. 7. § 4, houses, lands, negroes, &c. in the plantations of the West Indies, are rendered personal assets, devolving on the executor by his administration of the estate of the deceased. (And 9th Geo. IV. c. 33, has produced the same operation on all real estates of British subjects (not being Mohammedans or Gentoo's), situate in India within the civil jurisdiction of the British supreme courts at Fort William (Calcutta), Fort St. George (Madras), and Bombay. As the law protects an executor or administrator from any personal charge so long as he acts rightfully, the assets which render him chargeable to a creditor are, of course, all personal. The personal assets of a deceased are those of which the deceased may dispose. It was said by Wentworth, a considerable authority on this subject, that if the testator at his death has sheep in Cumber- land, bullocks in York, and hemp in London, the hemp, with the bold stuff, and plate in London, and the executor dwells at Coventry, viz. far from all these places, the executor has such an actual possession immediately on the testator's death, that he may maintain trespass against any one
taking them away, and therefore it is doubtful whether their goods must not be considered to be actually come to his hands so as to be assets rendering him chargeable for payment of debts. But it seems now to be the better and more just rule, that if such property should be abstracted by the right, and not there has been actually possessed by the executor or afterwards, so that it be without any fault of the executor, he will only be liable to account for the damages which he may actually recover against such stranger, notwithstanding such damages may be less than the action on a lien. by which means the property of the deceased goods stolen from the possession of the executor, without blame on his part, will not be considered assets, unless indeed he has neglected an opportunity of selling them for a good price. As to all such personal property of the testator as is merely in action, viz. debts and rights of suit, it only becomes assets when reduced into possession by the executor; but if he release any such claims, or take a bond for them to himself personally; they then become assets with which he is charged. As nothing but what is of pecuniary value is assets, if the deceased were entitled to the next presentation to a living, and died without presenting, the right in the hands of the executor would not be assets, because not personal. As to the definition of assets, that they do not embrace property which the testator possesses merely as a trustee, without having any personal beneficial interest therein; and upon the same principle that those personal assets property which is in the testator's hands clothed with a specific trust or appropriation; for instance, bills or notes remitted to the testator to meet acceptances for any particular purpose, which he has paid himself under a specific trust to apply it by payment of his testator's debts.

2. Personal equitable assets are such as can only be made available by the help of a court of equity, and which consequently cannot be given evidence against an executor or his pleas of plena administratrix in a court of law. The distinction between the two classes is most important, and consists not merely in the mode of obtaining payment out of them, but in the mode of distributing the personal assets property which is in the testator's hands clothed with a specific trust or appropriaton for payment of debts. While legal assets must be applied in payment of debts, according to certain rules of priority (viz. 1. Funeral charges, etc.—2. Debts to the crown—3. Judgments—4. Recognizances, etc.—5. Rent and specialty debts, as mortgages, bonds, etc.—6. Simple contract debts—7. Legacies), equitable assets are distributable among all creditors equally, the only distinction recognized in courts of equity being that debts delayed are preferred to legacies. Equitable assets embrace money produced by sale of the testator's real estate, whether his interest in such estate were legal or equitable, and whether it be expressly devised to him, or whether assigned to him by act of the deceased, or whether the proceeds of its redemption of a mortgage is equitable and not legal assets. So also is any fund over which a man has a general power of appointment, which he exercises; in which case the property will be equitably subject to the claims of his creditors. In reference to those of his legacies orappointment. 3. Real Assets comprise all such lands, tenements, etc. as descend to the heir at law of the deceased, and which at common law rendered him chargeable with specialty debts binding the heir. They embrace many things not strictly of a natural right. Thus an annuity, though a personal thing, is, if granted to a man and his heirs for ever, real assets, which descend to the heir; and this is also the case of grants of houses, of Chimneys, etc. of ships, of plates, of mantles, of armories, and other fixtures; and even deer in a park, hares and rabbits in a warren, fish in a private pond or fishery, are held to participate in the nature of real estate. The rule is, that 'whereas a person by statute 29 Car. II. c. 3. estates pur autre vie, limited to the grantees and his heirs, or his heirs, executors, and administrators, during the life of a third party, are declared to be real assets in the hands of the heir. Terms of years being personal only to the tenant in possession, the heir inherits the estate of the executor or administrator; but terms which are created or assigned over to attend the inheritance (according to the common mode, in the absence of a general registry, used by the testator that the properties real and personal, including judgments and personal charges of the owner) in general follow the nature of the inheritance. At common law, it was only the real estate descended to the heir which was liable to any of his debts, and this only to debts by bond or specialty, in which the heir was specifically named. If, therefore, the debtor, after the Statute of Uses, 12 Hen. VIII. 1. c. 10, had purchased his land, the creditors were entirely defrauded of their debts. To remedy this evil, the 3d Will. and Mary, c. 14, a. 2, rendered such devices void as against creditors by bond or specialty in which the heir was bound, and enabled all such creditors to sue the devisees of the land jointly with the heir at law. And this act having been construed to apply to the case of creditors on bond only, has been held to apply only to a privity of estate. Indeed, the 1st William IV. c. 47, to creditors, not only on bonds, but on covenants, and all other specialties. But it is not merely all classes of specialty creditors that have now a remedy against the real assets of the debtor: the creditors by simple contract obtained a remedy by the 4th Will. c. 74 (re-enacted by 1 Will. IV. c. 47); but this was confined to cases where the debtor, at the time of his death, was a frauder; and none of the above provisions applied to copyhold estates. But now, by the comprehensive enactment of 3 and 4 William IV. c. 104, all the real estate of the debtor, whether freehold, customary, or copyhold, which he shall not, by his last will, have charged with payment of his debts, is rendered chargeable there and then as a personal asset; and the remedy by suit in a court of equity, as a simple contract creditor to sue the heir or devisee at law.

We have hitherto treated of assets merely as regards the rights and claims of the creditor against the executors and administrators, and heirs and devisees of the debtor, in respect of real assets, an equitable curtesy or dower to the heir of plena administratrix in a court of law. The distinction between the two classes is most important, and consists not merely in the mode of obtaining payment out of them, but in the mode of distributing the personal assets property which is in the testator's hands clothed with a specific trust or appropriation; for instance, bills or notes remitted to the testator to meet acceptances for any particular purpose, which he has paid himself under a specific trust to apply it by payment of his testator's debts. 2. Personal equitable assets are such as can only be made available by the help of a court of equity, and which consequently cannot be given evidence against an executor or his pleas of plena administratrix in a court of law. The distinction between the two classes is most important, and consists not merely in the mode of obtaining payment out of them, but in the mode of distributing the personal assets property which is in the testator's hands clothed with a specific trust or appropriation; for instance, bills or notes remitted to the testator to meet acceptances for any particular purpose, which he has paid himself under a specific trust to apply it by payment of his testator's debts. While legal assets must be applied in payment of debts, according to certain rules of priority (viz. 1. Funeral charges, etc.—2. Debts to the crown—3. Judgments—4. Recognizances, etc.—5. Rent and specialty debts, as mortgages, bonds, etc.—6. Simple contract debts—7. Legacies), equitable assets are distributable among all creditors equally, the only distinction recognized in courts of equity being that debts delayed are preferred to legacies. Equitable assets embrace money produced by sale of the testator's real estate, whether his interest in such estate were legal or equitable, and whether it be expressly devised to him, or whether assigned to him by act of the deceased, or whether the proceeds of its redemption of a mortgage is equitable and not legal assets. So also is any fund over which a man has a general power of appointment, which he exercises; in which case the property will be equitably subject to the claims of his creditors. In reference to those of his legacies orappointments. 3. Real Assets comprise all such lands, tenements, etc. as descend to the heir at law of the deceased, and which at common law rendered him chargeable with specialty debts binding the heir. They embrace many things not strictly of a natural right. Thus an annuity, though a personal thing, is, if granted to a man and his heirs for ever, real assets, which descend to the heir; and this is also the case of grants of houses, of Chimneys, etc. of ships, of plates, of mantles, of armories, and other fixtures; and even deer in a park, hares and rabbits in a warren, fish in a private pond or fishery, are held to participate in the nature of real estate. The rule is, that 'whereas a person by statute 29 Car. II. c. 3. estates pur autre vie, limited to the grantees and his heirs, or his heirs, executors, and administrators, during the life of a third party, are declared to be real assets in the hands of the heir. Terms of years being personal only to the tenant in possession, the heir inherits the estate of the executor or administrator; but terms which are created or assigned over to attend the inheritance (according to the common mode, in the absence of a general registry, used by the testator that the properties real and personal, including judgments and personal charges of the owner) in general follow the nature of the inheritance. At common law, it was only the real estate descended to the heir which was liable to any of his debts,
mede of expression in a will require to operate this effect, the cases have been very numerous and contradictory, and evidence relates the will has been, in some of them (as it is now held, improperly), resorted to. In other cases it was held that the words were requisite; but it is now settled that the personal assets will be excepted, if it appear, from the whole testamentary disposition taken together, sufficient to cover the personal estate and all real estate not mentioned to charge the real estate, but so to charge it as to exempt the personal assets. Marshalling assets is that operation by a court of equity, by which claimants entitled to claim against both the real and personal estate as the deceased are compelled so to elect as not to defeat the claim of other claimants who have only one of these funds to resort to. It is a general rule of equity that if A. have two funds to resort to, and the decedent has left a will, or on only one of these funds, may compel A. to have recourse to the other, provided it be necessary for the satisfaction of both. The doctrine and practice of marshalling assets as between creditors by simple contract and creditors by specialty, seems to be in a great degree superseded by the effect of the late statute 3 and 4 Will. IV. c. 104 (before stated), by which the former have acquired a claim against the freehold and copyhold as well as against the personal property of the deceased debtor. But the rule of equity of estate exists also in favour of legatees, and therefore if a creditor by bond, in which the heir is named, exhaust the personal estate instead of resorting to the heir, so as to leave nothing for the legatees, the bond of that creditor is void and the personal estate descends to the heir. But if the real estate were devised to a stranger, it would be otherwise, for in that case it would not be equitable that a general legatee (it being in that case a general residuary legatee) should obtain his legacy by throwing the specialty debts upon the specific devisees of the land. The principle of course applies as between a legatee and a simple contract creditor, where the latter has a claim upon the real estate, which the former has not; as when the testator's estate is generally devised charged with debts but not with legacies. [See Executors, Legacies, Wills and Testaments; and see William's Treatise on the Law of Executors and Administrators, 2nd ed. (7th ed.), tit. Executors and Administrators, Legacies, Mortgages.]

ASSIDIAN (אַסַּידְיָן) Chasidism 'Ambavie, 1 Maccab. vii. 13. Chasidizer, the pious, from the root ἀσίδος, or rather from ἀοιδός, a term used to denote either a very good or a very bad condition, but more frequently the former. It was a name given to the zealous defenders of the unity of the Deity and the belief of their ancestors, against the attacks of Antiochus Epiphanes and his successors to force the Jews into idolatry. The Jewish people, under the leadership of Mattathias, who gave the signal for armed resistance against the Syrian tyrants, by killing the commander of the king's troops at the idolatrous altar in Modein, near Joppa. Mattathias bequeathed the Chasidism during four years against the Greco-Maonies of those days. These four years are not included by Josephus in the hundred and twenty-six years of the Asmonean dynasty, which he commences from the time at which Judas Macabaeus assumed the chief command. After the death of Judas, the Chasidim who secluded themselves from worldly occupations and pleasures to devote their life solely to religious exercises and bodily chastisements, in the hope either of expiating their own sins or of hastening the coming of the Messiah. These Chasidim studied the kabalah, and endeavoured by their mortification of the flesh to abstract the spirit from the body, and thus have liberty to enter into communion with angels and angels. They fasted frequently, and asserted that they had visions. Solomon Maimon informs his readers in his Memoirs (Berlin, 1793), that some of the Chasidim died in consequence of their austerities, and that others became degenerate; he also states that their spiritual profession subservient to their temporal advancement.

About the middle of the eighteenth century a new sect of Chasidim arose, who invented a more comfortable method of ascetic practices. They were the men with the mission of the Messiah was effected by contemplation, and that in order to fix the mind on God it is necessary to quicken sensation by the enjoyment of permitted indulgences. They asserted that mortification of the flesh disturbs that mental tranquility which is necessary for the contemplation of God. These Chasidim, called Hasidim or Habad, united the religious and pious with the charitable and merciful, the better to compass the salvation of the world. Chasidim, confirms to the Hasidim, and that they are represented only during seasons of prayer, and they taught that prayer should be performed with the greatest exertion and concentration of the mental faculties, in order to unite the praying spirit so intimately with God as to obtain power over all the hostile and obstinate obstacles of the heart, and to obtain the desires of the taskid is always in communion with God.

After this sect became numerous, some of its members were considered representatives of God, and their words regarded as sacred. The influence of these representations was based solely upon their appearance of sanctity, and not upon their mental superiority. They therefore endeavoured to bring science into disrepute.

The history of Chasidism is briefly this: Israel Baalshem, i.e. "the Lord of the name, i.e. gezuglos, the leader, whom Maimon erroneously calls Joel, lived A.D. 1740, in the town of Vlussa, in the circle of Czarkow, in Poland. His partizans assert that his birth was predicted to his father by the prophet Elijah, and that his mother was a hundred years old at the time of his birth, and his father still more advanced in years. While yet in his youth they relate that he overcame some evil spirits, or demons. Baalshem went afterwards to Medziboz in Podolus, whence he propagated his doctrines, which are contained in the same treatise written by his grandson under the title ד'אכ"ב. His testament has been published under the title "ד'אכ"ב. His birth and miracles are described by his disciple R. Bar Loez, in a volume called ד'אכ"ב. The fifth edition was published A.D. 1815. The word בוז, is formed from the initials of בְּבִזְס, the Lord of the good name, or, the Lord of the name of God. From the word Beshit, the modern Chasidim have been called Beshitians. The orthodox rabbins opposed in vain the spread of the Chasidim, or Beshitians, by anathemas and excommunications. Baalshem based his doctrines upon the cabalistic book of Zohar ת"ש, recommending a contemplative, inactivate life, and frequent bathing in spring water.

The Beshitians soon spread over Wallachia, Moldova, Hungary, and Galizia, but their principles were not admitted among the Jews in Germany, France, and Italy. This sect a long time concealed their doctrines, and pro

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I. faithfulness to seize men and attachment to the tsadik.
II. cleaving to the Shechinah.
III. courage.

This courage may even become insolence and effrontery, so that the chasid may contradict the principles of truth, justice, and moderation. This is so much so that the two principles are in collision with the will of the tsadik and that of his sect.

In modern times the chasidim have left off the use of prayer books according to the German and Polish ritual, and have adopted the Spanish and oriental ritual, with which they have mixed many cabalistic elements.

It is the duty of the chasid to shout during prayer, to clasp his hands behind his back, or to beat them against his left hand, to jump about and to move the body as in conversation. Whoever shouts during prayer with all his might, shakes his whole body, and claps his hands, averts the wrath of God and strengthens his own memory. The chasid must not be prevented by others from obeying in this respect the precepts of the tsadik.

The chasidim do not like to assemble in the common synagogues. In every place where ten chasidim reside they have a hachnasah for the chasidim, and prayer and conversation, both sacred and profane. The chasidim bathe frequently. (See Peter Beer in Erach and Gruber's Encyclop., and Geschicht der Lehren and Meinungen aller be-stehenden religiösen Secten der Ju-den, and der Geheimlehrs oder Kabbalah, von Peter Beer, Brünn, 1823. Second volume, p. 197—259.)

ASSIEN TO TREATY, in Spanish, EL ASIENTO DEL INDIOS NEGROS AND EL PACHA Y EL TANGAR DEL ASIENTO, that is, the compact for the hiring or supply of negroes. It is plain that the word Asiento, though occasionally signifying an assent or agreement, cannot, as is sometimes stated, have that meaning in this expression to have no habit of little or no interest with those parts of Africa from which slaves were obtained, used formerly to contract with some other nation having establishments on the western coast of that continent for the supply of its South American possessions with negroes. Treaties were made first with Portugal, and afterwards with France, each of which countries, in consideration of enjoying a monopoly of the supply of negroes to the South American dominions of Spain, agreed to come to that crown a certain sum for each negro imported. In both cases the Asiento was taken by a commercial association in France—by the Guinean Company, which thereupon took the name of the Asiento Company (Compagnie de l'Asiento). Both the Portuguese and French held their slave trade monopoly for a limited number of years. In 1702, the French had held the monopoly for thirty years. In addition to the privilege of importing negroes, the new holders of the contract obtained the privilege of sending every year a ship of 300 (afterwards raised to 600) tons to Spanish America, with goods to be entered and disposed of on payment of the same duties which were exacted from Spanish subjects; the crown of Spain, however, reserving to itself one-fourth of the profits, and five per cent. on the remaining three-fourths. The contract was given by Queen Anne to the South Sea Company, which, however, is understood to have never carried on the trade, and that there was a profit of cent, per cent. upon the goods imported in the annual ship, which usually amounted in value to about 300,000l. So much of this sum as fell to the share of the company was either counterbalanced by the losses attendant on the supply of the 4800 negroes which they were bound to provide every year, or went chiefly into the pockets of their South American agents, many of whom in a few years made large fortunes. The war which broke out in 1739 stopped the further performance of this contract when there were still four years of it to run; and at the peace of Aix-la-Chapelle, in 1748, the claim of England to this remainder of the privilege was given up. Spain, indeed, continued, and probably with justice, that the greatest frauds had been all along committed under the provision of the treaty which allowed the contractors to send a shipload of goods every year to South America. It was alleged that they were the cause of importing into Spanish American markets a quantity of goods amounting to several times her own cargo. The public feeling in Spain had been so strongly excited on the subject of this abuse, that it would have been very difficult to obtain the consent of that country to the renewal of the contract.

ASSIGNAT. One of the earliest financial measures of the constituent assembly. In the French revolution, was to appropriate to national purposes the landed property of the clergy, which, upon the proposition of Mirabeau, was by a large majority declared the private property of the nation. Thiers, Histoire de la Révolution Française, vol. i. p. 194, 2d ed. Shortly afterwards, the assembly, desirous to profit by this measure, decreed the sale of lands belonging to the crown and the clergy, to the amount of the sum of 400 millions of francs, or about sixteen millions sterling (lb. p. 212). To sell at once so large a portion of the surface of France, without lowering the price of land by overloading the market to such an unprecedented extent (see Thiers, vol. viii. p. 377), and moreover in a time of want, insecurity, rapid political changes, and almost of civil war, was an object of no very easy attainment.

It was first proposed that the lands should be transferred to the municipalities, which, not being provided with enough money, might give in the name of a body, or security for the price, and the state would pay its creditors with these securities, which could, in process of time, be realised, as the municipalities were able successively to sell, at an advantageous price, the roads, agricultural lands, and grazing grounds. This plan was adopted in order to save the very valuable buildings on the lands which were put up to sale, and by offering the security in payment. But it might happen that the holder of such securities would be unable to realise them, and might not be willing to purchase any of the lands of the state: in order, therefore, to obviate this, a plan was proposed that they should be transferable and be made a legal tender.

There was also another motive for the adoption of this latter expedient. In consequence of the want of confidence and stagnation of trade which prevailed in France at this time, money had become extremely scarce, and much of the coin had been withdrawn from circulation: the king and queen had therefore decided to issue for the state, according to the custom of making paper assignats, called assignats, as representing land which might be transferred or assigned to the holder; and all notes which came back in this manner to the government in payment for national lands were to be cancelled. They moreover gave a new interpretation to the word assignats, which was already mentioned in the Code de 1717, but there it had been limited to things of value which did not pass from hand to hand, and was therefore included in the category of securities. The object of this measure was, therefore, to obtain the full value of the confiscated lands of the clergy (which in the actual state of France was impossible), and to supply the deficiency of the sequestration by the issue of assignats (of insecurity) by a forced issue of inconvertible paper-money, which, as was predicted by M. de Talleyrand, the Bishop of Autun, would inevitably be depreciated, and cause misery and ruin to the holders of it. (Thiers, vol. i. p. 253—7, and note xviii. p. 583.) The first issue of assignats was to the amount of 400 millions, bearing interest: shortly afterwards 800 millions in addition were issued, but without the liability to pay interest (lb. p. 485). The last of these issues was made in September, 1790. But as in the beginning of the following year the legislative assembly sequestered the property of all the emigrants, a numerous and wealthy class, for the benefit of the state (Thiers, vol. ii. p. 51), it was thought that the amount of the national securities having been increased, the issues might be safely increased likewise: accordingly, in September, 1792, although 3600 millions had been already issued, a fresh issue to the amount of 800 millions was ordered by the Convention. (Thiers, vol. ii. p. 31.) Towards the end of this year, the double effects of the general insecurity of property and persons, and of the depression of assignats caused by the over-issue, were felt in every department, and the unwillingness of the farmers to supply the markets with provisions. Wholly masking the causes of this evil, the violent revolutionary party clamoured for an assize, or fixed maximum of prices, and severe penalties against speculators, importers, and the unavailing and unjust gains of the rich farmers. The Convention, however, though pressed
both by factious violence and open insurrection, refused at this time to regulate prices by law. (Thiers, vol. iii. p. 311-7.) Prices, however, as was natural, still continued to rise; and although corn and other necessaries of life were to be had, their value, as represented by the currency, had been nearly doubled: the washerwomen of Paris came to the Convention, to complain that the price of soap, which had formerly been fourteen sous, had now risen to thirty. On the other hand, the wages of labour had not advanced sufficiently to meet the increase of the necessaries of life. The labouring classes accused the rich, the engrossers, and the aristocrats, of the evils which they were suffering, and demanded the imposition of a maximum of prices. Not only however in the Convention did the most violent demagogues declare loudly against a maximum, but even in the more popular assembly of the commune, and the still more democratic club of the Jacobins, was this measure condemned, frequently amid the jeers of the galleries. As the Convention refused to give way, Marat, in his newspaper, recommended the pillage of the shops as a means of lowering prices: a measure immediately adopted by the people of Paris, who believed they had to meet at certain fixed prices, and ended by taking the goods without paying for them. (Thiers, vol. iv. p. 38-52.) These and other tumults were however appeased, partly by the interference of the military, and partly by the exertions of the Convention to meet the public wants; but the evil still went on increasing; corn diminished in quantity and increased in price; the national lands, on account of the uncertainty of their title and the instability of their government, were not sold, and thus the number of assignats was not contracted, and they were continually more and more depreciated.

At length the Convention, thinking that the depreciation might be stopped by law, made it by exchange only, for a time, to give a higher price if reckoned in paper than if reckoned in coin. Still the over-issue had its natural effects: in June, 1793, one franc in silver was worth three francs in paper; in August it was worth six. Prices rose still higher; all creditors, annuitants, and mortgagees were defrauded of five-sixths of their legal rights; and the wages of the labourers were equal in value only to a part of their former earnings. The Convention, unable any longer to resist, in May, 1793, passed a decree which compelled all farmers to declare the quantity of corn in their possession, to take it to the markets, and sell it there uniformly, according to the prices of the first four months. The name of this corn was taken as sufficient to last the autumn without the necessity of raising prices. The commune of Paris also regulated the selling of bread; as people could receive bread at a baker's shop without a certificate obtained from a revolutionary committee, and the quantity was proportioned to the number of the family. A rope was moreover fixed to the door of each baker's shop, so that as the purchasers successively came, they might lay hold of it, and be served in their just order. Many people in this way waited during the whole night: but the tumults and disturbances were so great that they could only be appeased by force, nor were they at all diminished by a regulation, that the last comers should be served first. A similar maximum of prices was soon established for all the necessaries of life: salt, leather, linen, woollen, and cotton goods, &c.; and any person who refused to sell them at the legal price was punished with death. Other measures were added to lower the prices of commodities. Every day was compelled to declare the amount of his stock; and any person who gave it in trade, after having been engaged in it for a year, was imprisoned as a suspected person. A new method of regulating prices was likewise devised, by which a fixed sum was ascertained, which was to be paid for the cost of production, and certain percentages were added for the expense of carriage, and for the profit of the wholesale and retail dealers. The excessive issue of paper had likewise produced its natural consequence, over-speculation, even in times of peace, being encouraged for commercial undertakings. Numerous companies were established, of which the shares soon rose to more than double or treble their original value. These shares being transferable, served in some measure as a paper-currency; upon which, the Convention thinking that they contributed still further to the public confusion and the discredit of the paper, voted that the shares should be transferred or negotiable. The power of establishing such companies was reserved to the government alone.

In August, 1793, there were in circulation 3776 millions of assignats; and by a forced loan of 1000 millions and by the collection of a year's taxes, this amount was subsequently reduced to less than two-thirds: the confidence moreover inspired by the recent successes of the republic against its foreign and domestic enemies, and the tributes exacted from the securities on which the paper-money ultimately reposed: so that towards the end of 1793 the assignats were stated to have been at par. This effect is attributed by M. Thiers, in his History of the French Revolution (vol. v. p. 407, to the severe penal laws against the use of coin: nevertheless we suspect that those who made this statement were deceived by false appearances, and that, neither at this nor any other time, not even at their first issue, did the real value of assignats agree with their nominal value. (Thiers, vol. v. pp. 145-62, 196-208, 399-413.) However, this restoration of the paper-currency, whether real or apparent, was of very short duration, and the revolution was soon forced to a fresh issue of assignats: so that in June, 1794, the quantity in circulation was 6536 millions. By this time the law of the maximum had become even more oppressive than at first, and it was found necessary to withdrawing certain commodities from the market, the prices of which had been fixed, and which had attempted to perform the part of a commissionary for the whole population of France, began to interfere in a more arbitrary manner with the voluntary dealings of buyers and sellers, and to regulate not only the quantity of bread but also the quantity of meat and wood which each person was to receive. (Thiers, vol. vi. pp. 146-51, 307-14.) Other arbitrary measures connected with the supply of the army, and the requisitions of food and horses, and the levying of large bodies of men for the army, were carried out by all industry. Thus not only had all commerce and all manufactures ceased, but even the land was in many places untilled. After the fall of Robespierre, the Thermidorian party (as it was called), which then gained the ascendency, being guided by less violent principles, and being somewhat more enlightened on matters of political economy than their predecessors, induced the Convention to relax a little of its former policy, and succeeded in first excepting all foreign imports from the maximum, and afterwards abolishing it altogether. The transition to a natural system was however attended with great difficulty and danger, as the necessity of maintaining the revolutionary government without the rise of the avowed prices; and trade having been so long prevented from acting for itself, did not at once resume its former habits; so that Paris, in the middle of winter, was almost in danger of starvation, and wood was scarcely more abundant than in summer. The government therefore, however, the revolutionary government to retain possession of the lands which it had confiscated, and to give a permanently good title to purchasers, was not doubted, it is evident that a fear lest the national lands might not ultimately prove a valuable security did not now tend to discredit the assignats: their depreciation was solely owing to their over-issue, as compared with the wants of the country, and their incompetency to bear the taxes. The government however began now to find that, although it might for some time gain by issuing incorruptible paper in payment of its own obligations, yet when the depreciated paper came to be offered for exchange with the public, it was met with in a very small portion of the sum nominally paid. Consequently they argued that, as successive issues depreciated the currency in a regular ratio (which however is very far from being the case), it would be expedient to require a larger sum to be paid in assignats on the issue of paper in circulation. It was therefore decreed that, taking a currency of 2000 millions as the standard, a fourth should be added for every 500 millions added to the circulation. Thus, if the assignats were needed to be improved, it would become 2500 franes when the currency was 2500 millions, 3000 franes when it was 3000 millions, and so on. This rule however was only applied to the taxes and arrears of taxes due on government, and not to the payments made by the government, as to public creditors.
or public functionaries. Nor did it comprehend any private dealings between individuals. (Thiers, vol. vii, pp. 40-51, 132-41, 322-89, 358-85, 420-8.) Iniquitous as this regulation was, as employed solely in favour of the government, it would nevertheless have been ineffective if its operation had been more widely extended; for the assignats, instead of being depreciated only a fifth, had now fallen to the 130th part of their nominal value, and had been reduced, in part at least, to the level of commodities, and being chiefly paid in paper, produced scarcely any thing to the government; which had however undertaken the task of feeding the city of Paris. Had it not in fact furnished something more solid than depreciated assignats to the functionaries, they must have died of starvation. Many, indeed, notwithstanding the scanty and precarious supplies furnished by the government, were threatened with the horrors of famine; and the numbers of persons threw themselves almost nightly into the Seine, in order to save themselves from this extremity. (Storch, Economie Politi, vol. iv. p. 168.)

To such a state of utter pauperism had the nation been reduced by the mismanagement of its finances and the ruin of public credit by the excessive issues of paper, that when the five directors went to the Luxembourg in October 1795, there was not a single piece of furniture in the office. The door-keeper lent them a tickety table, a sheet of letter-paper, and an inkstand, in order to enable them to write their first message to announce to the two Councils of State that the Directory was established. There was not a single piece of coin in the treasury. The assignats necessary for the purpose were issued in the most ostentatious manner, and each morning wet from the press. Even before the entry of the directors into office, the sum in circulation amounted to 19,000 millions: a sum unheard of in the annals of finance. The assignats, however, were changed for money; in order to procure silver, it was to issue 3000 millions in addition, which produced not more than 100 million francs.

In this formidable state of things the next measure adopted by the new government was to suspend the assignation from which it emanated. A forced loan of 600 millions was raised from the richest classes, to be paid either in coin, or in assignats at the hundredth part of their nominal value; and numbers of persons threw themselves into the Seine for the purpose. (Thiers, viii. pp. 89-9, 163-19, 158-62, 177, 183-91, 334-44, 423-4; Storch, Cours d' Eco. Pol., vol. iv. p. 164.)

ASSIGNEE—of a bankrupt. [See BANKRUPT.]

ASSIGNEE—of an insolvent debtor's estate. [See INSOLVENT DEBTOR.]

ASSIGNEE—of bill of lading. [See BILL OF LADING.]

ASSIGNEE—of a lease is the party to whom the whole interest of the lands comprised in the assignment, which assignment may be made without the previous consent of the lessor, unless the lease is expressly restrained by the lease from assigning over. The assignee becomes liable to the lessor, from the date of the assignment, for the payment of the rent and the profits, and for the repair and expenses of the estate, but such liability is limited to breaches of covenant during the existence of the assignee's interest, and may be got rid of by assigning over all his interest, and this even to an insolvent; for his liability, arising only from privinity of estate, that is, from the actual enjoyment of the premises leased, ceases with such enjoyment; whereas the lessee remains liable to the rent and covenants during the whole term. It results also from the circumstance of the assignee's liability arising from privinity of estate, that he is not liable to mere personal covenants which the lessee may have made with the lessor (as e. g. to build on premises not demised, or to pay a sum of money) for which the lessee only stands responsible, and which cannot be enforced against the assignee, even in the event of the lessee's default. In such cases, the assignee becomes liable to the lessor, but not to the assignee. (Thiers, viii. pp. 89-9, 163-19, 158-62, 177, 183-91, 334-44, 423-4; Storch, Cours d' Eco. Pol., vol. iv. p. 164.)

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The assignee is not liable to the owner on this covenant, for there is no privy between the assignee and the owner, such privy only existing where the subject of the deed is an executor, while the assignee is a beneficiary. — Gill v. Wray. 

"The covenant in this case is not collateral; but the parties, that is, the lessor and assignee, are total strangers to each other, without any line or thread to unite and tie them together, and it cannot be presumed that privy which must necessarily assist the debtor and prejudice the assignee to support his rights. — (Wilkes, 345.) The assignee may acquire his interest by operation of law as well as by an actual assignment from the lessee, and therefore a tenant by ejectment, who has purchased a lease under an assignee, is entitled to all the rights in respect of his privy estate. [As to the liability of assignees of bankrupt on the leases of the bankrupt, see Bankrupt.] ASSIGNMENT, a deed or instrument of transfer, the operation of which is to assign, transfer, and over, and which passes both real and personal property. Estates for life and estates for years are the principal real interests which are passed by an assignment; and by the statute of Frauds and Perjuries (29 Car. II.) the assignment of such estates is required to be in writing. An assignment differs from a lease, in being a transfer of the entire interest of the lessor; whereas a lease is carved out of a greater estate, creates the relation of landlord and tenant, and the lease continues after its expiration. If, however, a deed in effect passes the whole interest of the tenant, it operates as an assignment, though it be in form a lease, and though it reserve a rent. As a has run for twenty years in land, B the whole twenty years, reserving a rent: in such case B is assignee of the whole term and interest, and not under-lessee to A; and if, for want of having this provision, cannot distinguish for himself, (a distress being only enforceable where the landlord has a legal estate,) it is held an assignment; if A has been in possession of the land for twenty years, reserving a rent: in such case B is assignee of the whole term and interest, and not under-lessee to A; and if, for want of having this provision, cannot distinguish for himself, (a distress being only enforceable where the landlord has a legal estate,) it is held an assignment.

Assignments of Goods, Chattels, &c., is frequently made by bill of sale, as to which, see Bills of Sale. Assignments of goods and chattels in possession, no objection ever existed to their transfer and assignment by deed or writing; but with respect to things in action (as debts, contracts, right of covenant, and such,) according to the nature of the right. An common law, now considerably modified, they could not be assigned over by the party to whom they were due, since the assignment gave to a third party a right of action against the debtor, subject to the right of maintenance. — I. e. the abetting and supporting of the assignee's claim by the original party to it. The courts in general have always protected such assignments, and regarded the assignee, for valuable consideration, as the actual owner of the bond; and the courts of common law so far recognise the right of the assignee, that if an assignee, after notice of the assignment, pay the money on the bond to the obligor, he is not liable to the assignee's court to others than the actual parties to them. In the courts of common law this rule exists (with some exceptions) at the present day. Thus, if the obligee in a bond assign over the bond to another, and the latter pay the money at common law in his own name, but such an assignment generally contains (and ought always to do so) a power of attorney from the obligee to the assignee, to sue in the obligee's name on the bond. Courts of equity have always protected such assignments, and regarded the assignee, for valuable consideration, as the actual owner of the bond; and the courts of common law so far recognise the right of the assignee, that if an assignee, after notice of the assignment, pay the money on the bond to the obligor, he is not liable to the assignee's court to others than the actual parties to them. In order to constitute a good equitable assignment of a bond, or chose in action, writing is not necessary. A personal trust or confidence cannot be assigned over, however able the assignee may be to execute it; and therefore all trust deeds and settlements contain express proviso for the retiring of trustees, and for fresh appointments, with the consent of the cestui que trust. Neither the future who pay nor the future half-pay of an officer are capable of being assigned, it being considered contrary to public policy to assign and given to a man for his public services should be transferred to another man not capable of performing them. The exceptions to the rule that choses in action are not assignable at law are many. The king might at all times become the assignee of a chose in action; and after such assignment, the assignor could remove the body, lands, and goods of the debtor. But this provision of the king, having been abused by the king's debtors, was restrained by stat. 7 Jac. I. c. 16, by a privy seal, in 19 James I., and by rule of court of 15 Car. I.; and the practice of actually making such assignees, has long been obsolete. Bills of exchange are assignable by indorsement, in virtue of the custom of merchants [see Bill of Exchange]; and promissory notes, by virtue of the 3 and 4 Anne, c. 29, cap. 24. Bills of exchange can be made in blank to plaintiff in the suit under 4 Ann. c. 16, s. 50. [See Bankrupt.] Replevin bonds, by the 11 Geo. II. c. 19. [See Replevin.] The petitioning creditor's bond under a flat of bankruptcy, by 6 Geo. IV. c. 18. [See Bankrupt. See, further, Mont, Const. rev. ed., vol. ii. p. 308.] An Act for establishing a parliament for the county of the Shetland Islands, was passed in 1596, after the death of King James, and the cultivation of the island has been proceeding ever since. The space of the foot of the mountains is generally covered with heather, but the cultivated portions of the county extend several miles in length. The occupation of the poorer inhabitants is fishing, especially herring, cod, and ling, and the rearing of cattle. The greater portion of the parish, however, is divided into extensive heathen prospects, stocked with the improved common breed. Oats, bear, and potatoes form the food of the people, and are the objects of their cultivation.

This district belonged antiently to the Earls of Sutherland, but was ceded to the Duke of Shrewsbury the third creation for life, by the earl of Kinnaird, Macleod, and Mackenzie, it reverted to the same family about a century back, being now the property of the Duchess Countess of Sutherland. There is no wood, properly speaking, but there are considerable districts of heather, mixed with natural birch, intermixed with the oak, the hazel, the mountain-ash, and the honeysuckle. A considerable portion of the interior is composed of primitive limestone; abounding everywhere of various qualities and colours have been worked, but as they contain small particles of quartz, they are too difficult to saw to come into use. The parish is now intersected with about forty miles of excellent road, constructed entirely by the late Duke of Sutherland, and which has very much improved the condition of the people and their future prospects. The coast is rocky and precipitous, with strong tides and a stormy ocean; but it possesses several safe boat harbours; Loch Inver, the largest, and Loch Eriboll, sit on the north coast. The roads to the north are safe roads for the smaller vessels, and are frequented in spring and autumn in the fishing season. The parish church was inconveniently situated, so that many of the parishioners never saw it. The minister had, however, one or two preaching stations; but the deficiency of religious instruction has been more effectually supplied by the building of a new church at Store, under the direction of the Parliamentary Commissioners for building churches and chapels in the Highlands of Scotland, with the aid of the late Duke of Sutherland and his duchess, then Marquess and Marchioness of Stafford. Another new place of worship has been erected by aid and subscription at Loch Inver. There are seven schools in Assynt, besides the parochial school; and the public and private scholars in the parish amount to between 500 and 600. The whole population is 3161. Gaelic is the language chiefly read and spoken. (Sir Walter Scott's Statistical Account of Scotland: Parliamentary Reports, vol. i. c. 4.)

ASSISI, a town of the Papal state, in the province of Umbria, and in the administrative delegation of Perugia. It is built on a hill, and near the Tiber, a short distance from Perugia, and is about 33° 24' 30" N. 12° 3. It commands a fine view of the valley of Foligno, watered by the Tronto, one of the tributaries of the Tiber. Assisi was the birth-place of St. Francis, the founder of the mendicant order. It is entitled to a great number of privileges against the body, lands, and goods of the debtor. But this provision of the king, having been abused by the king's debtors, was restrained by stat. 7 Jac. I. c. 16, by a privy seal, in 19 James I., and by rule of court of 15 Car. I.; and the practice of actually making such assignees, has long been obsolete. Bills of exchange are assignable by indorsement, in virtue of the custom of merchants [see Bill of Exchange]; and promissory notes, by virtue of the 3 and 4 Anne, c. 29, cap. 24. Bills of exchange can be made in blank to plaintiff in the suit under 4 Ann. c. 16, s. 50. [See Bankrupt.] Replevin bonds, by the 11 Geo. II. c. 19. [See Replevin.] The petitioning creditor's bond under a flat of bankruptcy, by 6 Geo. IV. c. 18. [See Bankrupt. See, further, Mont, Const. rev. ed., vol. ii. p. 308.]
church and monasteries which St. Francis was buried, is a large and splendid building. Two minarets from Assisi, by the side of the high road, is the noble church of La Madonna del Giglio, raised by the architect Vignola, in the centre of which stands the rustic oratory where St. Francis first bethought himself of renunciation. He is said to have been born at Porziuncola, from its having been the first portion, or property belonging to the order, [see Francis, Saint].

On the 2nd of August multitudes of pilgrims resort to this sanctuary. Assisi was a Roman municipium, and a place of considerable importance, as may be inferred from the remains of the forum, the thermae, the aqueducts, and other ruins which are still seen. But the finest piece of antiquity it contains is the Temple of Minerva, transformed into a church dedicated to the Virgin; the portico, which has remained entire and in good preservation, is considered to be the finest specimen of the kind in Italy, after the Pantheon.

It consists of six fluted Corinthian columns, with architrave, frieze, and cornice, surmounted by a pediment. The whole is made of travertine; the proportions are good, and the capitals and other ornaments are of fine workmanship. The inscription on the frieze, which was of the most characteristic, has been unfortunately lost. Only three sides of the ancient cela remain, the posterior part having been lengthened when converted into a church. The columns, however, are still preserved, with the relics of the temple, and make a fine picture in height and width.

This portico had been much neglected and injured, until 1755, when the Congregation of the Oratory having purchased the remains of its Capuchin friars for 2000 scudi, the Superior, Fr. Scipione Calandrelli, in healing up the portico, and fixing it in its original appearance, and cleared it of some adjacent hovels. The house of the Congregation and the public schools are now annexed to the church. Antonio has given a description (1826) of the frescoes in the chapel of the Scourletto. The remains of antiquity is a fine sarcophagus, with a relief representing Diana and Endymion; it forms now the top of one of the altars in the church of St. Rufino. Several ancient tombs are also to be seen.

Assisi is a bishop's see. Its population is about 4000.

The country around abounds with olive trees, and there are mineral waters in the neighbourhood.

The word assisio, assigned to us by the French, and is ultimately derived from the Latin verb assiduo, to sit by, or, as Lord Coke translates it, to sit together. The word assisius is also to be found in legal records and has in law-latin a different meaning at ten shillings; and then the judgment of the court is given for the damages "per juratorum in formam predictam assisius." It is possible that the word assisius, in cases where it is used as a noun, may be derived from this word. This etymology is not, however, given by Du Cange, Spelman, or any learned writer on this subject; though it obviously leads much more distinctly to some of the forms of the word than the derivation from assido.

With reference to England, the word assise has been called by Littleton, nomem signorum, on account of its application to a great variety of objects, in many of which neither the etymology of the word nor its original meaning can be readily traced in this article it is proposed to enumerate and explain in a summary manner the various significations of the term.

The term assises also signified an ordinance or decree made either by the emperors by the king, or by virtue of some delegation of the royal authority. Thus the Assises of Jerusalem were a code of feudal jurisprudence for the new kingdom of Jerusalem formed in 1199 by an assembly of the Latin barons, and of the 4 Henry assem. by Godfrey of Bouillon. (Gibbon's Decline and Fall, vol. xi. p. 93.) In this sense also, in ancient English history, Fleta speaks of "the laws, customs, and assises of the realm" (lib. i. cap. 17.) as also called the council, or council of nobles and prelates assembled by Henry II. in 1164, and commonly known as the "Constitutions of Clarendon," are copied in the hearing. Assises Henri Regis factae apud Clarendonum, 4 Will. IV. c. 20. Many of these are rules and regulations made by the courts to which the management of the royal forests belonged.

2. Analogous to these were the assizes or ordinances regulating the price of bread, ale, wine, and other common necessaries of life; called in Latin assises venales. The earliest express notice of any regulating the price of bread in England is in the reign of King John (1203), when a proclamation was made throughout the kingdom enforcing the observance of the legal assize of bread; but it is probable that there were such assizes of ale of a similar kind. In very early times these 'assises venales' appear to have been merely royal ordinances, and their arrangement and superintendence was under the direction of the clerk of the king's household. But at a subsequent period many statutes were passed regulating the assize of articles of common consumption; the earliest of these was the assize of bread and ale, 'assisa panis et calcar,' coming from the word of commerce, though its precise date is somewhat doubtful. The provisions of the act with regard to ale, establishing a scale of prices varying with the price of wheats, were altered in some measure by 53 Henry VIII. c. 4, which left a discretionary power with the justices of the peace of fixing the price of ale within their jurisdiction [see Ale]; but the assize of bread was imposed by this act, and enforced from time to time by orders of the privy council until the reign of Anne. In cities and towns corporate the power of regulating the assize of bread and ale was frequently given by charter to the local authorities, and the interference of the king was only required in cases of exception. Books of assizes were formerly published, under authority of the privy council, by the clerk of the market of the king's household, and there is one still in existence. After 31 Edward VI. the assize of ale was expressly abolished in London and its neighbourhood, and in other places it has fallen into disuse. There was also an assize of wood and cloth (stat. 34 and 35 Henry VIII. c. 8); and as the result of a memorial in 1700 we find an act (9 Anne, c. 20) enforcing former regulations for the assize of billet. Besides these, various other articles—wines, fish, tiles, clothes, &c., have at different times been subject to an assize, and among the last is the prevention of fraud and monopoly; and it is not surprising that in the early stages of legislation it should have appeared to be one of the first duties of government to secure to its subjects the prime necessaries of life at a reasonable and uniform rate. But subsequent experience and more enlightened views have shown, that to attempt to fix by law the prices of commodities, is not only useless and mischievous, but in many cases impracticable; and that when government has established an uniform scale of weights and measures, and, so far as it can be done, an uniform measure of value, the rest may safely be left to competition, and to the mutual dealings of men, in which takes place between the buyer and the seller.

3. The word assize also denoted the peculiar kind of jury by whom the writ of right was formerly tried, who were called the grand assize or grand inquest trial. The trial was said to have been devised by Chief Justice Glanville, in the reign of Henry II., and was a great improvement upon the trial by judicial combat, which it in a great degree superseded. Instead of being left to the senseless and barbarous determination by battle, which had previously been the only mode of deciding a writ of right, the alternative of a trial by the grand assize was offered to the tenant or defendant. Upon his choosing this mode of trial, a writ was issued to the sheriff directing him to return four knights, by whom twelve others were to be elected, and the whole sixteen composed the jury, or grand assize by whom the matter of right was tried. The late act of parliament, 4 Will. IV. c. 27, has now abolished this mode of trial, the cumbersome machinery of which was entirely unfit for the habits of modern society. [See Jury.] By the law of Scotland, the jury, in criminal cases, are still technically called the grand jury, or grand assize. It was usually composed of the sheriff and his council of nobles and prelates assembled by Henry II. in 1164, and commonly known as the 'Constitutions of Clarendon,' are copied in the hearing. Assises Henri Regis factae apud Clarendonum, 4 Will. IV. c. 20. Many of these are rules and regulations made by the courts to which the management of the royal forests belonged.

4. The common and popular use of the term assize, at the present day in England, is to denote the sessions of the judges of the superior courts by holding them within the county for the purpose of administering civil and criminal justice. These assemblies doubt originally derived their denomination from the business which was at first exclusively imposed upon them, namely, the trial of writs of assize. According to the common law, assizes could
only be taken (i.e. writs of assize could only be tried) by the judges sitting in term at Westminster, or before the justices in eyre at their septennial circuits. This course was productive of great delay to suitors, and much vexation and expense to the juries, or grand assize, who might have to travel from Cornwall or Northumberland, to appear in court at Westminster. To remedy this grievance, it was provided by this act, in 1295, that the judges should visit each county once in every year, to take assizes of novel disseisin and mort d'ancestor. From this provision the name of justices of assize was derived; and by several later acts of parliament various authorities have been vested in them by that description. By the 13 Edward I c. 3, (commonly called the statute of Westminster 2), it was enacted, that the justices of assize for each shire should be two sworn judges, associating to themselves one or two of the county clerk to try civil causes by the assize within their counties, and the several justices of assize are directed to take the assizes not more than three times in every year. By the same statute, authority is given them to determine inquisitions of trespass and other pleas pleaded in the courts of King's Bench and Common Pleas. From this important act of parliament, the jurisdiction of the judges of assize to try civil causes, other than the writs of assize above mentioned, originally arose; and as, with some modifications, it forms the basis of their civil authority at the present day, it may be desirable to endeavour to explain the complex and argumentative process by which the provisions of the statute are practically effected. Besides the general authority to determine civil issues, in pursuance of the statute Westminster 2, the taking of an inquisition in a civil action should be taken by the judges of the superior courts when sitting at Westminster unless the judicial writ which summoned the jury for such inquest appointed a certain day and place for hearing the cause in the county within whose county the cause of action arose. Thus, if a suit arose in Cornwall, the writ from the superior court must direct the sheriff of that county to return a jury at Westminster for the trial of the inquest in the next session (terminology) term. Namely, a certain day specified in the writ, the justices of assize came into Cornwall. This was sure to happen under the directions of a previous clause in the statute of Westminster 2, in the course of the term following the express date, and the jury would then summoned before the justices of assize in Cornwall, where the trial took place, and the parties avoided all the trouble and expense of conveying their witnesses and their documents. The jurisdiction of the judges of mini prius is therefore an annexation to their office of justices of assize; and thus, from the alteration in the state of society since the above laws were made, the principal or substantial part of their jurisdiction has, by the dispensation of the crown, been annexed to the court of King's Bench, while their annexed or incidental authority has grown into an institution of immense practical importance.

For several centuries, until a few years ago, the whole of England and Wales were divided into nine circuits of which the judges of assize were sent twice a year. Previously to the year 1830, the Welsh counties and the county palatine of Chester were independent of the superior courts at Westminster, and their peculiar judges and assizes were appointed by the crown under the provisions of several statutes. This separation of jurisdiction being found inconvenient, the statute 1 William IV. c. 70 increased the number of judges of the superior courts, and it was found that, in future, assizes should be held for the trial and despatch of all matters criminal and civil within the county of Chester and the principality of Wales issued under commissions issued in the same manner as in the counties of England. Since the passing of this statute, therefore, the assizes have been held throughout the whole of England and Wales (excepting London and Middlesex, where the administration of justice is regulated by peculiar customs and acts of parliament) have been held twice in each county upon a uniform system. In addition to these ordinary assizes, a third assize for the trial of criminals has for the last ten years taken place in the counties of Hertford, Essex, Kent, Sussex, and Surrey. This was commenced to relieve the great delay to their trial by the crown under the great seal. This commission pursues the authority of the ancient circuits, and is derived from the statutes of mini prius, and seems to have been nearly in the same form ever since the passing of those statutes. It is directed to two of the judges and several serjeants (the latter deriving their authority to be judges of assize from the statutes of Edward III c. 14, which mentions 'the king's own sworn under what words Lord Coke says that any serjeant at law is intended (2 Inst. 422), and commands them ' to take all the assizes, juries, and certificates, before whatever justice or justices armigued. Under the direct authority of the bench, the commissioners were, in 1835, three times nothing to do, the 'assizes, juries, and certificates mentioned in the commission having only a technical reference to the writs of assize, now wholly discontinued. It is stated in most of the texts that the judges of assize have also a commission of mini prius. This is, however, a mistake, no such commission being known in our law, and the only authority of the judges to try civil causes being their appointment to their office of justices of assize in the manner above described.

In certain cases, the justices of assize, as such, have by statute a criminal jurisdiction; but the most important part of their criminal authority is derived from other commissions. The first of these is a general commission of Oyer and Terminer for each circuit, which is directed to the lord chancellor, several officers of state, resident noblemen and magistrates, and the king's counsel and serjeants on their respective circuits; but the judges, king's counsel, and serjeants, are always of the quorum, so that the other commissioners cannot act without one of them. This commission gives the judges of assize express power to try treason and other felony and to extend the law of England, committed within the several counties composing their circuit. [See OYER AND TERMINER.]

The judges of assize have also commissions of gaol delivery, which give them several powers, which, as justices of Oyer and Terminer, they would not possess. They are directed to the judges, the king's counsel, and serjeants on the circuit, and the clerk of assize and associate. Every description of cause is cognizable under this commission. The commis- sioners are not authorized to try any persons except such as are in actual or constructive confinement in the gaol specifically mentioned in their commission. There is a distinct circuit of assize for each county, and the judges are periodically assigned for each English county; and consequently they may exercise all the powers and functions communicated by the commissions of the particular counties which compose their respective circuits. In practice, however, the judges at Westminster choose their circuits by arrangement among themselves on each separate occasion. They are then formally appointed by the king under the sign manual; and the several com- missions are afterwards made out in the Crown Office of the Court of Chancery from a list of the lord chancellor. ASSOCIATION is one of the mental phenomena. It does not rank among the primary powers of the mind, like sensation, perception, and judgment, because it does not form one of the separate steps of all mental operations; nor do its functions consist, like those of memory, in re-embroidery past impressions. It acts as an agent to all these powers, though not a power itself. The office which it performs is to connect and link together than to originate ideas. By its influence over the sensations, percep- tions, and judgments, it regulates the succession of the thoughts. When one thought is suggested by another, or when a train of past impressions is present, the association present, whether spontaneously or by an exertion of mem- ory, the process by which this effort is made is called as- sociation. Dr. Brown has designated it as the 'principle of association,' which is the result of experience, only when there is a bond of connection, not always ob- blind, but when discovered, traceable to one or other of
those affinities, analogies, or contrasts by which the principle of association acts. Mr. Hume was the first writer who traced the influences of our associations to certain principles, which he designated resemblance, contiguity in time or place, and cause or effect. 'Contrast' has since been added to these, which completes the classification of those sympathies and predilections, seated in the mind and acting with all the force and certainty of established laws. In the present passage, our associations not referable to any of these principles, such as the names of things, the terms of art, the words by which we designate moral and intellectual qualities and operations; in short, the whole vocabulary of language, in which the idleness of speech is very apt to be very little resemblance, contiguity, cause, effect, or contrast with the objects or ideas represented, although none of them ever fail to summon up the images of the things for which they stand. A puzzle arises to us, when reducible to certain limits, establish rather than invalidate the laws to which they form an exception. Even the terms of a language, when once connected with their representative objects, offer one of the most remarkable illustrations of simple association. In the word flower, for instance, there is nothing to stamp upon the mind any particular image. To one who was ignorant of language it would convey no idea; but let the word be associated with any representative genus of objects, and instantly call up the picture of some beautiful plant in blossom whenever the name is seen or pronounced. The distinction between association and memory is here plainly visible. The knowledge of the use of language is above the power of memory; the object which it represents implies also an act of memory; but the connexion between the name and the object, and still more, between the name and the particular flower that belongs to that name, is under control; the want of it renders our waking thoughts little less incongruous than the dreams of sleep. It is one of the singular properties of association that it acts upon the moral as strongly as upon the intellectual part of our nature. Prof. Draper, in 'The origin of moral and intellectual dispositions of the mind, the passions are perverted by an unlicensed association of ideas. Mr. Locke gives an example of this tendency, in reference to the origin of superstition. "The idea of a lion is very strongly connected with that of a child, and raise them there together, possibly he shall never be able to separate them again as long as he lives; but darkness shall ever afterwards bring with it the ideas of those frightful beings that are so united with the thought of a child, that he can no more bear the one than the other.' To avoid this and other errors to which the mind is exposed by an undisciplined use of the associating faculty, the greatest pains ought to be taken to diminish it not only subordinate but obedient to reason; to place it under the guard of attention, and to fill the intellectual storehouse with such ideas as shall only awaken pure and pleasing associations.

In relation to the phenomena of associations, it is worthy of remark that we are indebted to modern philosophy for the development if not for the discovery of them all. The original elucidation of the principle is ascribed to Mr. Locke, who, in his 'Human Understanding,' added a new chapter entitled 'Of the Association of Ideas,' in which the laws of this power are noticed, and some of its phenomena explained. Soon after, Dr. Hartley in his 'Observations on Man,' investigated the principle more thoroughly, and carried its application from simple ideas to the actions and affections, tracing all the intellectual and moral phenomena up to this source. Mr. Hume, in one of his 'Essays,' published in 1797, entitled 'The Human Understanding,' added a new chapter entitled 'Of the Association of Ideas,' in which the laws of this power are noticed, and some of its phenomena explained. Soon after, Dr. Hartley in his 'Observations on Man,' investigated the principle more thoroughly, and carried its application from simple ideas to the actions and affections, tracing all the intellectual and moral phenomena up to this source. Mr. Hume, in one of his 'Essays,' published in 1797, entitled 'The Human Understanding,' added a new chapter entitled 'Of the Association of Ideas,' in which the laws of this power are noticed, and some of its phenomena explained. Soon after, Dr. Hartley in his 'Observations on Man,' investigated the principle more thoroughly, and carried its application from simple ideas to the actions and affections, tracing all the intellectual and moral phenomena up to this source.

ASSOCIATION, AFRICAN. [See AFRICAN ASSOCIATION.]

ASSONANCE, aconsona, in Spanish romantic and dramatic and in several species of lyric poetry, is a peculiar and intense desire that the similarity of sounds is complete than that of rhyme. In rhyme (called in Spanish consonancia) the vowel in the last accented syllable and all the subsequent consonants and vowels are required to be the same as in the co-rhyming verse; but in assonance the vowel of the second syllable in all subsequent syllables are the same, the consonants may and
ought to be different. Thus, betherto, which has the aspect on the antepenultimate, is an assonant with coinamo and pliatense. Hence, the assonance is contained on the penultima, is an assonant with caron and say. (So in English. Hardy, easily, and carry, would be assonants; in German, toben, hofft, is an assonant on the last syllable, is assonant with ater, sapiril, not, morse, like rhymes exhibited in insulined pairs, are continued through the whole poem, or, in dramatic compositions, through an entire act or day (for instance), without any other change than the alteration of blank verse or the lines for which it is considered as constituting the long line, accompanying with an assonante, as in the Arabian prototype supposed to be discovered by Sarmiento in some of the metrical parts of the Koran.

But for this constant recurrence of the same assonance through a long succession of alternate lines, the ear would probably be little struck with this faint species of rhyme, even when proceeding from the mouth of a Spaniard, in which the vowels are so fully and broadly sounded, without being contracted in the manner of the double consonants, which, while they add to the brilliancy of Italian versification, appear to render it less susceptible of this delicate species of embellishment, so peculiarly adapted to the use of the drama, for which rhyme is perhaps too prominent and too ostentatious an embellishment.

Calderon, and the other classical dramatists of Spain, always use assonantes. The assonante of the drama is that in which the accent is on the penultima; the verse consisting of eight syllables.

In lyric poetry, rhyme is more frequently adopted; but the enoteca, a species of elegy, and some other lyric measures, require the assonant. The following extracts from romances contain lines alternate blank and assonanted, and is always the case in romantic and in dramatic poetry. In the first of these examples the accent is on the penultima; in the second, on the last syllable:—

**Saño el gallardo Alator**
Con cien Moriscos gallardos
En defensa de Motril
Y socorro de su hermano.

A caballo salió el Moro,
Y otro día desechado
En negras under le vuelven
Por doble salió a caballo.

*Malaciré mi huesomera,*
*Y tambien mi macedor,*
*Malaciré el triste dia*
*Con que vas y que carez.

The next is an example of double assonantes:—

**Agradado, dije al pavor**
Al cuervo de lios.

*¿Qué sabes que estoi pensando?*
*¿Qué era negro y feco?*

*Hacienda;* también reparo,
*Lo grito mas necio,*

*En que es un pasarruno*
*De maui mal agüero.*

**Prieta.**

ASSOUAN. [See SYRIA.]

ASSUMPTION, or ASSUNCION, the capital city of Paraguay, in South America. It is situated on the eastern bank of the river Paraguay, between the Cuyab River on the north, and a branch of the Pilcomayo on the south, both which streams fall into the Paraguay. The city, which stands upon a commanding spot, was built in 1535 by a colony of Spaniards under Juan de Salazar; and from the convenience of its situation speedily became a place of some consequence. It was newly destroyed by fire in 1543, the greater part of the houses being built of wood, which by this calamity it speedily recovered. In 1567 was a place of sufficient importance to be erected into a bishopric. It contains a beautiful cathedral, besides three parish churches and four convents and monasteries. It once contained a college of jesuits. The present population is understood to be considerably augmented; but not more than 400 or 500 families are said to reside within the city, but a much larger number resort to it for the purpose of traffic, which live in the surrounding country, where the houses, having small farms attached to them, are very numerous. Assumption carried on a considerable trade in the export of hides, tobacco, and sugar; but its principal trade was furnished by the leaves of a species of herb called quinella, more generally known by the name of Paraguay tea, which article used to be packed in hides and sent for sale to Buenos Ayres, and thence distributed to various parts of Chili and Peru. Great numbers of horned cattle, horses, mules, asses, sheep, and goats, are bred and kept in the vicinity of Assumption. The air and climate are temperate and genial; for the greater part of the year the wind blows from the south.

In the course of the conquests and revolutions which of late years have taken place in South America, Paraguay has been subject to a ruler who has so successfully discouraged all intercourse with foreign countries, as well as with the surrounding states, that the world has been for some time kept in utter ignorance of the state of the country, and the progress and condition of the inhabitants.

The city is in 25° 16' S. lat., and 6° 47' W. long.
(See Henderson's History of Brazil, and Thompson's Astrapo.)

A REFERENCE. Of late years it has become usual with writers on life contingencies to speak of assurances upon lives, instead of insurances, reserving the latter term for contingencies not depending on life, as against fire, losses at sea, &c. [See Insurance, AGRITTY, &c.]

And between which, the distance is 140 miles north of Jaffna, in the province of Bahar, in Hindustan. This place is principally known as having been the scene of a battle fought on the 23rd of Sept. 1587, between the English merchant fleet commanded by Sir John Wentworth, the General Wellesley, and the confederate army of Dowlat Row Seiss and the Rajah of Nagpore. On this occasion, the troops under General Wellesley consisted of 6000 European and 5600 native soldiers, while the arms to which these were opposed consisted of 6000 spears men. At this great disparity of numbers, the battle was forced on by the English general, who found the enemy encamped on the bank of the Kaina river, which he crossed for the purpose of the attack. It was only by the most determined resistance on the part of the British that they could hope to succeed against such a disparity of numbers; and accordingly, although the enemy employed in bringing on the artillery were soon so far destroyed or disabled that the use of the guns was abandoned, the troops advanced with a steadiness which overawed the enemy, who gave way in all directions, leaving ninety-eight pieces of cannon and seven standards of their own. During the war in the Tigris, the British also found themselves in a similar difficulty.

The name Aturis, or Assyria, as is observed by Dion Cassius (vi. c. 28), is a mere dialectic variety of pronunciation instead of Assyria; and the province thus designated probably was the original central point from which the Assyrians as well as the name of Assyria was later extended and spread farther to the south and west. After the dissolution of the Assyrian monarchy through the revolt of the Medes, the name Assyria was again restricted to this northern province, while the southern parts were designated either Babylon, from the name of the principal town, or Chaldaea, from the name of its inhabitants. Through the conquest of Cyrus, both parts were re-united, and formed one of the most important provinces of the Persian empire, which we find sometimes named Babylon and sometimes Assyria. This apparent confusion of the name Babylon and Assyria is observable even in the later history of these regions, e.g. when Nabonidus was first appointed king of Babylon, and the province of Adiabene was once comprised under the appellation of Assyria, is distinctly asserted by Psiny (Hist. Nat. v. c. 19).

For a detailed account of the natural features of the Assyrian empire we must refer the reader to the articles BABYLONIA, MESOPOTAMIA, and KURDISTAN; in the present notice we confine ourselves to pointing out some of the more important ancient sites of the country.

The celebrated hero of the Persian empire,arius, commonly employ it as a general designation of the countries of Babylonia, Mesopotamia, Aturis, and Adiabene; but frequently extend its limits so as to make it comprehended amongst the Assyrian provinces. The same practice is noticeable in the use of the word Syria and Syrians in a very vague sense: Herodotus applies the term Syrians to the Cappadocians (i. 6, and i. 72), and he remarks that the Assyrians in the army of Nabuchodonosor were by the Greeks called Syrians, while the Eastern nations named them Assyrians (vi. 69). Arrunt, on the other hand (who was for some time governor of Cappadocia, and cannot be supposed to have been ignorant of the name of a country so familiar to the Persian empire, employs the word Assyria where we should have expected he would say Syria; for instance, when he makes Cilicia border on the east upon Assyria (ii. c. 6 and 9). Herodotus does not appear to have given any other indication of this distinction, and his passage (ii. 30), the Arabi and Assyri are named together as bordering on Egypt; but here Vaclvckemper and Schwelmer agree that the reading is incorrect, and that Syriacs should be substituted for Assyrians. (But see ii. 141.)

Ptolemaeus (vi. 1) and the Roman historians confine the name Assyria to a province in the northern part of the Assyrian empire, namely, that country east of Mesopotamia and the Tigris, which is separated on the north by the Niphates mountains from Armenia, and on the east by the chain of the Zagros from Media; Susians and Babylonia constituted the southern frontiers. This portion of the empire, which is the whole of the modern Kurdistan, seems to be meant by Herodotus (i. 925) when he speaks of 'those Assyrians that had in their possession the town of Ninus. This country is divided into three parts by two rivers which rise in the Zagros mountains, and, after traversing Kurdistan, fall into the Tigris. The first is the Tigris, the Zabatus of Xenophon, and the modern Greater Zavrat or Tigris ten Thousand Greeks crossed this river on their way to the Caspian sea; it is the Tigris, and here they found its breadth four pletres, or forty hundred Greek feet. (Xen. Anab. ii. c. 5.) The second river, the Capra, also named Zabas, or Antabas, by the latter Greeks and moderns, is probably the present Lesser Zab; it is not noticed by Xenophon. The stream may have passed it towards the end of his first day's march after crossing the Tigris. (See Anab. ii. c. 4.) The country to the north-west of the Lycaon, or Zabatas, by the ancient city called Aturis; that to the south-east of this river, as far as the Caspian Sea, is named Aturias; to the south of the Caspian, we find the province of Apollonias, formerly to the east Chaldaeis, and Sitacoma towards the confines of Susiana. Ammianus Marcellinus observes (lib. xxiii. c. 30) that the province of Adiabene derives its name from the two rivers which flow there, a name which is preserved to the present Greater and Lesser Zab. The Arabian name of Adiabene is Zawbaa, which is likewise a derivation of the word Zab. (See Assemani, Bibliotheca Orientalis, t. iii. ii. p. 711.)

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of Coche or Choce. The foundation of Ctesiphon had been laid by the Macedonians; it did not, however, rise to importance till the Parthian kings, who chose it for their summer residence. (Strabo, xvi. c. 1, t. iii. p. 344, 345, ed. Tauchn.) The ruins of Takht-i-Kersa, on the eastern side of the Tigris, are supposed to mark the situation of this city.

The principal town of the province of Adiabene was Arba, a name which has been preserved in that of the modern village of Erbil. [See ARBELA.] Curtius (v. 1) notices a copious well of naphtha at Meniss, in the neighbourhood of Arba; this, however, of late years has chiefly been used for asphaltum.

The province of Apolloniae derives its name from that of its principal town, Apollonia; but both of history and the precise situation of this place little is known. In the book of Genesis (c. x. v. 10) the state of Assyria is represented as having sprung from that of Babylonia founded by Nimrod. 'The beginning of his dominion, says the Hebrew text, was Babel, Erech, Accad, and Calneh, in the country of Shinar. From this country Ashur went forth and built Nineveh and Rechoboth, and Calach, also Resen, between Nineveh and Calach; this is a great city.' The Hebrew chronicles leave us in the dark with reference to the history of Assyria till the last part of the eighth century before our era. From this time downwards, the names of several kings of Assyria are mentioned. The earliest of them is Phal, the contemporary of Manahem, the king of Israel (died 741 B.C.), whose dominions, instead of becoming a rendered tributary (2 Kings xvi. 19), Tiglath Pileser ruled over Assyria while Pekah (d. n.c. 740) was king of Israel, and Ahaz (d. n.c. 728) king of Judea: he assisted the latter in a war against Pekah's successor, Rezin, who united their dominions, and led many of their subjects away into captivity. It appears that Tiglath Pileser was induced to take the part of Ahaz against his rival king by the present Ahaz had made him of the good fortune to be in the temple at Jerusalem (2 Kings xvii. 6; xv. 9; 22). In the time of Hosea the king of Israel, and the kings of the central and eastern provinces of the country as captives into various eastern provinces of his dominions (2 Kings xvii. 5, 6; xviii. 9—11). Among the eastern countries subject to Salamanasar, besides some names not yet well ascertained, Media (Madi) is mentioned (2 Kings xvii. 6; xviii. 11). The immediate successor of Salamanasar seems to have been Sanherib (Sennacherib), who under the name of Asshurbanipal (Assurbanipal) (n.c. 729), and leading away the remaining inhabitants of the country as captives into various eastern provinces of his dominions (2 Kings xxi. 2—19). After his return to Nineveh, his capital, Sanherib was killed by two of his own sons, Shamash-eshu and Assur-resha-eshu, in the perpetration of this act fled into the country of Ararat (Armenia), while Esarhaddon, another son of Sanherib, succeeded him on the throne. A king of Assyria named Sargon is mentioned by the round Isham (Tashi), who is conjectured by Winer (Bibliothecis Rel. Litt., i. 119) to have reigned for a short period between Salamanasar and Sanherib.

The only one of kings whose name has yet been found in the writings of the ancient Greek historians is Sanherib, whom Herodotus (ii. c. 14), mentions under the name Σανέριμρ, and designates as a king of the Arabi and Assyri, who led an unsuccessful expedition against Egypt during the reign of King Necho of Egypt in 608 B.C. He wrote an account of it, a separate work on the Assyrian empire (see Herod. i. 184), and he accordingly adverts but incidentally to the history of that kingdom. Besides Sennacherib he only notices Nínus, the founder of the empire (l. 178), and the last king, Sardanapalus (l. 150). Diodorus (Bibl. Hist., i.), who chiefly follows Ctesias as his authority, Julius Africanus, Eusebius (Chron. Armen. p. 44, ed. Mai and Zohrab, Milan 1838), and Syncellus (Chronog. p. 347, ed. Mommsen, 1871) follow this account of the Assyrian kings with Belus and Nínus, and conclude with Sardanapalus (also named Thamosconcoleros), who, according to Eusebius, was a contemporary of Lycurgus and of Jero- bol (Jerebol, d. n.c. 608). According to Diodorus, Nínus was the first Assyrian king who distinguished himself by conquest so as to be remembered in history. Assisted by Arisines, an Arabian chief, he conquered Babylonia, made Armenia tributary, subjected Media to his dominion, and compelled all the nations of south-western Asia, with the exception only of the Indi and the Bactrians, to acknowledge the supremacy of the Assyrians. He afterwards founded a magnificent city which he called after his own name, Nínus. A second expedition into India and Bactria undertook again. The Bactrians proved more successful than the first had been. He conquered the country, and married Semiramis, then the wife of Onnus, the governor of a Bactrian fort. The fabulous account which Ctesias has given of the birth, education, and early life, as well as of subsequent exploits (see Herod. i. c. 4, ed. Mai and Zohrab), compare Bse's Ctesias, p. 338, &c.), is quite sufficient to remind us that this portion of the Assyrian history bears a decidedly mythological character, and that the whole of what has come to us from that period may therefore be regarded as the creations of the romantic imagination of his contemporary or his immediate followers. At any rate, Semiramis succeeded Nínus on the throne. Diodorus, apparently on the authority of Ctesias, ascribes to her the foundation of the great city of Babylon on the Euphrates. Herodotus (i. 146) says she a queen of Babylon who made embankments on the river to protect the town from inundations. Armenian writers make Semiramis the founder of another magnificent town near the lake of Van, which they call after her name Shasiramataket: the ruins of this town are in the basin and consequently the Germans call it after her name Schiriau. [See ARMENIA, p. 361.] Diodorus gives, chiefly from Ctesias, an account of the conquests and warlike achievements of Semiramis, which is very amusing, if not altogether incredible. She bears the character of the mythological character that pervades the earlier periods of history generally. She subdues Media, Persia, Egypt, and Ethiopia, but is defeated in an attempt to conquer India. She, however, resigns the government into the hands of her daughter Nínus and dies in the sixty-second year of her age. Unlike her martial parents, Nínus confined himself to his palace at Nínus, and indulged his fondness for the enjoyment of an inactive life, the administrative care of his kingdom being committed to his generals. During thirty generations, followed his example. Teutamus (or Teutanes, as the name is written in some copies of Syncellus), the twentieth successor of Nínus, is reported to have been a woman. He afterwards raised a host of foreign soldiers under the command of Memon the son of Tithonus. The names of the other Assyrian kings are not mentioned by any extant Greek or Roman historian; a list of them is, however, preserved in the Armenian translation of the chronological work of Eusebius (p. 44, ed. Mai and Zohrab). The last of them was Sardanapalus, the thirtieth successor after Nínus, who even surpassed his conqueror in magnificence and condescension. He encouraged the revolt of the Medes Arachas, who succeeded in putting an end to the domination of the Assyrians in western Asia.

According to the statement of Herodotus regarding the duration of the subsequent Median empire, as elucidated by Volney in his Chronologie d'Hirodot (83, &c. Paris, 1809), the revolt of the Medes (under Arachas) took place in the year 717 B.C. before Christ; and as the same ancient historian (Herod. i. 93) assigns to the empire of the Medes a duration of 520 years, it follows that he conceived their dominion to have lasted from the year 1237 till n.c. 717. Ctesias gives to the Assyrian monarchy a duration of upwards of 1300 years, and differs moreover from Herodotus with regard to the period of its overthrow by the revolt of Arachas; for he makes the duration of the Medes last 282 years, and as it may be considered as almost certain that the Medes did not possess an independent kingdom by Cyrus took possession of it in or about n.c. 551, it follows a more extended period, and the end of the Assyrian empire, are, by the statements of Ctesias, thrown back to the year n.c. 843. Heeren considers the statement of Ctesias as erroneous, and conjectures that the error must have arisen from his having counted some of the Median kings twice over. (Gottinger Gelehrte Anzeiger, 1810, No. 4.; Bse's Ctesias Ctesis Religiosas, p. 441.) Syncellus assigns to the Assyrian empire a duration of 1400 years, and mentions the list of its kings at forty-one. (Syncell. Chronog. p. 77 and 132, ed. Graes.) According to the Armenian Chronicle of Eusebius (p. 37, &c. ed. Mai and Zohrab), the Assyrian kingdom subsisted 1300 years.

With a view to reconcile the data concerning the history of Assyria which occur in the Old Testament with the accounts given of it by the antient Greek writers, modern historians have assumed the existence of a second Assyrian dynasty
The quickest way to get disengaged from the creature is to pluck off its claw. It seems peculiar to the lobster and crab when their claws are pulled off that they will grow again, but not necessarily so.

The female or hen lobster does not cast her shell the same year that she deposits her ovum, or, in the common phrase, is in berry. When the ovum first appears under her tail, they are very small and extremely black; but they become, in succession, much larger, before they are deposited, and turn of a dark brown colour, especially towards the end of the time of her depositing them. They continue full and depositing the ovum in constant succession, as long as any of that black substance can be found in her body, which, when boiled, turns of a beautiful red colour, and is called their coral. Hen lobsters are found in berry at all times of the year, but chiefly in winter. It is a common saying that a hen lobster never ceases to lay.
and the fishermen say they have seen some which were of six pounds, but these are very rare.'

There is no doubt that the lobster changes its crust annually, which in this operation is performed is not satisfactorily known. Some suppose that the old crust is thrown off, and that the animal retires to some lurking place to avoid the voracity of his crust-clad fellows, till he requires a new one; others contend that the process is one of absorption, and these, in proof of their views of the case, what becomes of the old crusts if there is a true ecdyse or moult, for that the sea-coast at the molting period would be strewn with them? This is a most curious process, that the crust sloughs off piecemeal as it does in the crab. Lobsters, in common with most of the crustacea, have the power of reproduction to a great extent. If a claw be torn off, it is renewed; and if the same accident should happen to a limb, a whole new limb will grow off by an effort. It seems that any violent shock to the nervous system will cause this act. If a lobster be thrown into boiling water, it will generally throw off its large claws on the instant; and the same effect has been produced by plunging the animal, when in full life, into spirit. Pennant goes so far as to make them out to be very nervous subjects indeed. 'Lobsters,' says he, 'fear thunder, and are apt to cast their claws on a loud clap. I am told they will do the same on the noise of a cart.' This indeed may be the case; and meet a lobster-boat, a jocular threat is used, that if the master does not sell them good lobsters they will salute him.

Now it is clear that the lobster was well known to the ancients from the quotation in Mr. Travis's letter, and from many other evidences. It will be sufficient to add that, under the name of aures, Aristotle, in the second chapter of the seventh book of his History of Animals, gives a most faithful and elaborate account of the species which is still an inhabitant of the Mediterranean.

The crawfish, Astacus fluviatilis, is to be found in the fresh waters of Europe and the north of Asia. It thrives best in river streams bordering the sea, but when it lies in wait for the small molluscan animals, little fishes, the larvae of insects, and decomposing animal substances, which form its prey. Desnarest says that it will live for upwards of twenty years, and that it becomes large in proportion to its age; that, towards the end of spring, it casts off the pieces which form its shell, and some days after, becomes covered with a crust as solid as the former one, but larger, some say as much as one-fifth. The eggs, which are excluded about two months after impregnation, are collected under the lower part of the body or tail, as it is popularly called, after the manner of the hen-lobster. From these proceed the young crawfishes, which are very small and worm-like, which bear a resemblance to the young eels, under whose tail they are nursed for several days.

The crawfish is taken either by nets or by bundles of thorns, in which flesh in a state of decomposition is placed. It moves slowly along the banks where it inhabits; and, at night, it is caught by means of lighted torches. Plot, in his History of Staffordshire, quotes Cardan, who says, that this species is a sign of the goodness of water; for in the best water they are boiled into the reddest colour. [See CRUSTACEA.]

AS T Arte, Achttore or Achtoroth, one of the deities of Phoenicia, of whose attributes and character we are unable to give a detailed account, from the scantiness of the inscriptions in which we receive their names. The author of the treatise De Dei Sýri, usually ascribed to Lucian, says that she is the same as the Greek Selene (moon); but Cicero (Nat. Deor. ii. 23) considers her as the fourth Venus, the wife of Adonis. Herodian (v. 13) tells us that the Africans call her Urania, which, however, is a Greek name, and the Phoenicians, Astrarche (queen of stars). By others she is thought to be the Hare (Juno) of the Greeks, but we think the opinion of Cicero is most consonant to the facts. But we are of opinion that she was nothing else than the planet Venus, whom the Phoenicians worshipped as Astarte. She is frequently mentioned in the Holy Scriptures in connexion with Baal, as second only to the Israelites from their duty. (Judges ii. 13, i. 17 ; 1 Sam. xix. 13, 14.) She was also venerated at Sidon, where she seems to have been the principal divinity. Some mythologists speak of Hierapolis in Syria as the central point of her worship, but they have confounded her with Deroto. The island of Cyprus received her religious rites from Phœnicia, and this divinity became known there as Aphrodite. The rose and the lotus flower are sacred to her, and among the gods, the horse, the boar, the lobster, and the pigeon. (See Selden De Diet Syriis, p. 344 ; Hick, Civis, Gottingen, 1823 ; Münzer, Der Tempel der Himmlischen Göttin zu Phaphos, Kopenhagen, 1834.)

ASTelia, a genus of Zoology, a genus of hirsute or echiniferous, with two muscular impressions and a simple mantle. The hinge has two divaricated teeth in the right-hand valve; in the other, one distinct and one oblong tooth, and the radula of a lateral tooth. The ligament is external.

The species consist of some of the Ferneræ of Montagu, one of which is a Crassina. (Lam.) Some of them are English shells, and they are generally found on the sandy mud of the sea-shore. If thrown off it can be carried by an effort. It seems that any violent shock to the nervous system will cause this act. If a lobster be thrown into boiling water, it will generally throw off its large claws on the instant; and the same effect has been produced by plunging the animal, when in full life, into spirit. Pennant goes so far as to make them out to be very nervous subjects indeed. 'Lobsters,' says he, 'fear thunder, and are apt to cast their claws on a loud clap. I am told they will do the same on the noise of a cart.' This indeed may be the case; and meet a lobster-boat, a jocular threat is used, that if the master does not sell them good lobsters they will salute him.

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ASTER, a genus of plants belonging to the natural order Compositae, and comprehending a great multitude of species which are found in the deserts of the East Indies, America, and New Holland. Many of them are handsome herbaceous plants, others are small-leaved shrubs, and the remainder are mere weeds. They are not of sufficient importance to merit a separate note; but the best account of them is the Genera et Species Asteraceæ, by Nees v. Esenbeck.

ASTRIAS, A genus of radiated animals widely diffused over the seas. The Linnaean genus comprised every form of radiation which appears in the tribe, but the genus Astrias of Lamarck includes only the starfishes properly so called. These are divided into two sections, the scutellated starfishes, and the radulated starfishes. The former have an angular body, the arms or rays of which are short, their length not exceeding the diameter of the disk: the latter have a body furnished with elongated rays, whose length far exceeds the diameter of the disk.

Tiedemann has given the anatomy of these animals in a most elaborate and accurate work, and shown the adaptation of their organisation to their locomotion and general habits. Each ray is furnished with a longitudinal furrow on its lower side, and this furrow is pierced laterally with small holes, through which pass the feet or tentacula, which are membranous, cylindrical, and terminated each of them with a little disk, which performs the office of a capping glass, somewhat in the same manner as the scutellas or serrations of the feathers of birds perform similar offices; these numerous little organs, and by fixing them by means of their terminal disks, the progressive motions of the starfish are regulated. The rest of the lower surface is furnished with a number of thin cilia, which brush the bottom of the sea. The whole surface is also pierced by pores, through which pass tubes much smaller than the feet, serving probably to absorb the water, and to introduce it into the general cavity, for the purposes of a kind of respiration. A large stomach lies close to the mouth; and two ramified cæca, each suspended to a kind of mesentery, are given off to each ray, which is also furnished with two ovaries, by means of which the animals are supposed to reproduce themselves. The author of the treatise De Dei Sýri mentions that her shell is of fine chord, which surrounds the mouth, and sends a branch to each arm, is considered as the development of their nervous system.

Astrellas tesselatae may be taken as an example of the scutellated starfish. It is a widely diffused species. Of the radiated division, Astrellas aequalis, common starfish or five-finger, may be selected as an illustration. This is common in our seas, and is supposed to be very destructive to oysters. Bishop Sancroft gives the following account of the treatment of the common oyster, has the following passage: 'There are great penalties, by the Admiralty Court, laid upon those that fish out of those grounds which the court appoints, or that destitute the catch, or that take any oysters that are not of size, or that do not tread under their feet or throw upon the shore, a fish which they call a free-finger, resembling a sparrow-owl; because that fish gets into the oysters when they gape, and sucks them out.'

Some of the species are subject to the attacks of a para-
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Asteria testacea molliss (Stylifer, Broth.), which burrows in their inageant, and the common name is Conch. [See COMATULA, EUPALAS, GORGONOCOPHALUS, OPHIRA.]

ASTERISM, a collection of stars, formerly used for constellation, but now appropriated to signify any small cluster, which is either desirable to distinguish from the rest of the constellation in which it lies, or which is not a part of any particular constellation.

ASTEROIDS. The small planets have been sometimes designated by this name. [See Juno, Vesta, Ceres, Pallas.]

ASTHMA. [See Bronchitis.]

ASTI, the province of, one of the six intendances or subdivisions of the division of Alessandria, in Piedmont. It is bounded on the west and north by the province of Turin, on the south by that of Alba, on the south-east by Alessandria Proper, and on the north-east by the province of Casale. It is watered by the Tanaro and its tributaries. The ground is hilly, and well adapted for the cultivation of the vine. A sort of sparkling fine-flavoured white wine, somewhat resembling champagne, is made here, and known by the name of vino d' Asti; the soil is also fertile in corn and fruit-trees, especially mulberries, whose leaves serve to feed the silk-worms. The province of Asti contains, besides the capital, several small towns—such as Villanova, S. Damiano, and Montechiaro, and eighty-seven communes, with 118,000 inhabitants.

ASTI, the town of, lies on the left or northern bank of the Tanaro, on the high road from Turin to Alessandria, and nearly half way between these cities, in 44° 57' N. lat., and 8° 16' E. long. Asti was a town of the ancient Ligurians; it was taken and devastated by the Gauls, under Bellovesus, about B.C. 600; afterwards made alliance with Rome, and submitted to Hannibal on his invasion of Italy. In the subsequent war of Rome against the Ligurians, Asti submitted to the Romans, but retained its municipal rights. The Romans soon after founded in its neighbourhood the college of Pollentia, not far from the confluence of the Stura and the Tanaro. Asta having been again taken and destroyed, in a new irruption of the Gauls, was rebuilt by Pompey the Great, on his return from Spain, B.C. 65, and assumed the name Asta Pompeia. In 1661, the people of Asti, after many quarrels with those of Pollentia, about the limits of their respective territories, being reinforced by the citizens of Pavia, took Pollentia, killed many of its inhabitants, completely destroyed the town, leaving not a house standing, and threw the materials into the Tanaro. When the Emperor Frederic I. of Hohenstaufen came to Italy, the Marquis of Monferrato, who wished to extend his jurisdiction over Asti, but found opposition from the citizens, complained of them to the emperor, who placèd the town under the ban of the empire; and having taken it, set it on fire, when many people perished by the sword or in the flames, a.d. 1135. Asti afterwards joined the Lombard league; at this time several of its families migrated to the town of Asti, and the Stroganoff family established there, and Constance, where the peace between the emperor and the Italian towns was signed. After this, Asti attained a considerable degree of prosperity, its citizens surrounded it with walls, and in the reign of Charles VIII., when their podestà, or chief magistrate, chosen out of another town, and their council of trust composed of nobles and piebeians. They had frequent wars with the Marquises of Monferrato, as well as with the Marquises of Saluzzo; the latter of whom made peace, but is afterward driven from the invasion of certain lands, for which they acknowledged themselves its vassals. The people of Asti had one manufactures of cloth; but their wealth was chiefly derived from banking or money-lending. One of the most famous houses in France, Flanders, and other countries. In 1498 they built the town of Villanovas d'Asti, which was to them a sort of colony. About this time the factions of the Guiphiels and Guiselines broke out in Asti, and distracted the citizens for many years after; sometimes one faction prevailing, and sometimes the other, and each by turns driving its antagonists out of the city. Tired of these civil struggles, the people of Asti chose for their captain one of the princes of Monferrato. The Savoys, who took advantage of this state of things to the Emperor Henry VI., in 1215; but soon after the people revolted, and gave themselves up to Robert, King of Naples. Asti afterwards fell into the hands of the House of Savoy. Duke Charles V. of Savoy gave Asti as a dowry to his daughter Violanta, on her marriage with Louis, brother of Charles VI. of France. It remained in the possession of the French till 1559, when it was given up to the Emperor Charles V., and made a part of the duchy of Cambray. Charles V. gave Asti to his relation Beatrice of Portugal, who married Charles III., Duke of Savoy; since which it has remained attached to the dominions of that house.

ASTI is a large city, but not populous in proportion to its size. In the palace of the bishop is the tomb of the nobleman sea, the streets are rather wide, but little frequented. The most remarkable palaces are those of Trincino, Rovereto, Bristia, Massetti, and Aliferi, in the last of which Vittorio Aliferi was born in 1749. The city is healthy, and there is not much appearance of trade or industry. Of the churches, the most remarkable are the cathedral 8. Secondo, which is dedicated to the first bishop of Asti, and is Consolata. Asti is a bishop's see, and the see is the residence of the bishop of Asti. It has eight parishes, a court of justice, and a royal college, with chairs of philosophy, theology, and surgery. Its population in 1825 was stated in the Royal Census to be 26,000 inhabitants.

ASTERLÉ, THOMAS, the author of the Origin and Progress of Writing, and of various other antiquarian publications. He was the son of Daniel Astle, who was keeper of Noodweek Forest, and whose ancestors were magistrate of the manor of Noodweek Forest, in the county of Kent. Thomas appears to have been born at Yoxall, in that county, in 1734. At the usual age he was sent to the office of an attorney in his native town, but his taste inclining him more to the study of general studies than to his profession, he came up to London; where, about the year 1765, he became known to Mr. Grenville, then First Lord of the Treasury and Chancellor of the Exchequer, and was employed by him in the arrangement of papers, and other business which required a knowledge of ancient hand-writing. Soon after this, Mr. Astle married the only daughter of the Reverend Philip Morant, the author of the History of Essex, and by this connexion he eventually inherited the property of his father-in-law, which was considerable. In 1769 he was appointed by Mr. Grenville to the office of receiver-general of sixpence in the pound on the civil list. In 1770, on the death of Mr. Morant, who had till then superintended the printing of the Antient Records of Parliament begun five years before, Astle was appointed by the House of Lords to take his place, and he presided over the publication till its completion in 1775. He was then made chief clerk in the House of Lords Record Office, and after some time succeeded to the place of Keeper. He was, besides, a Fellow of the Royal and Antiquarian Societies, and, till his death, one of the Trustees of the British Museum. He died at his house at Battersea, near Chiswick, in the month of December, 1809. Mr. Astle is the author of a number of
articles in the Archeologia, and also of several separate publications, a list of which may be found in Watt's Bibliotheca Britannica, and in Oalhesh's Botanical Dictionary, from the last of which authorities we have taken the facts in this notice. The work by which he is best known is his Origin and Progress of Writing, first published in quarto in 1784, and again in 1803, in which form it appears to be an exact copy of the former, except that it contains an engraved portrait of the author, and an appendix 'On the Radical Letters of the Pelasgians, and their Derivatives,' a tract of a few pages, which was the first print in the seventh volume of the Archeologia in 1785. Watt mentions what he calls 'an improved edition' of the work on Writing, published in 4to in 1794, which we have not seen. He afterwards calls the edition of 1803 the seventh edition. But since it is signed by Clowes and Watt, there is a reprint, in 4 vols. 4to., published in 1807 and following years, of Grose's Antiquarian Repertory (first published in 1775), on the title-page of which the name of Watt is given as one of the compilers along with that of Grose, Mr. Asle's library, which was very curious, was purchased by the Royal Institution for a thousand pounds.

ASTOLPHUS succeeded his brother Ratchis as king of the Longes. In 540, Ratchis having voluntarily abdicated, and retired into the monastery of Monte Casino. Astolphus, who was bold and ambitious, aimed at driving away the Greeks from Italy; he took Ravenna, expelled the Exarch, and conquered the whole of the eastern kingdom, which came under his government in the year 743. He retired arms against the duchy of Rome, which still acknowledged the authority of the eastern emperor, then humbled, however, by the influence of the popes. Stephen II. sent ambassadours to Gelasius, and obtained a truce for forty years. Four months after, however, Astolphus broke the truce, and required the Romans to swear allegiance to him, and pay a capitation tax; threatening them with fire and sword in case of non-compliance. Stephen, desiring of assistance from the indolent Byzantine court, had recourse to Pepin, king of the Franks, and himself repaired to Paris, where he crowned Pepin, and begged him to help him. Charles ( afterwards Charlemagne) the title of Patricians of Rome, a.d. 753. Pepin now invited Astolphus to restore the Exarchate to the empire, and let Rome enjoy peace, but his request falling on deaf ears, he assembled his forces, marched an army into Italy, defeated Astolphus, and besieged him in the city of Pavia. A treaty was concluded through the pope's mediation, by which Astolphus agreed to the above conditions. Pepin then returned into France, and was the first king of the Franks in the reign of Italy. Astolphus did not keep his word, but in 755 marched against Rome, and laid siege to the city. The pope wrote to Pepin, who crossed the Alps a second time, and again besieged Astolphus. The duchy of Rome was not included in it. Astolphus died in 756, owing to a fall from his horse. Having no son, he was succeeded by Desiderius, one of the Longobard dukes. Astolphus, during his quarrel with the popes, had invested several monasteries, in one of which his daughters took the veil. (Muratori, Annali d'Italia; Moseheim's Ecclesiastical History.)

ASTON. [See Birmingham.]

ASTORIA, the ASTRO/AUGUSTA of the Roman province of the Astures, and now an episcopal town in the kingdom of Leon. Pliny (iii. 3) calls it a magnificent city. It is situated near the Tuerto, in a plain, bordered on the N. and N.W. by the mountains of Asturias; it is a town in找 my books and articles, and surrounded on the W., E., and S. by hills. It is 42° 27' N. lat., 6° 10' W. long. Its vega, or plain, is very extensive and fertile, and produces excellent wheat, rye, barley, flax, and pastures. The town, which is surrounded by a wall, runs in rains, contains 3972 inhabitants, including the suburbs, four parishes, and two convents. The chapter consists of the bishop, twelve dignitaries, and twenty-two canons, all resident. The diocese contains 913 parishes. The cathedral is Gothic, and deservedly rated as one of the best works of the famous Gaspar Becerra. This altar was built in 1569, and cost 30,000 ducats (about 3300f.). There is also at Astorga a castle belonging to the marquis of that name, which is a fine seat of dilapidation.

It was at Astorga that Napoleon assembled his army, consisting of 80,000 men, with 200 pieces of cannon, when in pursuit of General Moore, on the 1st of January, 1809. In September of the same year it was occupied by the Spanish Santocides. The old ramparts were strengthened by fresh works, and the place garrisoned with 3000 men. On the 22d of March, 1810, it was invested by General Junot. Santocides, with provisions scarcely sufficient for twenty days, without ammunition, or a force to protect the place and divert the enemy outside of the walls, defended it against the vigorous attacks of the French for nearly a month. On the 20th of April, the French being already masters of the suburbs of Puerta-de-Hierro, Retebia, and San Andres, the Spanish general offered to capitulate. Junot refused the terms proposed, and the place was carried by assault on the evening of the 21st. In 1815, Santocides, with the Galician army, succeeded in taking the town, and made prisoners of the garrison, amounting to 1200 men.

(See Milano; Tons, Vie de Espagne, tom. xi. cartas, No. 92—99; Napper's History of the Peninsula War, vol. ii. book x. ch. vii.; Annales de la Peninsulare.)

ASTRABAD, or ASTERABAD, a province of small extent in the N.E. part of Persia. It is bounded on the north by the Caspian Sea and the Desert, on the south by the Elburz mountains, on the west by Masanderan, and on the east by the riverourgian, which is by some writers called Jorjan.

The province is nearly surrounded by rivers, which abound with fish, principally sturgeon and salmon. The chief town, also called Astarabad, is ten miles from the shores of the Caspian, and stands in 36° 50' N. lat., and 54° 3' E. long. The site of the town has been changed several times; though the shores of the Caspian offered such great advantages, both in a commercial and military point of view. The town is believed to owe its origin to Yerdz bin Mehlboh, an Arab general, and to have been built towards the end of the first century B.C. The circumference of the place is about three miles and a half; the whole of this extent is surrounded by a high and thick wall, which is now in a ruinous condition. The streets are for the most part paved, and their cleanliness is promoted by a drain which runs through the centre of the town. The town does not contain any public buildings which are worthy of remark.

A lake, which extends from a point three miles north-east of Astarabad towards the Caspian, has usually been considered as a gulph of that sea, and is so laid down in some maps. Lieutenant Conolly, whose travels in that quarter have recently been published, says that the shores of this lake do not approach nearer to the Caspian than three miles, and have no communication with it. He adds, that ' the water being confined, stagnates in summer, and the inhabitants of Astarabad suffer from the malaria that is caused by it.'

Astarabad is a frontier town, and chiefly inhabited by Kajurs, from which tribe the present sliah of Persia has his origin: it is governed by a prince of the blood royal. The country is low and fertile. From the northern bank of the Araxes to three miles from Astarabad, is inhabited by Turomans, who are only in name tributary to the Persian government, and carry on against their more settled neighbours a constant petty predatory warfare, seizing Persians, whenever they find them, and binding them into slavery. (See Fraser's Historical and Descriptive Account of Persia; Lieut. Conolly's Overland Journey to the North of India.)
ASTRAEA (zoology), a genus of fixed polyriphs, sometimes incrusted marine bodies, sometimes collected in an hemispherical or globular mass which is sometimes, but rarely, lobated. The surface is covered with orbicular or subangular starry disks, which are lamellar and seashell. Each disk is the seat of a polyp with a single row of numerous arms, in the centre of which is the mouth. Lamarck divides these corals into two sections: the first, consisting of species whose starry disks are separated from each other, leaving interstices between them; and the second, of species whose starry disks are contiguous. Of the first section, Astraea rotula, an inhabitant of the West Indian seas, is an example: of the second, Astraea favosa, common in the seas of the East Indies, affords a good illustration. The species are numerous.

Sections of astragal mouldings, and elevations of astragal mouldings carved: a, section of an astragal from the three columns of the arch of Titus [Staen]; in the Campo Vaccino, at Rome; b, astragal used in the base of the Ionic order of the temple of Minerva Polias at Priene; c, shielded astragal used in the arch of the goldsmiths at Rome; d, enriched astragal of the pedestal of Trajan's column at Rome; e, astragal cut into beads.

A small view of the ring of an astragal, by which means, if the conjecture be well founded, the parts, from the contrast of colour, would appear to be more distinctly bound together. The most remarkable example of the use of the astragal in Grecian architecture is in the base employed in the Ionic temple of Minerva Polias at Priene; which has been imitated by Mr. Cockrell in the portico in the front of Hanover Chapel, Regent-street. In the temple of Jupiter Olympius, at Athens, the astragal at the top of the column appears to have a channel cut underneath it. (See Stuart vol. iii.) This, however, is very unusual.

For the application of the astragal in architecture, see Bases, Capital, Enthabature, and Flille.

ASTRAGALUS, an extensive genus of leguminous plants, the most remarkable species of which is the Astragalus tenuis, from which the substance called astragal or tragacanth is obtained. This is a small bush, with pinnate gray leaves, terminated by a spiny midrib, and half-covering clusters of axillary pale yellow flowers: it is found in many parts of the Levant. Although the principal part of the tragacanth of commerce is said to be furnished by this species, it is certain that it is also procured from several others, such as A. creticus, which is the Poterion of Dioscorides, and A. arisortus, which still bears in the Peloponnesus the classical name of Tragacantha.

A few kinds of astragalus are cultivated in gardens; but they are for the most part mere botanical curiosities: the most complete account of them will be found in the second volume of De Candolle's Prodromus.

ASTRAKHAN, formerly called Astorakan, a khanate or kingdom in the western part of the Asiatic possessions of the Russian crown, extends northward from the banks of the Terek to the sources of the Ufa in the Yekaterinburg chain of the Ural range, and eastward from the mountains of the Volga to the south-western limits of Siberia. It lies therefore between 49° and 54° N. lat., and 44° and 60° E. long. It was one of the numerous sovereignties which Gengis-Khan and his successors incorporated with the gigantic empire of the Mogul, erected by them in the first half of the thirteenth century, but was wrested from it by Batu, his grandson, the great chief of the "Golden Horde," and united with the independent monarchy of Kapshak, which had the Jai or Ural and Dnieper for its boundaries, and fell to pieces in the middle of the fifteenth century. For the next hundred years, the territory of Astrakhan, following the example of the Crimea, Kasan, and Nogay-Tartary, maintained itself as a separate state under khans of its own; and the owners of a soil where none but swords and lances had grown, now prospered by the arts of peace. But Astrakhan commands the western shores of the Caspian, and the mouths of the great Volga—two natural advantages of themselves sufficient to awaken the cupidity of a formidable and encroaching neighbour. In 1522 the khanate of Kasan had been added by Ivan, the great Tsar of Muscovy, to his extensive conquests; and two years afterwards, an insult to the envoy of Ivan the Second, his successor, from the khan of Astrakhan, afforded a pretext for the subjuration of the principality itself. A Russian army was sent against the town.
the khan and his subjects took to flight, and Ivan's forces entered it, as Napoleon's entered Moscow two hundred and sixty years afterwards, grimly led by naked walls and tenanted buildings. Ivan repopulated the town, and prevailed upon five hundred nobles and ten thousand Astrakhanese to swear fealty to him; the oath containing a recognition of his subjects' title to the same privilege as that of their previous masters, every year down to the Volga from Kasan to the Caspian sea. Ivan was indeed ever intent upon opening new sources of trade and affluence for his subjects, as well as of political dominion for his successors; and, so considered or as a splendid nature by the grand duke himself, that, when signing public documents, he afterwards attached its date, in conjunction with that of the conquest of Kasan, to his autograph. The khanate was comprehended in the same government, together with the Caucasian territories, until the year 1801, at which time part of it (the province of Caucasus or Georgiwick) was annexed to the government of the Caucasus, and the remainder divided into three distinct governments: those of Astrakhan, Saratoff, and Orenburg. The latter have a surface exceeding that of the French or Austrian dominions, whilst their population scarcely exceeds a fifteenth part of the population of either of those monarchies; for, of the three governments, though extending over a space of upwards of three hundred thousand square miles, according to Weydemeyer, Hassel, and others, do not contain more than 2,600,000 inhabitants. As each of the latter three has of its own a subgovernment, the Astrakhan territory will form a subject of a separate description, we have here said as much as is requisite by way of introduction to them.

Astrakhan, the least and southernmost of the three governments, extends over the whole line between the rivers Karman and Manysh to the frontiers of the government of Orenburg, and eastward from the borders of that of Saratoff to the line of the Ural, next to the steppes of the Kirghiz-Cossacks; it is comprised between the 45th and 49th degree of longitude, and contains an area estimated at eighty-four thousand square miles, the south and south-eastern parts of which are bounded by the Caspian. The land is, with little exception, arable, lying on the borders of the Caspian and Black Seas. It is divided into two parts, or steppes, by the monarch of European rivers, the Volga (a name derived from the Sarmatian, signifying 'the Great'), which winds through Astrakhan from north-west to south-east, for at least two hundred miles; the high and precipitous character of its right bank in some parts contrasting singularly with the low land which spreads out upon its left. The soil is saturated in almost every direction with salt; the atmosphere, the rain, and dew, are charged with it; and briny lakes are of frequent occurrence. This immense plain lies so low on the Kalmuktakian, or eastern side of the river, that the waters of the Caspian are driven over the plains, galleries, and swamps, when the water table is low; but even when the water is borne by the overflow some miles inland, and stranded in the midst of the steppes, where the only alternative is to break them up. Here, says Potocki, 'where the eye has no object to dwell upon but the arid sky, the steppes and lakes encrusted with salt, I was astonished to meet with a large ship lying on her beam-ends in the heart of the steppes, between Batalak and Talagia, where I learnt that, a year before, a south-easterly, which had prevailed for several weeks, had inundated the country, and forced several vessels a distance of seventy vertas (forty-six miles) from the shore. All but the ship in question had been driven to pieces and removed. This traveler confirms what Pallas and Gmelin had observed before him on the optical deception which the Astrakhan steppes present: the range of sight is extended, and every object is increased in apparent magnitude. In his own case he mistook human beings for obliskas, and low heath-bushes for Karabussu of ten feet height; the laden camel became, to appearance, a moving mountain. When on the Caspian, another traveler, Hebrard, states that he saw part of the sun shining over the coast and vessels upon it seem elevated high in the air. Even the horses in the steppes took fright at the witherind of trees which apparently drove across the way, and the sudden bushes, which the blast had torn up by the roots and scattered.
banks. The annual produce of maize and other grain is 11,000 chetwats (about 8000 quarters). The whole province, in short, whether the eye ranges over the Astrakhan steppes, the western dunes of the Caspian sea, the lofty flood plain of the Volga, or the eastern slopes of the Ural, is subjected to the influence of the monotonous climate of Astrakhan. The region of the Nile: the rain scarcely ever descends upon it, its noble stream irrigates the soil with partial fertility, and its rare mosquitoes spreading their wings with the camel and the zebra: 'yet no two climates under the sun,' observes Potoski, 'can offer a greater contrast: the physiognomy of the two countries is entirely distinct.'

The climate of Astrakhan is a 'climate of extremes;' it is generally warm, and unhealthy for those not inured to it from their childhood, in consequence of the vapours constantly exhaling from the greater part of its surface. At Astrakhan, in 1811, a year of great drought, the thermometer frequently stands, even in the shade, at 100° of Fahrenheit; yet the nights are in general nipping, and the winds deposit the saline particles with which the air is charged in such profusion, that every object appears veiled in the morning with hoar-frost. Autumn is of short duration: the winter colds, when the north wind blows, sink the quicksilver to 30° below zero, and the principal river of the Volga, with a breadth of 750 yards, becomes covered with ice capable of sustaining loaded sledges. The various streams throughout Astrakhan are closely closed at the end of November, but the February thaw invested the face of nature with so instantaneous a change, that within the course of a week most of the other streams of the province, which are renewed, are covered with ice. Akhtuba, a considerable arm of the Volga, which branches off from the left bank six miles above Tarasityn, runs for 280 miles close to and parallel with the main stream, and falls into the Caspian near the Caspian-Yark: and the Great and Lesser Ussen, which rise in the province of Saratoff, and, like many other inconsiderable rivers in this region, lose themselves in lakes on the steppes. The latter, among the Berdau, is navigated by steamers and large vessels, and Kamysch-Samara, are so many storehouses of salt, and are turned to good account by the Astrakhanese.

In the low lands on the banks of the Volga fossil elephant bones are occasionally found. Among other existing animals, there are in Astrakhan the wild sheep, camel, and antilope-saiga [see ANTRAKH, p. 73], whose horns are semi-transparent; there are also the bustard, kite, falcon, pheasant, and snipe. The tarantula, scorpion, and locust, occur in Astrakhan; and Pallas speaks of having met with serpents, ears, one of which he observed in the act of devouring a living serpent by the tail, which could neither resist nor extricate itself. The natives are herdsmen and graziers as well as fishermen and cattlemen; the fish that is caught on the Volga is pasta, and are turned out half-starved from their wretched winter-quarters as soon as the snow has disappeared. Goats are also reared, not so much for the sake of their milk or flesh, but from the animal's back, or is combed from it, out of which a stuff of beautiful texture is occasionally woven. But the greatest resource possessed by the rural population and nomadic tribes of the province is their flocks. These consist principally of a native breed, the Kirghizian or Astrakhan species; it is of larger size than any other sheep in Asiatic Russia, somewhat resembles the deer in shape, has a wild appearance, and is distinguished by its immense bushy tail, which has been found in some instances to weigh as much as forty pounds. When fully-grown, the wool of this breed is short and coarse; but the lamb yields a fine and beautiful fleece which is valued at 300 rubles a cwt. [a pound avoirdupois], and is sold in every European market. The fish of the Volga, the Caspian, and of the Ural, which resort to its banks at certain seasons of the year for the purpose of fishing. They sell their fish in the interior of Russia, frequently to the extent of two millions of roubles (gold), which the snows above the Volga in the winter is a singular description, for the fish must be taken under the ice. Several thousands of Cos-
subordinate to one of the males as their leader. When attacked by wolves or other wild beasts, they collect into a body, and repel the attack of the enemy with their hoofs.

The population of Astrakhan is composed of a motley group of different races. The Begemons, Kalmucks, Armenians, Indians, and other settlers from various parts of Europe and Asia, to whom the highest estimate does not state as exceeding 725,000 individuals, and the lowest, which, as it is known on the number of domesticated animals near the tents, is set down at 80,000. Nearly one-half of this population would appear to consist of Kalmucks, who occupy large tracts of the east of the Volga; the number of their kibitkas, or tents, being computed at 13,100. Another considerable portion of the population is composed of the Cossacks of the Ural, who are esteemed the finest, the wealthiest, and the bravest Cossack corps in the Russian service, whereas they have acquired the appellation of the 'Eye of the Army,' and garnish the small forts along the line of their native river; some have estimated the number of their fighting men at 20,000, but this would give an amount of population to this single race of Astrakhanese, which would far exceed any estimate yet formed of their number. Independently of these, there are a few colonies of Tartars of Kazan extraction, about 1,600 yurts or tents of Nomadic Kunduroff-Tartars, or Manguttes, descendants of the Nogay horsemen, who were driven into the territories of the Laccato and Akhthaba; and, as some writers assert, 12,000 kibitkas of Bukay-Tartars, who settled in the districts between the Volga and the Lesser Ussen about thirty years ago, and made an attempt to remove to the Caspian Sea; but they were forced back by superior force.

To the principal branches of industry already enumerated we may add the manufacturing of machinery, tallow, and soap, in considerable quantities, distilleries of brandy and spirits, dairies, and a few sugar factories. Astrakhan soap is in much request among the Russians on account of its firm substance and fragrant scent. The Volga, which secures a ready access to the extensive Russian interior, has rendered the city of this province the principal seat of the traffic carried on between Asia and the Russian dominions.

Astrakhan is politically divided into four circles: Astrakhan, Kranso-yar, Yetseyayev, and Tasbino-yar; but there are no spots in it deserving of any distinct notice excepting the capital, from which the whole province derives its name, and Ursakoi, the chief town of the Cossacks of the Ural. Of the remainder, the short account which follows will conclude with the account of it. At a distance of less than five miles above the city of Astrakhan, we find Kalmschik-Bazan, a place on the right bank of the Volga, in which all sale and barter between the townsman and the whale has been discontinued. In the Russian language, this place stands the Russian, with his brandy, bread, and coarse household stuff; the Armenian with his wine and inferior stuffs for clothing; the Tartar, in quest of sheep for the Astrakhan market; and the Circassian, hard at work in making ironware and leather articles. Here the Kalmschik also resorts with his supply of domestic manufactures, cattle, and fowl. These sons of the steppe are seldom a match for their customers, says Potocki. Here you may see Tartars from Kuns, Kaban, and the Five Mountains; Tuchmens, Novgays, Kiptahaks, and Cossacks from the Jaik; but, above all, it was this traveller's fortune to meet a Kirghiz embassy in the Bazan, who had but little of the air of dignified manners.

About nineteen miles to the north-east of Astrakhan lies Krasnoy-yar, the capital of the circle of that name; a small town of about 2000 inhabitants, with two churches, built on an island formed by the Algars, the Akhtuba, and Basan, three arms of the Volga, and surrounded by dilapidated walls with wooden towers, which were constructed by the Yariss Alexiss Mikhailcovitch in order to protect the town against the attacks of the Cossacks and Kalmucks. The inhabitants live chiefly by fishing and their industry, and of their gardens, orchards, and vineyards, which are situated on each side of the hills, east of the town. It is celebrated for its asparagus, the staple stem of which is also manufactured into the Puschinskaya, and an arm of a capital of a circle, situated on the steep right bank of the Volga, is the seat of a tribunal, which has jurisdiction over the 4900 kibitkas of Kalmucks who pass the winter in its vicinity: it is a circle of houses, built round a small square, with the usual offices of an officer of the Cossacks, with a small fort, of which there are four, and under the latter twenty-five, churches besides these, the Roman Catholics, Lutherans, and Hindoos, have each their separate place of worship, and the Mohammedans

* In 1827 Weyermayer stated the number of inhabitants to be 25,000, which number was stated to be correct in 1840. The Volga was described as a place which was built centuries ago, and of which there is no record in the 17th century; as Tarek says the official returns in 1863 was only 16,000.
have nineteen mosques or mosques. There is a Scotch mission in the town, which, Keppel tells us, is a branch of a colony at Callao in Ciaucca or Cabardia, whose affairs are managed by the Scotch. The women are at liberty to make converts of Mohammedans or heathens; pay no taxes but about five peckocks (one half-penny) for each acre of arable land, and are authorized to purify themselves and even to emigrate when they expect it at the end of five years. Independently of an academy for marine cadets and a Greek seminary for ecclesiastics, there is a high-school, a district grammar-school, and four inferior schools for national purposes: two printing-houses (a Russian and an Armenian) are sufficient to supply its present wants. The chief architectural ornaments of Astrakhan are the "Kremil" or citadel, which contains the cathedral and barracks, with the reservoirs and large oven, from which the building receives its light. The interior is splendidly though not very tastefully decorated; but it is prized among the followers of the Greek faith principally on account of its hold, of fruit, especially of pears and apricots. Some of the leather goods are said to have cost 800£; six valuable mires, laid with pearls and precious stones of extraordinary size; a bispelt of mass, ninety-eight pounds in weight; and some fifty or more splendid figures for the celebration of the mass, one of which has been four centuries in use. The Jesuits and Greek-Armenian churches are also handsome structures; but the most singular building is a beautiful man-made tower erected by the women of the town, which, as it is different in every respect from the usual forms of Mohammedan mosques, and resembles the Christian churches of the East in shape. The "Kremil" is an ancient Tartar fortress, surrounded by stone walls and battlements eighteen feet high. Most of the town comprises sixteen slobobs or suburbs, beyond which the progress of modern improvement has transformed mound and swamp into places of public resort and agreeable promenades. Warsaw, a Greek of large property, has been the great reformer of Astrakhan in every thing concerning the improvements outside of the town; which are not only extensive, but judiciously planned and executed. It is probable, that in the present season, the population of Astrakhan is increased by at least 30,000 souls; a motley concourse, collected from almost every quarter of Asia and Europe, of whom nearly one-third are Russians. The latter, with the exception of a few noblemen, are in habits both of dress and of manners somewhat rude, and many of them in affluent circumstances. 'You cannot form an idea,' says Gambá, who visited Astrakhan in 1820, 'of the splendor of splendid equipages which make their appearance on festive occasions, particularly at Easter. The dress of the women is of the most sumptuous description at these seasons: they are attired in a robe of gold or silver tissue; and the head, arms, neck, and waist, are covered with pearls and precious stones.' The Russian of Astrakhan has, however, adhered, in general to his old customs and predilections; he remains no less an enemy than ever to a shaven chin and the fumes of tobacco, or any other innovation: he has continued stationary in taste, and in intellect too, if it be true, as Erdmann reports, that 'his only resources, when in society, is eating, drinking, and card-playing.' The Tartar inhabitants of the town are stated by Gambá at 10,000; they are of three distinct races, the Gilian (of Western Persia), Bucharan, and Agrakhin (or mixed race), being the issue of Hindoos settled in Astrakhan and Tartar women), each of whom occupy a separate division of the Tartar slobob. These settlers are highly commended by the same writer for their sober and industrious habits. The Astrakhan merchants are among the richest traders of the town: a considerable proportion of them have laid aside their robes, caftans, broad trousers, small boots, and high fur caps, and adopted the European costume; but their wives and daughters, who are seen in low-cut frocks, with an enormous white veil, which conceals the whole person except a small part of the face. The Georgians of Astrakhan are mostly mechanics, and the better class of them are very cleanly, and show much taste in their household arrangements. At times of general festivities, such as the visit from China and Buchara; the analog, too, is accounted a stranger, although he has his wooden hut or felt tent permanently standing in the outskirts of the town. The fishery and its regulations. The Hindoo population, though on the increase, does not exceed three or four hundred: most of this race are natives of Multan and Lahore, and they bear the name of the river on the right bank of it, the gratification of two passions flowers and money. The stores in the Indian bazaar have, each of them, a flower-bed in front; and they are never without a nosy between their fingers, which goes the round of every customer's nose. With their business they trade from morning to night, and their goods, if not possible, and their accumulations being seconded by the utmost simplicity and parsimony in their mode of living, they rise quickly into affluence. We need only allude to the European residents as a motley assemblage of traders, artisans, teachers, government officers, and artists from north, south, east, and west.

The establishments for weaving silks and cottons at Astrakhan are not extensive, but they produce considerable quantities also considerable quantities of leather, particularly a superior description of morocco and shagreen, as well as tallow and soap. The numerous gardens in the town and its environs produce, by means of irrigation, several fine species of fruits, particularly melons, which are usually seen in a single ground: these are dried, and form a considerable article of export to the interior of Russia. In all respects, this place has long held the same station as Astrakhan; and is known to the south of St. Petersburg, Riga, and Archangel occupy with regard to that of the north, of Russia: but its commerce is greatly on the decline, for in 1824 it employed between four and five hundred vessels of various sizes, which landed in this town to the amount of 340,000l. (7,449,615 dollars), and transported wares in return to the value of 310,000l. (6,955,575 rs.), whereas, in 1832, the importations did not exceed 20,000l. (425,317 rs.), nor the exportations 41,000l. (913,029 rs.) in value. In the latter of these years, however, the trade of Astrakhan was much crippled by the combined effects of the cholera and the disturbances which broke out in Daghestan. The business of buying and selling, more than one-half of which has been engrossed by the Armenians, is conducted in twenty-eight khans or bazaars, which contain 1,500 stores built of stone, and 560 wooden stalls. Raw silk and silk goods, cotton and cotton and yarn, drugs, dye-stuffs, car-

In speaking of the provinces itself, we mentioned the great fisheries carried on by the Caspians and along the Volga. The fisheries of the Volga centre principally at Astrakhan, or rather on the branches of the river some distance below it. Every wear has its group of huts, with a little church attached to it, in which we from two to three score fishermen reside; they are divided into divers, catchers, salting-men, and makers of caviar and isinglass. Each little colony is provided with spacious ice-cellars, which contain compartments for storing away the fish when salted, with intervals between the compartments which are filled with ice. The spring fishery opens with the spawning season, when the ice breaks up, and the fish enter the river from the Caspian; they are preceded by innumerable schools of small fry, some descriptions of which, particularly the obla, are caught and used as bait for the larger species which succeed them, such as the sevgera, sturgeon, and bongora. The fishing season, both on the Volga and Cas-
his entire right for 40,000l. Many of the Astrakhan dealers also send out parties in spring and autumn to take the seals along the shores of the Caspian islands, and they are frequently carried away by storms than for the sake of their skins and the oil extracted from the carcass.

Besides the ruins of Adchotarkhan, to which we have already referred, vestiges of Tartar dominion in former ages lie scattered in various picturesque positions, and some of the khanates which surrounded Astrakhan. The greater part of them are sepulchral mounds, here and there distinguished by uncounted figures, carved in stone: their features and attire obviously stamp them of Mongolian origin. There is probably no mound larger and more massive than the sepulchral mound near Prichibinskii, a village on the Akhtuba. It is raised on a quadrangular substructure of earth, and consists of six flat vaults shutting one against another, the whole being about 90 feet in princt and in height. The mortar with which the walls have cemented has become as solid as the hardest stone, and resists the impression of the strongest instruments. It would seem, from the vessels and ornaments which have been found within it, that this structure was formerly a place of interment for some princely family. Astrakhan has a dockyard and arsenal, and is the port of rendezvous for the Russian ships of war which cruise in the Caspian. It is in 46° 21' N. lat., and 47° 55' E. long.

Astrakhan, from other considerations (closer brought together), are agents which contract the fibres of the muscles and blood-vessels, and lessen the flow of fluids, whether it be the secretions of the glands proceeding from their natural orifices in excess, or the contents of the stomach or intestines escaping by their exhalant extremes, or by an unnatural opening (or rupture). They produce this effect, generally by a vital, but sometimes by a chemical action. Their power is manifested first, and often solely, on the organs which they are applied; yet in many instances it is extended by sympathy very rapidly over the whole body, as is observed when the acerb juice of the sloe is brought in contact with the tongue. The sensation then experienced may be considered the best general test of the presence of astrinency, which cannot be ascribed to any one principle, but is owing to tannin, gallic acid, and humate, in vegetable astringents, and is possessed by acids, and many metallic salts among mineral agents; and is also one of the effects of the application of cold to the body. In vegetables, the astringent principles are found chiefly in the bark (as oak), the root (as rhathany and tormentill), and the wood (as logwood). As wood and bark form parts of exogenous trees only, it is only from this section of the vegetable kingdom that any astringent principles can be obtained. [See explanation of the term exogenous, under the article Aeg of Taxeis, vol. i. p. 202.]

Sir Humphry Davy found that the inner layer of the bark possesses a greater quantity of the astringent principle than the outer layer. But this is the natural consequence of the mode in which the sap descends from the leaves, viz., through this inner layer of bark, whence it occasionally passes into the wood, which will have a greater proportion of this principle to those of the bark. Most astringent vegetables are red, owing to the presence of an acid in excess—which is often manifest to the taste, as in rumex, or sorrel. In metallic astringents, when super-salts, the excess of acid, is also very perceptible to the taste, as in alum, which is a supersaturation of alunina and potassa.

The particular principle to which any substance is indebted for its astringent power may be ascertained by applying a known astringent substance, in the presence of a suspected object, to the lesion, and noting the effect. A precipitation of the astringent in the presence of the lesion may be proved by an insoluble precipitate taking place on the addition of a concentrated solution of gelatin. The precipitate is a compound in definite proportions of tannin and gelatin, being forty-six of tannin and fifty-four of gelatin. Gelatin is a preparation by burning by Sir Humphry Davy as a test of the quantity of tannin in different astringent vegetables. (See Philosophical Transactions, 1803.) But in the practical application of this test there are some obstacales of failure to guard against. (See Papers by Dr. Bostock in Nicholson's Journal, vol. 4.)

Tannin rarely exists alone, though it particularly does so in catechu, but mostly along with gallic acid. Experiments have been made (see papers by Mr. E. B. Stephens, in Annals of Philosophy, New Series, vol. x. p. 491.) Tannin rarely exists alone, though it particularly does so in catechu, but mostly along with gallic acid. Experiments have been made (see papers by Mr. E. B. Stephens, in Annals of Philosophy, New Series, vol. x. p. 491.) Tannin rarely exists alone, though it particularly does so in catechu, but mostly along with gallic acid. Experiments have been made (see papers by Mr. E. B. Stephens, in Annals of Philosophy, New Series, vol. x. p. 491.) Tannin rarely exists alone, though it particularly does so in catechu, but mostly along with gallic acid. Experiments have been made (see papers by Mr. E. B. Stephens, in Annals of Philosophy, New Series, vol. x. p. 491.) Tannin rarely exists alone, though it particularly does so in catechu, but mostly along with gallic acid. Experiments have been made (see papers by Mr. E. B. Stephens, in Annals of Philosophy, New Series, vol. x. p. 491.)

The action of tannin on the skin is of considerable service, assitting its action in the process of tanning. Gall acid strikes a bluish black precipitate with all the salts of iron, but a solution of the persulphate is the ordinary test. Hematite exists in logwood, along with tannin and extractive. It may be known by combusting with a piece of charcoal, their fumes being without the least indication of the presence of tannin. The effect of astringents which is due to their chemical action is nearly the same in dead as in living animal matter; their long-continued application to the skin will produce a condition similar to that of a tanned hide. They are, therefore, a necessary and indispensable ingredient in all the tannings in which vegetable astringents are used, to change them from a secreting to a non-secreting surface—such as in irreducible prolapsed uteri. Their use in this way, however, is very limited; while their vital action is much more valuable. The effect of astringents is to contract the muscular and vascular tissues, to diminish secretion, and lessen irritability; and in many instances to impart strength, or increased tone, to an organ or part. Their action is always greatest on the part to which they are applied. When a drop of dilute acetic or sulphuric acid is applied to the skin, whiteness of the part is observed, which soon disappears, and the natural colour, or even a more intensely red one, follows. If this is frequently repeated, the structure of the part is changed, it ceases to secrete, is no longer plant, but becomes stiff and inflexible. The loss of colour is owing to the diminished calibre of the blood-vessels, which no longer admit the red globules. During the absence of these, the sensibility of the part increases, and the skin loses its smoothness, and loses its fineness of touch. Nearly similar effects may be supposed to follow the internal administration of astringents, the action of which is greatest on the intestinal canal, and is probably never felt on passing down into the stomach. It is remarked, that as the intestinal canal is a mucous membrane, it possesses a muscular structure, parts of a similar structure are more influenced by astringents introduced into the stomach than other parts are; hence, increased secretion from the mucous membrane of the lungs, or from the lining membrane of the bladder, or flow of blood from arteries, is more effectually checked by astringents, than increased exhalation from serous surfaces. There is reason to believe that the astringent principle of many plants does not enter into the circulation, but passes up into the intestinal canal without being absorbed: for Sir Humphry Davy found, that when tannin is present in grasses, as it is in that of aftermath, it is voided in the dung of the animals which feed upon it. (See Davy, Elements of Agricultural Chemistry, Appendix, p. Ixxi.) But that other plants enters the system so rapidly, that the astringency of the sea ursi, or bear's whortleberry, can be detected in the urine forty-five minutes after it has been swallowed. In the case of those which do not enter into the circulation, any beneficial effect which they exert upon remote organs must be attributed to that sympathy which exists in so great and unquestionable a degree between the stomach and the several other parts on which vegetable substances, while passing along the intestinal canal, promote the filling of its functions, is obvious, from the effects following the use of food in which astringents are used. The astringent principle, or the specific powers and bitter principles, such as tormentil and the bog-bean, are very efficacious in preventing the rot in sheep, (as has been already stated under Anthelmintics,) while watery grasses, among which no astringent plants grow, cure the generation of worms.

The primary sympathetic effect of several of the astringents which ultimately enter into the circulation, is the most valuable in some of the cases in which they are employed, such as the diarrhoea caused by poisoning by losing a bleeding vessel, before any of it can be conceived to have been conveyed directly to the bleeding orifice; it checks the flow of blood in the same way as cold suddenly applied to the surface or skin does. The toxmic effect of vegetable astringents, when used for some time, first on the digestive organs, and afterwards upon the whole system, and more especially upon any weak organ, must be admitted, and borne in mind, in forming our estimate of their utility in a curative point of view. (See Proc. of the Royal Society, 1803, for the ultimate cause of the action of astringents, to which successfully seems impracticable in the present imperfect state of our knowledge, it may be stated, that under their influence a tension of the parts is produced, and that the structures which require an increase of power, and secreting surfaces and glands produce less fluid but more natural secretions. Some, indeed, lessen the action of the heart, and so
stop the flow of blood from dilated or ruptured vessels, such as the preparations of lead, which though in some degree astrigent, ought to be only used, as a salutary while others which combine with and neutralize the unhealthy or excessive secretions, as lime and its carbonate with the secreted fluids of the intestinal canal, are more properly employed for the cure of the astringents. When astringents are applied directly to the skin or to the mucous membranes, while most common and valuable substances may be given. Of vegetable astringents the chief are bark, as of oak and willow, the best kind of the former of which is obtained from the quercus petraea, and of the latter from the quercus pallescens, which is synonymous with the quercus pallescens of Willdenow, while the inferior sort is obtained from the quercus sessiliflora of Salis, which is synonymous with the quercus robur of Willdenow. The best willow-bark is procured from the salix pentandra, or sweet bay-leaved willow, though very excellent bark is yielded by the salix Rusticiana, or Bedford willow.

Boots, as of tormentil, from potentilla tormentilla; bistort (polYGONUM bistortum); geum, from geum urbanum, which are British plants; and rhatany, Krameria triandra: rubarb (rheum palmatum); pomegranate (punica granatum), which are exotic plants; leaves of arrowroot, from erumba, from anthurium, from prunus spinosa, or sloe-thorn (prunus spinosa), and secreted juices of many plants, as kino, from pterocarpus senega, and several others; and catechu, from acacia catechu, and galls, from quercus infectoria; in all of which the astringent property is rendered still more active by the addition of lime; and lastly logwood, (hamatoxyylon Campechianum), in which haematine as well as tannin possesses an astringent property. Acetic acid must also be classed among the vegetable astringents.

The mineral astringents are, dulcified sulphuric acid, and salts of iron, zinc, copper, silver, and the salts of lead. Cold, in whatever way applied, is also a valuable astringent. In the management of diseases of the skin and mucous membranes, it is necessary to distinguish between their action as local, direct, and often chemical, and their action as general, influencing remote organs, their effects upon which are vital rather than chemical; but both their medicated power and their tonic power. The beneficial effects of many of the above-named astringents in checking increased secretion, is doubtless often due to their tonic power; for as in a weak state of the system, or of any particular part, the use of an astringent will not have the same return to the healthy proportion and quality can only be insured by increasing the power or tone of the body or gland, which astringents do by bringing the living tissues into a better condition, and, under certain circumstances, by heightening the vitality of the debilitated structures. Hence astringents are beneficially employed in diseases where a laxity of the muscular and vascular tissues exists, accompanied with imperfect discharge of the functions of the secreting organs. The stomach and intestinal canal being the channel by which is conveyed the material necessary for the nourishment and vigour of the system, and for maintaining a capacity to discharge their functions in the other organs of the body, an impaired state of the structure and functions of this canal extends to every other part. The re-establishment of its healthy condition is a primary object in endeavouring to cure many diseases. Of these, intermittent and remittent fevers may be taken as an example, since in these there is always great debility of the digestive organs and of all the parts which have the most intimate sympathy with them, such as the skin. Astringents possessed of a tonic power have therefore mostly been resorted to in order to remove this debility; cinchona-bark, willow-bark, and many others, have been used with this intention. These, however, are to be avoided whenever any acute inflammation exists, which must take precedence, for astringents can be safely and advantageously used. In diseased states of the intestinal canal, in which generally increased or unhealthy secretions take place, as diarrhoea, dysentery, and cholera, the most careful inquiry should be made into the cause of the debility, for astringents may be safely used in an inflammatory condition of the mucous membrane of the intestine, or is owing to the presence of any acid sub-stance, the former may be overcome by antiphlogistic meas-
sures, and the latter be removed by purgatives. When the increased flow of fluid is due to diarrhoæ, antiphlogistic measures are the most effective, as well as only safe, means of diminishing this, in the early stages of its occurrence, is the employment of diaphoretics, or such medicines as restore the action of the stomach, and the large intestine. When the flow of secreted fluid is produced from exterior wounds, or to the nostrils or gums, they are termed styptics, and in such cases they often act chemically as well as vitally. Before proceeding to consider the cases in which astring.

Diarrhoæ, or looseness of bowels, proceeding from acid secretions, is treated by the concoction of astringents, and other medicines chemically with these—such as lime, or its carbonate, which are rendered more suitable by uniting them with aromatic, an excellent form of which is supplied by the poto carbonatica caeca of the Edinburgh pharmacopoeia. Sometimes, in order to give the waters of the intestine a coagulating power, if it is supposed, carbonate of lime is prescribed along with the vegetable astringents; but nothing is more erroneous than this proceeding, by which a decomposition is occasioned, which destroys the beneficial effects of both. The composition of opium with chalk less objectionable.

The next most important class of diseases in which astringents may be employed are termed hemorrhages, or a discharge of blood from the veins, arteries, or capillaries. A coagulating power, when they are gorged or when they are too much relaxed, or from the wounded or ruptured coats of any blood-vessel. The above distinction refers to the differences between active and passive haemorrhage, and that which takes place when the system is too full of blood and the vessels propit its with great force; the other, which takes place when the power of the vessel is greatly below the natural standard. In the former, astringents cannot safely be employed at the commencement of the flow of blood, but time should be allowed for the vessels to unload themselves; or a vein should be opened, cooling saline medicines administered, cold air admitted freely to the surface of the body, and, under certain circumstances, saline nostrils may be given; after which, astringents will either not be required, or if so, may be safely used. In passive haemorrhage they may be employed from the commencement; and perhaps, in most cases, a saturated solution of alum in the infusion of roses is to be preferred, though the tincture of the muralte of iron is very eligible when the kidney is the source of the bloody discharge, and the treatment of lead is when the lungs are the organs where the blood flows. So long as lead is kept in the state of an acetate, its administration is perfectly safe: it should therefore always be accompanied with dilute acetic acid. Bleeding from the nostrils or gums may be checked by the direct application of styptics such as preparations of zinc or copper. Nitrate of silver will frequently stop the flow of blood from a leech bite. Cold should, in most cases, be employed along with the other means; even alone it is often successful, especially in those cases in which a height in uterine haemorrhage. Ruspini's styptic, which is said to be a solution of gallic acid in alcohol, is sometimes useful, where other means have failed. The application of the styptic to more limited examples of loss of tone or increased flow of secreted fluids, need not be extensively noticed here. After acute inflammation of the eye, proper antiphlogistic medicines having been used, astringent applications are very serviceable, in those cases where in an inflammatory condition of the mucous membrane of the eye, or owing to the presence of any acid sub-
tion, or excessive flow of saliva, occurring either spontaneously or from the use of mercury or other means, is often effectually checked by nitrate of silver, or decoction of the rhiz glabrum, or by iodine. Nitrate of silver, by lessening the inflammation which gives rise to them, also frequently removes morbid discharges from other mucous surfaces besides those we have specially noticed; an effect which also often follows the use of diluted chloride of soda. The colliquative sweats of hectic fever are best checked by giving internally dilute sulphuric acid, and sponging the skin with vinegar and water.

Astringent substances are decomposed by, or decompose, many others, which therefore should not be given at the same time with them; such, for example, as ipecacuana with most of the vegetable astringents which contain tannin, by which an insoluble tannate of emetina is formed: when kino is united with calumba, a purgative action follows. All astringent vegetables containing tannin, except oak-bark, decompose tartrite of antimony, and are therefore the best antidotes to it.

The antient Egyptians would appear to have been acquainted with the power of astringents in preserving vegetable as well as animal substances, and they seem to have dipped the coarse cloths in which the mummies were enveloped in some astringent liquid, which tanned the skin, and rendered it less subject to change, as well as excluded the air from the interior of the body. The article employed by them with this view is supposed to have been some sort of kino. The same substance is used by the Chinese to dye cotton for their nankeens.

This property of astringents may be usefully applied for the preservation of all kinds of cordage, fishing-lines, nets, which last much longer if steeped in an infusion of oak-bark. Though inferior in preserving power to the plan of Mr. Kyan, it may be applicable in some cases where his is inadmissible. [See Antiseptics.]

For further information on astringents, see Dr. A. T. Thomson's Elements of Materia Medica and Therapeutics, vol. ii., in which much recent valuable matter is brought together.

[For the employment of astringents in the arts, see Dyeing and Tanning; and also Library of Entertaining Knowledge—Vegetable Substances; Materials of Manufactures, p. 176.]

ASTRACARYUM, a genus of palms found in small groups, or in single specimens, in the tropical parts of Americas, of middling stature, and of a very singular appearance on account of the spines with which they are armed. Their stems are covered all over, except at the places where the leaves are set on, with stiff and very numerous prickles. The leaves are pinnated. The fruit resembles cocoa-nuts.

These plants are found exclusively in South America, where several species were collected by Dr. Von Martius, the great illustrator of the palm tribe. Among the more remarkable are, Astrocaryum murumuru, a common inhabitant of swampy places in the neighbourhood of Para, where it is called murumuru; the flesh of the fruit resembles the melon in flavour and the musk in odour, and is considered a great delicacy by the Americans. We give a figure of it, but so much reduced, that the armature of the stem cannot be shown. Its leaves are found to be an excellent cataplasm.

Another species, A. ari, has very hard wood, which is much used for bows, and similar purposes, where hardness and toughness are required.

The fibres of the leaves of A. tucuma are much valued for fishing-nets. [See Martius, Palma, p. 69, &c.]

ASTROLABE, from two Greek words signifying to take the stars. It has an earlier and a later meaning. As used by Ptolemy, it may stand for any circular instrument used for observations of the stars; but in the sixteenth and seventeenth centuries, it signified a projection of the sphere upon a plane, being used in the same sense as the word Planisphere. To this small projection, which had a graduated rim with sights attached, called an astrolabe, was used for taking altitudes; and in this state it was the constant companion and guide of office of the astrologer. In later times, before the invention of Hadley's quadrant, a graduated circular rim with sights attached, called an astrolabe, was used for taking altitudes at sea, as further described in Bion, Traité des Instruments de Mathématique. Hague, 1723. In the older sense of the word every one of our modern astronomical instruments, as a part of the astrolabe, the principle of which we proceed to describe.

If a solid circle be fixed in any one position, and a tube be fixed upon its centre, round which it may be allowed to move, as in the adjoining diagram; and if the line CD be drawn upon the circle, pointing towards any object Q in the heavens which lies in the plane of the circle, it is obvious that, by turning the tube AB towards any other object P in the plane of the circle, the angle BOD will be the angle subtended by the two objects P and Q at the eye, or their angular distance upon a common globe. This angle may be measured, if the circumference of the circle be graduated. Thus, suppose the plane of the circle to pass through the poles N and S, and CD to point towards the equator; then when the tube points towards the star, N O B its north polar distance, or B O D its declination, may be measured. If the circle be fixed in the plane of the equator, and C D be made to point towards the vernal equinox at the same moment at which the tube points towards the star, then the angle D O B will be the right ascension of the star.

A collection of circles, such as the Armillary Sphere, might therefore, by furnishing each circle with tubes, be made a complete astrolabe. The practical difficulty consists in keeping so many circles exactly in their proper relative positions. The distinction between the astrolabe of the antients and the circular instruments of the moderns, is as follows: First, the antients endeavoured to form an astrolabe of two circles, so as to measure both latitude and longitude, or both right ascension and declination, by the same instrument; while the moderns, in most cases, measure only one of the two. Secondly, the antient instruments were made to revolve, to find the star, or were furnished with at least one revolving circle, moving round the pole of
the equator or ecliptic, according as declination or latitude was to be measured. The moderns for the most part fix their instruments in the meridian and wait for the star. But the equatorial, the altitude and azimuth circle, and the theodolite, are strictly astrolabes, according to the antient meaning of the term.

Hipparchus is the first we know of who can be reasonably supposed to have made use of an astrolabe. But, at the same time, there are reasons for supposing that Eratosthenes, a century before Hipparchus, made use of a circle fixed in the meridian, for measuring the obliquity of the ecliptic. He is also said to have erected armillary circles at Alexandria. Ptolemy does not mention Hipparchus expressly: but he was in all respects his follower, and therefore probably, in describing his own instrument, he is only repeating that of his great predecessor. And Nicholas Cabassiles (an ecclesiastic of the fourteenth century, cited by Delambre) attributes to Hipparchus an instrument consisting of an equator, a meridian, and two tropics. It is impossible, from what we know of Hipparchus, that he could have done without something of the sort. At the same time, between Hipparchus and Ptolemy we have no observations to settle this point.

The description of Ptolemy (Systarion, book v. ch. i.) is as follows:—Fix two perfectly equal circles at right angles to each other, and let one represent the ecliptic, and the other the solstitial colure. In the poles of the ecliptic place cylinders, projecting within and without the rims of the solstitial colure, and fix on these cylinders as pivots outer and inner circles, which shall revolve freely without and within the first mentioned circles. These are evidently circles of longitude. Within the innermost, and in its plane, place a lighter circle, sliding by friction, and having two sights diametrically opposite, by which the latitude of any celestial phenomenon may be observed when the instrument is adjusted, i.e. when the circle representing the ecliptic is in the plane of the true ecliptic. To effect this, cylindrical pivots are inserted in the solstitial colure in the points corresponding to the poles of the equator, and the whole of the apparatus is suspended within a circle which is placed in the meridian of the place of observation. The ecliptic being divided from its interior to its exterior rim, the outer of the circles of longitude is set to the division corresponding to the longitude of the sun, as given in the solar tables, and the whole is then turned round the poles of the equator, until the plane of the ecliptic and the plane of the outer circle of longitude pass through the sun. The instrument is then adjusted, the inner circle of longitude and its sliding limb with sights is turned to the moon, and the angle read off upon this circle is the latitude of the moon, while the angle read off on the interior edge of the ecliptic is the longitude.

When stars are observed, it is sufficient to make the plane of the outer circle of longitude pass through the moon or any known star after setting that circle to the known longitude of the moon or star. The observation then takes place as before.

No material improvement upon this construction appears to have been made by the Arabs, who in some instances used very large instruments of the kind. A more skilful variety of the astrolabe is here shown, described by Tycho Brahe, from whose Astronomiae Instauratae Mechanica the preceding cut is taken.

The outermost circle represents the meridian; the axis passes through the poles, and there is a revolving equator and hour-circle fixed together. The sights on the circles are moveable; but instead of using opposite sights, the small cylinder which projects from the axis is employed. For example, to measure the declination of a star, the hour-circle is moved till it passes through the star, and a sight is then placed so that the star may be seen through it on the edge of the cylindrical pin which projects from the centre of the axis, both on looking above and below the cylinder, the orifice of the sight being made just large enough to admit of this. The angular distance of the sight from the equatorial circle is then the declination of the star. To measure the difference of right ascension of two stars, two observers take two sights on the equator, which they adjust till each sees his star just on the axis, both on one side of it and the other. The angular distance of the sights is then the difference of right ascension of the stars.

The plumb line shows whether the meridian is exactly vertical, and the screws at the feet are employed to raise or lower either end when necessary.

We give one more step between the antient and modern instruments, from the same work of Tycho Brahe.

The hour-circle is now disengaged from the equator and independent of it. The polar axis is directly supported, and
not made to depend upon the position of the meridian. This is particularly near to the modern equatorial to be considered as the first instrument of the kind.

ASTROLOGY. If this word were used in a sense analogous with that of geology or theology, it would mean simply the science of the stars, which some might mean the science of order and arrangement. But the term, at least when coupled with the epithet judicial, has always signified the discovery of future events by means of the position of the heavenly bodies. The two words astrology (diemnocny and astronomy (argonoia)) seem to have been used in the same sense by the Greeks, at least till about the Christian era. Cicero (Off. i. 6.) uses the word astrologia to express astronomical knowledge.

It has been usual to produce many arguments against it; but there are two considerations which make us think it may be useful to show those who are unacquainted with it a few of its details. The first is, that works, seriously professing to inculcate and defend the principles of astrology, have been published within the last twenty years in this country, and are still sold, almost exclusively, by some booksellers; the second, that several of our most popular almanacs do actually give astrological predictions at the present time. This may be a more matter of amusement with the more enlightened; but we are afraid there are some who play with edge-tools in reading the fœlories of the works alluded to. The love of the marvellous is not under proper regulation, even in the minds of many who do not give the length of supposing astrology credible; and we shall therefore perhaps do good service in showing that the system really is, and what consequences its adoption must lead to.

It must moreover be remembered that our old English writers, particularly the dramatists, cannot be well understood without some information upon the leading terms and principles of this art; which therefore may be as lawfully studied as the history of Jupiter and the Metamorphoses of Ovid.

The science which, under the name of astrology, or some term of equivalent meaning, found universal belief among all the nations of antiquity except the Greeks, and also prevalent in the whole middle ages, is based upon the supposition that the heavenly bodies are the instruments by which the Creator regulates the course of events in this world, giving them different powers according to their different positions. This is the description of the more learned astrologers; for we need hardly say, that the ignorant have made the stars themselves the agents, just as the image of the Deity has generally come in time to be regarded by the Deity himself. Looking at the more credible description, it might be philosophical for a newly created being, in possession of rational powers, to suspend his opinion on such a point till he had observed facts enough to affirm or deny the connexion supposed to exist between the placings of the planets and his own fortunes. That there is nothing repugnant to human nature in the basis of astrology is sufficiently proved by the number of great minds which have been led by it, when properly prepared by education; and the present age must recollect that the arguments which are now held conclusive against astrology get their strength in the minds of most people from no other circumstance than that which formerly was the prop of considerations which were held equally decisive in favour of it, namely, the bias of education. The real arguments against astrology are, first, that it is self-contradictory; secondly, that its predictions are not borne out by facts. To see the first of these, we must describe the leading principles of the art.

In the following globes, the circle projected horizontally represents the horizon, the double circle the meridian, and the other four circles are drawn at equal distances from the meridian and horizon, through the north and south points of the latter, thus dividing the whole heavens, visible and invisible, into twelve equal parts. Let these circles remain immovable, while the diurnal revolution of the globe takes place underneath. The twelve divisions are called the twelve houses of heaven, and are numbered in the order in which they would rise, if the circles accompanied the diurnal revolution. Every heavenly body passes through the twelve houses in twenty-four hours, or, if we look at the same stars, except at the equator. For it is evident that, in order to have two bodies always in the same house, the revolution must take place round the north and south poles of the heavens, which poles are in the horizon only to a spectator on the equator itself. The principal point attended to in each house is the part of the zodiac which occupies it; and the place of any planet in the house is the distance of the body from the cusp, or boundary circle, measured on the zodiac. The signs of the zodiac. The twelve houses was in universal use, and the remains of almanacs must be familiar with it.

The twelve triangles represent the twelve houses of heaven, as marked by the Roman numerals. The time is April 16, 1784, at half past six in the morning. On the cross of each house is written the part of the zodiac which is to be found on it. For instance, on the cusp of the twelfth house that is just rising is the point of the ecliptic which is in 4° 14' of Gemini. The boundary between the ninth and tenth house is in 1° 24' of Aquarius. The whole sign of Scorpio is in the sixth house, the boundaries of which are therefore in Libra and Sagittarius. The planets are placed in their proper positions in the houses: thus Mercury (\(\mathbf{\sigma}\)) appears to be in the twelfth house, at 22° 46' from the boundary of the eleventh and twelfth. But, on all the preceding points, it must be observed that great authorities differ very much. From among the obscurity and confusion which prevail in old treatises, we are able to collect this much, that some of them draw the boundary lines of the houses in such a manner as to cut the ecliptic into twelve equal parts, instead of the prime vertical, as we have done; others draw the boundaries through the poles, instead of the north and south points of the horizon. The future destinies of mankind are rendered very uncertain by such diversity of opinion; but this we have found, that the following of each system complain just as much of the rest, as if they had some reason to show for their own. For instance, Ptolemy, a mathematician, who introduced the horoscope in 1563, expresses himself thus: 'Some cut the horizon into equal parts, some a vertical circle, some the equator, some the ecliptic, some a parallel: whence it is not wonderful that a difficult art should be involved in fresh obscurity; for who can possibly see a living likeness in a mirror which is put out of shape in so many ways?' His own system is the equal division of the zodiac; and his argument for it, independently of old authorities, is the inconvenience of letting the poles of the ecliptic have nothing to do with a matter which so nearly concerns the zodiac. Minimeque convenit, zodiacus eosque polos esse intulit in eo negotio quod zodiacum maxime proprium est. The placing of the ascendant at the equator (it does not matter) as a dream, and seems perfectly satisfied with the proceeding reason.

The houses have different powers. The strongest of all is the first, which contains the part of the heaven about to rise; this is called the ascendant, or the point of the ecliptic which is just rising is called the horizon. The next house in power is the tenth, which is coming on the
The first is the house of life; the second, of riches; the third, of brethren; the fourth, of parents; the fifth, of children; the sixth, of health; the seventh, of marriage; the eighth, of death; the ninth, of travels; the tenth, of dignities; the eleventh, of friends; the twelfth, of enemies. Each house has one of the heavenly bodies as its lord, who is stronger in his own house than in any other, as is but fit; and of two planets equally strong in other respects, he who is stronger in his own house is strongest of all. Now conceive all plants, animals, minerals, countries, &c., parcelled out under the different planets, which exercise their influence in abundance of different ways, according to the house they happen to sit in, and their positions relatively to each other—the result will be as good an idea of the mysteries of astrology as it is worth any body's while to obtain.

We shall now give some examples of the application of the science, and this we do principally, because in the mystical announcements which issue from our press, the darkness of the hints which are given throw a poetical gloom over the subject. This no doubt is interesting, and is not sporting too much with the credulity of the age, or with the chance of detection; but it is a foul libel on the powers of astrology. Thus, in 1815, instead of announcing some such prediction as the following—Mars in the house of death indicates that by way of other cause; a personage will strive against the new order of things, but, if we mistake not, the conjunction of Lunoa and Saturn in the twelfth house bodes him no good—instead, we are told that his inclination to believe some of the beliefs of astrology—such as it was before it fell from its high estate—might have traced Napoleon from Elba to Waterloo; have calculated the very moment of the advance of the Prussians, and described the sword-knot of the captain of the Bellerophon. Thus we have the story of a Jew, in the time of the caliph Al Mansur, who was able to detect, by means of the heavenly bodies, that certain words just written upon a paper, which he was not allowed to see, were the names of a priest, and that he would die in a fortnight, and his friends should imagine that perhaps the later astrologers have given up the attainment of information so minute, and have confined themselves to such general indications as those of our almanacs, which, as they mean nothing, may reasonably be drawn from the stars as elsewhere, we take the following instances from a work published in 1817, which we will not name, and which we would willingly suppose to have been written in irony, if it were not that its size (two volumes quarto, both vols. and style are both evidences either of real belief, or intentional attempt to deceive.

A man who was born June 24, 1758, at eight minutes after ten in the morning, committed a murder, and was hanged; and an astrophil was requested to point out by the stars whether this defence would be established or not. The nativity was cast, that is, the position of the heavens at the aforesaid time was laid down, and it was found to have happened that at a particular hour, (a propos of giving the prophet a power of making almost any change he pleases,) the result was as follows:—

Mercury being lord of the ascendant, irradiated by a malefic aspect of the planet Mars, and afflicted by an opposition with Jupiter, declares that the native shall be involved in an abyss of troubles and afflictions, even to the hazard of his life. — The quadrature of Mercury and Mars, particularly when Mercury is constituted principal significator, hath impli cations. But to return to the subject of the natives.—Upon a further inspection of the figure, we find a baleful quadrature aspect of Mars and Jupiter, with a miscircious opposition of Saturn and Mars. To the first of these we are to attribute the dissolute manners of the native. — Here is unquestionably a favourable trine of the Sun and Saturn; but no great good can result from it, because the Sun is lord of the twelfth house, posited in the tenth, and out of all his essential dignity, and at the same time that Saturn is lord of the sixth, located therein, and both the significators are under the domination of the evil genii, vitiating the mind and affections of the native. — At the time the unhappy native was prompted to commit this barbarous act, the Moon came to an opposition of Mars by direct direction, while she occupi ed the cusp of the seventh house, which represents the unfortunate woman. — The Sun I find to be giver of life, posited in the tenth house, the house of justice; Mercury, lord of the eleventh, is in Gemini, or airy sign, and the Moon likewise in an airy sign, show the manner of the native's death, that he would die suspended in the air, while the opposition of four planets in the radix, and the mundane quartile of the Sun and Mars from the tenth, the house of justice, show how it would be in due course of law, by the hands of the common hangman, and not by suicide. — I brought up the direction of death with great nicety and precision, and found he would plunge into eternity when the Sun came to the anereal point of the natal sign, and met the vicious beams of the Moon and Mars in opposition, which thus constituted is ever productive of a violent death.

We now give the following opinion upon a case of a procrastinated marriage, that the lady's signification elsewhere on the part of her intended husband, inquires whether it will ever take place. The position of the heavens is supposed to be laid down at the moment of raising the question:—

'The Sun is significator of the lady; and Saturn, lord of the seventh house, is significator of the gentleman. It must also be observed, that in this, and all questions relative to marriage, Mars and the Sun are the natural significators of a woman's marriage; and Venus and the Moon are those of a man's. Now Saturn, the gentleman's significator, is remarkably well posited in the fifth house, and has Venus within his orb, applying to him by conjunction; which is a very powerful and very honourable sign, and that his mind is fully bent to the marriage state. The Sun, likewise, being in a sectile aspect with Mars, the lady's significator of marriage, plainly shows her heart is set on it, and the Sun is strongly fixed, and her affections to be perfectly sincere.'

'The next thing to be considered is, whether there be any frustration or impeding aspect between these significators, and I find the Moon and Venus, the gentleman's significators of marriage, making an aspect to a quintile with each other. This is an evident proof that the marriage is prolonged by the interference of some other woman of this gentleman's intimate acquaintance, because the aspect is perfect in Venus, and as the Sun is a true benefic, and has Venus, in a fine position, in a quintile with Mars, the quintile of the principal significator of marriage, and also to a sectile of the Sun, her natural significator in the figure, it totally removes the evil effects of the malefic aspect, and leaves the path free and unobstructed to the gates of Hymen. This opinion is greatly strengthened by considering the mode in which their significators are severally disposed. Saturn disposes of the Sun, who is posited by itself, and Venus, Saturn, and the Moon, are all disposed of by the beneficent planet Jupiter, who is himself disposed of by Mars, the principal significator of this lady's marriage, and who thus triumphs over every obstacle to the celebration of their nuptials. The Sun is located in the sixth house to the lady, in the fullest and most satisfactory terms, that the gentleman who courted her had a sincere and tender regard for her; and that, though some circumstances might have happened, and things might seem to go contrary, that she might rest perfectly assured that he was the man allotted to be her husband.

Apparently well satisfied with these declarations, she proceeded to inquire in what length of time this desirable circumstance might come to pass. To gratify her wishes in this particular, I referred again to the figure, where the Moon wants upwards of eleven degrees of forming a perfect sectile aspect with the Sun, the lord of the ascendant, and although the Sun is a benefic for Mars in a quintile, by reason of the Sun, Venus, Saturn, and the Sun, the Moon is all disposed of by the benevolent planet Jupiter, who is himself disposed of by Mars, the principal significator of this lady's marriage, and who thus triumphs over every obstacle to the celebration of their nuptials. The Sun is located in the sixth house to the lady, in the fullest and most satisfactory terms, that the gentleman who courted her had a sincere and tender regard for her; and that, though some circumstances might have happened, and things might seem to go contrary, that she might rest perfectly assured that he was the man allotted to be her husband.

On looking at the examples we have chosen, we see that they refer to matters which are provably under the control of destiny; we therefore take another, which has more connexion with the common affairs of life. It consists of directions for dealing in the smaller sorts of cattle, such as sheep, hogs, &c.; am, will fully explain the risk of such speculations:

'If the lord of the sixth and the lord of the second are in conjunction, a good house of heaven, the querent may thrive by them (I.e. small cattle); or they may be beaten or trampled on; but if, on the contrary, the lord of the sixth be unfortunate, and in evil aspect with the lord of
the ascendant or second, or cast malignant rays to either of their cusps, the quater will lose by dealing in small cattle. If the Sun be in quincunx to the ascendant, it is opposed to the dispositor of the part of Fortune, or the Moon, the quarter cannot thrive by dealing in small cattle. The same if the lord of the sixth be afflicted either by Saturn, Mars, or the Dragon’s Tail, or the Moon’s South Node, corded in the 12th, or cadenced or put to death. The Dragon’s Tail and Mars show much loss therein by knaves and thieves, and ill bargains, &c.; and Saturn denotes much damage by the rot or mur- raires.

That the ancient system of astrology contained the most contradictory assertions may be made evident in very few words. The position of the heavens at the time of birth settled every man’s character of body and mind, the fortunes of his father, mother, and siblings, his positions with regard to friends and enemies. Thus, every one who was born at or very near the same time as Alexander the Great, in the same country, would have a right to expect a somewhat similar career; and twin brothers could never fail to have the same horoscope, and therefore the same success in life; and though the subject of a particular horoscope should travel over the whole world, and thereby come under the influence of positions of the heavens which never could have occurred at his birthplace, yet these would be always ready to tell him (when properly looked at) whether the present moment was favourable or unfavourable to any pursuit he had in view. To a case that has occurred to me, suppose two men had engaged to throw dice against each other for their whole fortunes, and that each went the night before to consult different astronomers in the same town. To them it would not be necessary to tell them, or even to assure them, that the position of the heavens was such as would be sufficient for pointing out a favourable hour, and if both astrologers worked by the same rules, as they ought to do, they would both arrive at the same result: that is, the same would be recommended to both inquirers, though one of them must certainly lose.

The astrologers never made any allowance for the precessions of the equinoxes. Thus, though the constellation Aries is now in the sign Taurus, and the influences of the stars ought to have moved with them, we find that the astronomical Aries, or the third degree of the ecliptic, is used for the constellation. Under the circumstances, this is of little consequence; but such a practice would be fatal to astronomy.

That observed facts did stubbornly refuse to fulfill the predictions of the planets need hardly be told. In the fifteenth century, Stellwag foretold a universal deluge which should take place, and consequent confusion and confusion thereupon in conjunction in a watery sign. All Europe was in consternation; and those who could find the means built boats in readiness. Voltaire mentions a doctor of Toulouse who foretold the end of the world for himself and his country. Such a circumstance shows the bold which astrology had upon men’s minds, from which, had it been true, it never could have been forced; for though a new truth, even when capable of easy verification, is introduced with difficulty, it is altogether absurd to suppose that a science, the correctness of which was of every-day experience, should drop and become exploded, not for want of cultivators, but of believers. The former we have, perhaps, even now, and a few of the latter, though few among the most ignorant of the community. The art is, at present, under the ban of the law, in order that designing persons may have at least one access stopped to the pockets of the credulous. By the statute of 1st Edward 4th, l. 1 c. 8, all persons pretending to tell fortunes, or using any subtle craft, means, or device, by palmistry or otherwise, to deceive and impose upon any of his Majesty’s subjects, are rogues and vagabonds—that is, punishable by any magistrate, with three months’ imprisonment and hard labour.

The history of judicial astrology, at least up to the middle of the fifteenth century, is very nearly that of astronomy, since the latter branch of the science, except among the Greeks, was mostly cultivated for the sake of the former. Historically, we can find many valuable recoveries. It is a singular fact, that the first horoscope tables which were constructed on the Newtonian theory were intended to be subservient to the calculation of nativities; there is no question that the necessity which the astrologer laboured under was quite as great as any she or he, to lay down the positions of the heavenly bodies, produced great numbers of useful tables and observations; and the Greek works which have been preserved by the Arabs were valued principally for the use to which their mathematical methods were put. But even this requires refinement, for the science is beyond the reach of history, nor is it much worth while to collect all that is known on this point. It certainly came into Europe from the East, but what it is men tioned in the earliest records of every nation. The Chinese were said to have placed it on the same footing with agriculture and medicine; the Chaldeans cultivated it sedulously, and the invention is attributed to them by Suidas (cited by Magni in Commentarii, ii. 24). The historian who gives the most important actions of their lives by the stars (see introduction to the Lyceus); but Mr. Coole brooke has shown (Hindoo Algeography, preface, p. 86) that several of their fundamental terms are not Sanscrit, from which he apparently leaves us to conclude that he thinks the science neither antient nor indigenous in India. Among the Egyptians, it was of great antiquity; but it is not mentioned in the books of Moses, unless included in magic or sorcery, which is most probable. The books of Isaiah and Jeremiah allude directly to it in several places, as also that of Daniel. During the captivity, the Jews appear to have learnt the art, and from that time probably, but certainly in the earlier centuries of the New Testament. The Christian Church approved some of the more celebrated writers on astrology under the caliph were Jews, as Massahal, Moses ben Maimon, Solomon Iarchus, whose almanacs we have mentioned as among the earliest published, and many others.

In Germany and Italy, judicial astrology found no reception; nor do we trace any marks of it even in the earlier astronomical writers of that country. The system was little in harmony with the allegorical mythology which prevailed there; the oracles afforded perhaps sufficient nourishment to the appetite for the marvellous. But among the Romans, astrology was cultivated with avidity from the time of the conquest of Egypt, in spite of the general edict of Augustus; their whole world was astrological; and even Polyeuctus was infected. There is a work entitled Ὠτεραῖμια attributed to him, which is entirely devoted to astrology; and though its genuineness has been doubted by some, merely because it is astrological, there appears no sufficient reason to reject it. (See Delambre, Hist. Anc. ii., p. 543.)

All the followers of Mohammed are and have been astrologers. The predestinarian doctrines of their system render the subject more than useful to them. As it is seen, the science of astrology is based upon the notion of the necessity of human actions. The establishment of the Moors in Spain, and the crusades, caused the introduction of the horoscope to the inhabitants of the empire of the barbarians who destroyed the Roman empire; probably the former, for we have no distinct traces either of astrology or astronomy among the northern nations. But the predestinarian principle assumed a modified form, more consistent with the belief of the Catholic church. It was said that the stars only incline, but cannot compel; which position, while it left the will free, was a most convenient explanation of any failure in the predictions. The Greek and Roman Christians of the earlier centuries had in many instances received the whole of astrology; in others the modified belief above mentioned. Origen, though he recognises the stars as rational beings, yet, in his Philo of the Holy Spirit, c. 13, says that the influence of the stars is only a celestial wind which will carry on the plan of nature, but only prophesy or point out what men will do without exerting any influence. He then gives a long and curious argument against their compelling power, without explaining how it does not hold equally against their predicting faculty. St. Augustine (fifteenth century) was received against astrology altogether. The church, in its public capacity, condemned the art in the first councils of Braga and Toledo, and in the Decretals (cited by Vossius). The doctrine of astrology was employed against the erroneous Cathol icians. But many zealous catholics in later times adopted the same opinions, and among them churchmen of the highest rank, such as the Cardinal d’Ailly (died in 1425), who calculated the horoscope of Henry IV. of France, and, being forming yet out of date, has even been recognized by a Pope: in the fifteenth century Caługius III. directed prayers and anathemas against a comet
which had either assisted in or predicted the success of the Turks against the Christians.

The establishment of the Copernican system was the death of astrology; and that upon an argument not one bit stronger against it than preceding systems for it. When it was not to be imagined that the planets would be made 2595 to come to be reckoned absurd by many that our little globe should be of such consequence as to be the peculiar care of the whole system. Why should the principle of mutual gravitation be more a part of the balance of power? We have lost a charming opportunity of discovering what goes on in other planets.

The last of the astrologers was Morin, best known as the opponent of Gassendi. The latter in his youth studied and formed his own system but had not pronounced an opinion written against it. The former, who worked for thirty years at a book on astrology, and was besides an opponent of the motion of the earth, predicted his opponent's death repeatedly, but was always wrong. He also foretold the death of Louis XIII, with no better success. Since his death, which took place in 1656, the science has gradually sunk, and we believe has in no case been adopted by any real astronomer.

ASTRONOMY signifies the laces of the stars, and is applied generally to all that relates to the motions and theory of the heavenly bodies, as well as of the earth. If we except general terms, such as science, there is perhaps no subject which so much favors the development of the powers of the human intellect. We shall therefore confine ourselves here to a slight sketch of the annals of the science, and a few general considerations, pointing out at the same time the articles which should be consulted for further details.

The work of the astronomer begins in the observatory, where means are provided for noting the positions of the stars. Of the instruments by which this is done, see principle and details in the various instruments (Astronomical), Clock, Pendulum, Observatory. There are two classes of observations: the first, of known bodies, of which the places are so nearly determined that no question of time is involved, but the situation of the body at a certain time, or its corresponding quantity, fifteen seconds of space (see Angle); and for the class the consideration what phenomena shall be observed is made to rest entirely upon the instruments, those phenomena being for the observation of which the steadiest instruments can be made. These move only in the meridian, and the star is waited for. The second class of observations, such as refraction, aberration, and the like, are of much interest. The best circle that can be made is slightly oval; the best pivot that can be turned will not be truly cylindrical. The question now comes, in what manner to compare different species or sets of observations, so that the discrepancies themselves shall point out the quantity and quality of the instrumental errors; and how from thence to derive the corrections necessary for future observations. Also, how to choose the time and manner of observation, so that any particular error, whether of instruments or theory, shall be least as nearly as possible to the ground, if it be wished to detect and measure it. Every-day experience shows that there is no better test of the progress of observation than the discovery of new instrumental errors, provided only the quantities in question become less and less. The angular error which now sets an observer to work to correct his result is less than the six-hundredth part of that which would have been sufficient to annoy Ptolemy or Hipparchus. The same speaking, we need not consider the observer himself as a most material part, on the combined power of whose eye, ear, and judgment, the correctness of the observation depends. It is hardly to be expected that, even under precisely the same circumstances, two observers should note the same phenomena, with the same small fraction of a second; and recent experiments on phenomena noted with both the eye and hand, have demonstrated the existence of small differences between different observers, attributable only to their different habits of perception or physical constitution. On this point see Equation (Personal).

When observations have been, as nearly as possible, freed from instrumental errors, the next step would be, if we had imagined, to add the movements of one planet to another, with instruments as near perfection as our own, to deduce, by combination of mathematical reasoning and calculation, the real places of the stars for some one moment, and the magnitudes of the various phenomena which they are subject to. Whether periodical or permanent, and whether arising out of the motion of the earth or out of a proper motion of the stars themselves; and for the solar system, to determine the relative motions and positions of the planets and satellites, we have now completed the previous measurement of the earth and subsequent comparison of the results of one observatory with those of another. But these primitive determinations have always been in progress with the instruments, and results have increased in accuracy with the power of observing; so that instead of working fresh for the determination of elements, as they are called, almost the whole of modern astronomy is a process of correction of those which have been previously obtained. This greatly facilitates operations: for the reason of which see Differential Calculus, Approximation. The measurement of the earth itself, and the determination of its figure, which is the basis of planetary astronomy, and involves the different movements of the instruments of our system, is treated as a separate science under the name of Geodesy, though it is a constituent part of astronomy, both as to the methods by which it is carried on, and its place in the general framework of science.

The third department of astronomy, being that which requires the most extended knowledge of mathematics, and the highest exercise of thought, is that which goes under the name of physical astronomy, and consists in the combination of the various phenomena to create forces, in order to find out what are their physical causes, and according to what laws those causes act. It is evident, that without some success in this branch of the science, there can be no perception of these phenomena, because our presumption that preceding phenomena have run their whole possible round, so that nothing can happen except a repetition of what has happened. To a rough view this seems to be the case, and is so in a great measure; but to the instruments of an observatory there appears no such complete periodicity. To this head we should refer such questions as those of refraction, aberration, and gravitational attraction. The usual name of the science is Astronomy, and its investigations connected with the latter only; but both mechanics and analogy warrant its extension to the former. Under this, also, we must place all questions connected with the physical constitution of the various planets, as far as that can be determined. Other branches of the predicting power of astronomy has received since Newton deduced the motions of our system from the simple law of attraction, there is none to speak; but we shall notice one peculiar use of that principle, by which the results of observation are anticipated, and the first and second of our divisions of astronomy advanced, while at the same time the experimentum crucis of the truth of the principle is furnished. There are many small inequalities of the solar system, which, though not likely to show themselves, mixed up as they are with so many others, are yet certain to be found, if looked for at the time when their effects are most sensible. The results of theory point out that a certain inequality, whose period is approximately a year and a half, should be found in the motion of a certain body, if the Newtonian principle be correct. On being looked for in the manner which the nature of the inequality itself shows it to be most advantageous, it is found to have the exact magnitude, as ascertained by observation, is often of use in correcting that obtained from theory. For example, had it not been for methods of this kind, our knowledge of the motions of Jupiter's satellites, which is yet far from mature, would have been in a state of the utmost infancy.

If the theory had arrived at a degree of completeness, towards which it has been, and is rapidly tending, nothing would have been more important for the understanding of the motions of the solar system than the knowledge of the actual positions, velocities, and directions of the velocities of the bodies composing it, at some one moment, or of any
other quantities in which the above were mixed up, and from which they could be obtained by calculation. But to this period it has been necessary to refer the data of observation than the preceding, and it is only within the last ten years that tables of the moon, from the first-mentioned data alone, have been published by Baron Danoisensu, to whom it is due that the method of proceeding was adopted. The mixed tables hitherto used by about half a second of time in right ascension, and two seconds of space in declination. (This is the mean comparison of the tables of Danoisensu and Burchhardt for January, 1834, and may be derived from the more extensive and complete Neartial Almanac for 1835.) But the tables themselves in common use differ from actual observation by quantities of about the same (or rather greater) magnitude, and it has not yet been ascertained what the origin of these tables are likely to be. But we have no doubt that the Caunbridge observatory will decide this question in the course of the present year.

For the details of the actual state of astronomy we must refer the reader to such articles as STARS, SOLAR SYSTEM, &c., and the names of the several planets. We shall now proceed to a sketch of the history, or rather the annals, of astronomy, referring for fuller information either to the Historia Astronomica, which is practically an astronomical highway, or to the complete and magnificent works of Delambre on the subject. The latter we have followed in great measure as to disputed questions of fact; and the form in which this work is written will render verification easy in any personal matter reference to difficulties of detail.

The real history of written astronomy, that is, of actually recorded and moderately correct observations, in sufficient number to constitute a body of science, commences with Hipparchus, whose work is witnessed by the hearth in our country to this time. It is difficult for more than speculate upon the few facts which are left to us. That astronomical observation of a certain description began in the very earliest ages, there can be no doubt; but how early there could be but one in his profession. But the first known record of the planetary bodies round the earth. The earliest observations mentioned are those of the rising and setting of stars, which led to the registration of the different appearances of the heavens in the year, to which may be added lunar and solar eclipses, and comets. The rapid motion of the moon in the heavens would probably have caused the lunar zodiac to be first marked out, though it is clear that the solar zodiac was of a very early date. Astronomy, the science of the heavens, is one of the oldest of the accomplishments of civilization, both in modern and ancient times; and however much we may conceive ourselves entitled to look down upon the notions of our predecessors, we must not forget that in speaking of any country which possessed an astronomical system, we are considering at much earlier times, we place that country in the list of exceptions to the rule which prevailed through the greater number. If the Chaldean system appear insufficient, or the Ptolemaic complicated, these are yet real results of thought, and, to a certain extent, actual representations of fact. Mungo Park mentions an African tribe, whose opinion it was that the inhabitants of the west fried the sun when he got down to them, and after heating him sufficiently for next day's service, took him round by a private passage to the east coast! collect the astronomy of the whole ancient world, there can be little doubt that the comparatively humble efforts to which we are coming would appear miracles of sense and reason have been theories not much superior to those of Park's Africans.

The nations who are known to have cultivated astronomy before the Christian era are the Chinese, Indians, Chaldeans, Egyptians, and Greeks. The first made it a matter of politics, the three next of religious observance, and all four applied it to astrology. Among the Greeks, only, the science had no reference either to politics, religion, or soothsaying; and here it rose with a vigour which permits us to make the most of the times. The stars were arranged as a part of the chain which ends with Newton and Laplace. While it is true that the four first-mentioned nations is not sufficiently certain or definite to warrant our drawing very positive conclusions as to the time when they began to study the science; and the question depends in some measure on the pretensions of antiquity which have been advanced in favour of each by well-informed men of modern times. Each nation has its advocates, who maintain that the Chinese, the Indians, the Chaldeans, or the Egyptians, were the first astronomers; which is of itself sufficient to excite the question as doubtful. Fortunately it is of little consequence, and also the astronomy of the first and two last is of a character and extent which will justify our saying that, be it very ancient or not, there is nothing on the face of it which needs the introduction of some matter of opinion. The Ateanians refer to antiquity which have been advanced in favour of each by well-informed men of modern times. Each nation has its advocates, who maintain that the Chinese, the Indians, the Chaldeans, or the Egyptians, were the first astronomers; which is of itself sufficient to excite the question as doubtful. Fortunately it is of little consequence, and also the astronomy of the first and two last is of a character and extent which will justify our saying that, be it very ancient or not, there is nothing on the face of it which needs the introduction of some matter of opinion. The Ateanians refer to antiquity which have been advanced in favour of each by well-informed men of modern times. Each nation has its advocates, who maintain that the Chinese, the Indians,
relates that a series of eclipses preserved at Babylon was transmitted by Alexander to Aristotle, and contained the observations of 1903 years preceding the conquest of Babylon by the Macedonians. But Poleney gives only a few of them, and does not reach the period of more than 600 years. They are of the roughest kind, the times being given only in hours, and the part of the diameter eclipsed within a quarter; but nevertheless they are the earliest trustworthy observations we possess, and led, in the hands of Halley, to the discovery of the mean motion of the Moon.

We find also among the Chaldeans the use of the clepsydra as a clock, of the gnomon as an instrument for measuring solstices, and of the hemispherical dial called by the Greeks Ostos, in determining the positions of the Sun. By the clepsydra they were enabled to divide the ecliptic nearly into twelve equal parts, and are thus said to have invented the zodiac. [See Berossus, Chaldaea.]

The Egyptians have left us no observations, and few astronomical relics the meaning of which can be made clear, though it is probable that they were the first instructors of the Greeks. Their year was of 365 days: for their method of correcting it, see SOFISTIC PERIOD. They observed eclipses, but none have come to us; they foretold comets, according to Diodorus; but as this author also mentions at the same time that they foretold future events, it becomes doubtful whether we are to understand that their predictions were so far attended to that they were taken into account when the Egyptian Venus moved round the sun is not mentioned by Ptolemy; whose silence on this and many other points, writing as he did in Egypt, is remarkable, unless it be admitted at once as a proof of exaggeration in the preceding account. They introduced an hour into Egypt, and the Egyptians are said to be placed north and south has always been quoted as a ground of suspicion, that these buildings had some astronomical use. The Zodiac has also been attributed to the Egyptians. [See Dresden, Zodiac.]

The only attempt at a measure which we have remaining is one of the diameter of the sun, the meaning of which is obscure; but if what Delambre mentions (without citing his authority) be true, that they measured the diameter of the sun by the shadow cast on a wall, then it is possible that in their clepsydra they might have been so far correct as was by the clepsydra, we need not be surprised that Ptolemy found no assistance from their ancient observations. The story of Thales teaching the Egyptians how to find the height of the pyramids by the shadow, and that in Herodotus, of his being told by them that the sun had twice risen in the west, are, so far as his credit goes, confirmations of the opinion generally formed of Egyptian astronomy. [See MAUNTHO, EGYPT.]

With regard to the astronomy of the Greeks previously to the earliest extant works, there is little to be said. The Ionian school, founded by Thales b.c. 600, followed in succession by Anaximander, Anaximenes, and Anaxagoras (see above), afforded little to promote the progress of astronomy. If Thales announced the eclipse of b.c. 610 [see ALYATTR], it was the year only; and the opinion of the earth's motion, attributed to Anaximander (whom see), rests on slender foundation. The school of Croton, founded by Pythagoras (whom see) about b.c. 500, and sustained by Philolaus, produced no observers, though it certainly adopted the opinion of the earth's motion. Meton, b.c. 432, introduced the cycle of nineteen years; Calippus, b.c. 330, introduced the improved cycle of nineteen years, the former known by his name. Eudoxus of Cnidus, b.c. 370, brought into Greece, according to Piny, the year of 3654 days, and wrote some works, one of which exists in the poetical version of Aratus. Timon, writing at the close of this century, put forward the first observations which afterwards enabled Hipparchus to discover the precession. Pytheas, about the time of Alexander, measured the latitude of Marseilles with tolerable accuracy. The work of Aristotle on astronomy is lost; and what is still more to be regretted is the loss of his treatise on the history of astronomy. The poem on the Sphere attributed to Empedocles, b.c. 450, is probably much more modern.

We now come to the period of history, and of the Alexandrian school. Ptolemy was the only one, and we shall condense as much as possible the principal discoveries of the succeeding astronomers, in order of time. This could not be done in the chain of surmises mixed with history which has just finished, since it is important to avoid confusion with the ancient astronomers. For further information refer to the name at the beginning of each paragraph.

Autolycus, b.c. 300. His books are the earliest which are extant in the Greek language on astronomy. They are two—1. On the sphere in motion. 2. On the rising and setting of the stars. He appears to have considered the year as exactly 365 days.

Euclid of Alexandria, b.c. 300. The Elements of Euclid show that the Greeks of his time had no trigonometry. There is another work attributed to him, entitled Phenomena, which is no more than a treatise on the doctrine of the sphere.

Aratus of Cilicia, b.c. 281, has left an astronomical poem, chiefly taken from Eudoxus, and valuable on account of the commentary of Hipparchus.

Aristarchus, b.c. 280. His work on the magnitudes and distances of the sun and moon is the first attempt to measure the relative distances of these two bodies, by observing their angular distance at the time of half moon. To him also is attributed the opinion that the earth revolves round the sun.

Manetho the Egyptian, b.c. 260. His history is lost, but a poem attributed to him remains. It is a description of the heavens, filled with astrology, and containing no observations.

Eratosthenes of Cyrene, b.c. 240, is said to have observed with some celebrated astrolabes which he erected at Alexandria, which remained standing till the time of Ptolemy, and on various works, as well as on the works of which he is the author. He observed (either with a gnomon or with a circuitous astrolabe) [see ASTROLABE] the obliquity of the ecliptic, and the latitude of Alexandria; and from the latter, and the fact that at Syene the sun was vertical at the summer solstice, he deduced that the earth is a sphere. If, in his work on the obliquity of the ecliptic—the approximation makes a degree to be 700 stadia. A catalogue of stars attributed to him (the oldest extant) is probably spurious, but shows that, in and about his time, the method of referring stars to their latitudes and longitudes was not practised. His value of the obliquity of the ecliptic—11 parts out of 166 of the whole circumference—was adopted by Hipparchus and Ptolemy.

Archimedes of Syracuse died b.c. 212. He observed solstices, and for them he used the sun's diameter. His writings show that trigonometry was as yet unknown.

Hipparchus (of Bithynia?), b.c. 160-125, the greatest of all the Greeks in astronomy. In his youth he wrote a commentary on Aratus. [See ARATUS.] He discovered the precession of the equinoxes, by comparing his own observations with those of Aristyllus and Timocharis, or others of his predecessors. He was the first who employed processes analogous to those of plane and spherical trigonometry, for which he constructed a table of chords. He first used right ascensions and declinations, which he afterwards abandoned in favour of latitudes and longitudes. He suggested the method of referring terrestrial positions to latitude and longitude, and the principle of the stereographic projection. He determined the mean motion of the sun and of its apogee, the inequality of the sun's motion, and the length of the year, to greater exactness than his predecessors. He found the mean motion of the moon, of her nodes, and of her apogee; her parallax, excentricity, the equation of her centre, and inclination of her orbit. His observations also led him to suspect another inequality in the moon's motion, which Ptolemy afterwards discovered (the equation). He calculated eclipses, and used the results in the improvement of the Elements. He made one of the first steps towards a correct representation of phenomena, by supposing the sun to move round the earth in a circle, the earth not being at the centre of the sun's orbit, the longitudes of 10,518 stars was the first at all worthy of the name. If Hipparchus had possessed the pendulum and the telescope, fifty years might have enabled his successors to place astronomy in the state in which it stood at the birth of Newton. Considering his means, his observations are perhaps unequalled.

After the death of Hipparchus there is no astronomer of eminence till Ptolemy. Between them we have Hipparchus, b.c. 137; and Ptolemy, b.c. 147, wrote the 14th and 15th books of the Elements of Euclid, which contain some astronomical propositions.

Gemini (of Rhodes?) b.c. 70, wrote an introduction to the heavenly phenomena, containing no new discovery. It would seem that he was one of the last of the savants who submitted to the Pope's investigations.

Posidonius about the same time attempted to verify the measure of the earth of Eratosthenes. His writings are all
lost, but many of his opinions are preserved in Cleomedes and Strabo. He remarked (though probably he was not the first who did so) the connexion of high water with the setting of the moon.

Theodosius of Bithynia, B.C. 50, left a work on spherical geometry, another on climates, and a third on the phenomena of day and night.

Sextus of Alexandria, B.C. 50, corrected the calendar under Julius Caesar.

Hyginus left an astronomical description of the heavens. Manilius, a Roman, A.D. 10, wrote an astronomical and astrological poem.

Seleucus, B.C. 50. His book on natural philosophy contains many pieces of information on astronomical history, but is principally remarkable for his bold opinions on the nature of comets. These he declares to be planets, whose laws he predicted would one day be calculated, and that posterity would wonder how things so simple could have so long escaped notice.

Menelaus, A.D. 60, has left three books of spherical trigonometry.

Ioseph of Smyrna, A.D. 117, wrote on astronomy, and made a collection of astronomical works. His observations are cited by Ptolemy.

Cleomedes wrote on astronomy. He certainly lived after Ptolemy, but it is uncertain whether before or after Ptolemy is certain. He is usually considered as having lived under Augustus Caesar.

We must suppose that there were many real observers between Ptolemy and Hipparchus; but from the loss of even their names, and the silence of Ptolemy himself, it is clear that no discovery of any importance was made.

Ptolemy of Alexandria, A.D. 150—160. We must briefly mention his works, his system, and his discoveries. The *mathematikoi eikonai* or mathematical collection, afterwards called *megis* and *megalos* (see *Almagest, Synthaxis*), is the work from which we derive most of our knowledge of the Greek astronomy. We find there a full account of the observations and discoveries of Hipparchus; those of Ptolemy himself; the ideas and elements of his system; various mechanical arguments against the motion of the earth, which show that the first principles of dynamics were utterly unknown; a description of the heavens and the Milky Way, and a catalogue of stars, which we may be nearly certain was that of Hipparchus, reduced to his own time by an assumed value for the precession, but which has been asserted to have been corrected by new observations; a theory of the planetary motions; the length of the year; the instruments he employed, &c.

The Ptolemaic system (more detail of which see *Ptolemaic System*) was an attempt to represent the motions of the planets by supposing them to move uniformly in circles, the centres of which circles themselves moved uniformly in circles round the earth. The angular motions of the planets were known, but sufficiently well represented by this system; not so their changes of distance from the earth, as seen in their apparent diameters. This was the universal system of after-times till Copernicus.

The principal discovery of Ptolemy is that of the lunar eclipse (which see), an inequality such as would be caused by an alternate increase and diminution of the eccentricity of the moon's orbit. He also discovered the refraction (which see), and made some tolerably correct experiments to determine the diameter of the moon. He reckoned the times of the diurnal motions of the sun and the moon when near the horizon. He extended the projection of the sphere of Hipparchus. He entered into the investigation of every point which Hipparchus had touched; in some instances finding more correct values; in others, altering without amending. He was not an astronomer only, but wrote on geography, music, chronology, mechanics, and, unfortunately, on astrology.

With Ptolemy the originality of the Greek school ends. We must come to the Arabs before we find anything worth particular notice.

Sextus Empiricus, A.D. 173, described and wrote against the Ptolemaic astrologers.

Censorinus, A.D. 238, wrote an astrological work on the day of nativity, containing historical information with regard to astronomy.

Julius Firmicus Maternus, A.D. 370, wrote on astronomy.

Pappus of Alexandria, A.D. 383. His commentary on Ptolemy is nearly all lost.

Theon of Alexandria, A.D. 385, the most celebrated commentator on Ptolemy. He was a good mathematician, but no great astronomer. He has however left some tables, and a method of constructing almanacs.

Hipparchus (his daughter), murdered A.D. 415, the first female on record celebrated for her scientific talents. She wrote one book of her father's commentary, and constructed some tables.

Martianus Capella, A.D. 470, in his *Satyricon*, has some astronomical information among which is the following: that Mercury and Venus move round the sun. Cicero and Macrobius give the same idea; but the passage of Martianus is remarkable as being reported to have turned the attention of Copernicus to the system which bears his name.

Thucus of Athens, A.D. 500, and left six observations of lunar occultations and solstices: the only observations recorded between Ptolemy and the Arabs.

Simplicius, A.D. 546, has left a commentary, and description of, the astronomical work of Aristotle, which we have mentioned as lost.

Proclus Diadochus (not the commentator of Euclid), A.D. 550, wrote a commentary on the astronomy of Aristotle, and a description of astronomical phenomena.

Isidore, Bishop of Seville, A.D. 635, wrote a theological work on astronomy.

Bedes, A.D. 720, and Barlaam the monk, A.D. 1330, are attached to the preceding by Delambre. Both wrote astronomical works.

Aristarchus of Samos, A.D. 70, was the last Greek writer on astronomy, of the least note, is *Michel Peletis*, A.D. 1050.

It is remarkable that, excepting his own commentators, few of the authors immediately preceding ever quote Ptolemy. Had it not been for the Arabs, the writings of the latter must have been lost.

The Alexandrian school was destroyed by the Saracens under Omar, A.D. 640; and the rise of astronomy among the eastern Saracens dates from the building of Bâdad by the caliph Al Mansur in the year 762. In the reign of this prince, translations of the Greek writers were begun; and with nearly the same instruments, and the same theory, as Ptolemy, a career of four centuries of observation commenced, during which many astronomical elements, and, in particular, the obliquity of the ecliptic, and the precession of the equinoxes, were more accurately determined.

In the reign of Al Mamun, son of Harun al Rashid, himself a diligent observer, great encouragement was given to astronomy. A degree of the meridian was measured, but with what accuracy cannot be known, from our ignorance of the measure employed.

Albagianni, or Al-Batani, A.D. 880, discovered the motion of the solar apogee, corrected the values of the precessions, the solar equinox, and the declination of the sun, and published tables. He is the first who made use of sines (instead of chords) and versed sines. He found the length of the year more accurately. He is, beyond all doubt, not only the last of the Greeks, but we know anything between Hipparchus and Tycho Brahe.

Alfraganos, or Al-Fargani, and Thabit ben Korrah, both about A.D. 950. The first has left a work on astronomy; the second is principally remarkable by his having revived an old notion of the Greeks (not mentioned by Ptolemy, but by Theon) of a variation in the position of the equinox, which has been called a *trepidation*. (See Hist. Astro. Library of Useful Knowledge, p. 33.)

John Pardeth, or Al-Wafa, about A.D. 1000. The former, an Egyptian, an observer and mathematician of great merit, has left a work containing tables and observations. He first noted the time of the beginning and end of an eclipse by taking the altitude at a star. His work shows an increasing knowledge of trigonometry. He was the first who employed subsidiary angles. Albu-Wafa first formally used tangents, cotangents, and secants, which Albagianni had overlooked. He gave tables of tangents and cotangents.

Alphragatius of Morocco, A.D. 1050, attempted a new explanation of the planetary motions, not worthy of further notice.

Aristach, a Spanish Moor, A.D. 1080, has left some tables (see Toledo, Tables of) of indifferently accurate. His contemporary, Alhazen, wrote on refraction. Geber, also a Spaniard, (about A.D. 1087?) made some improvements in spherical trigonometry. He introduced the use of the cosine.
Abul Husain, about A.D. 1200, has left a catalogue of stars, and some improvements in dialling.

We have Persian tables (of the eleventh century?) translated by George Chrysococha, a Greek physicist, in the fourteenth century; but the best known are those of Nasir-eddin, published A.D. 1270, under the protection of Hulagu, grandson of Jenghis Khan, and conqueror of Persia. The Persians have a method of interpolating their solar years, which, though complicated, is of surprising accuracy, when they first began to employ it is unknown. [See Calendar.]

Ulug Beg, grandson of Timur, A.D. 1433. This prince made a large number of observations at Samarcand. His catalogue of stars of the date above-mentioned, was, in the day, the most correct ever published. He also gave tables of geographical latitudes and longitudes. The Emperor Albrecht (died from Timur, A.D. 1403) also encouraged astronomy, and caused many Hindoo works to be translated into Persian.

In China, Cechou-King, A.D. 1280, patronised by Kublai, brother of Hulagu, and fifth successor of Jenghis Khan in the partial conquest which that prince made of China, made a great number of good observations. He introduced spherical trigonometry, and rejected the ancient chronology.

Since the fifteenth century, astronomy has declined through the East; but the Chinese received many methods from the Jews, but to little purpose. Among the Hindoos, there are very few who can understand the antient writings. The Turks and Persians have little besides astrology. We have little of Cossins' works, though known.

Astronomy was introduced again into Europe by means of the Greek writers, mostly through translations from the Arabic. The first translation of the Almagest was made under the auspices of the Emperor Frederick I, about A.D. 1230.

Sacrobosco (an Englishman named Holywood), A.D. 1220, wrote a work on the sphere taken from Pтолемей, &c. It continued for a long time in great repute. He also wrote on the Calendar. About the same time, Jordanus wrote a curious work on the Planisphere.

Aldus X., king of Castile, A.D. 1282, with the assistance of Arabs and Jews, formed the first European tables. They differ little from those of Pтолемей. [See Alphonsine Tables.]

Roger Bacon, A.D. 1255, wrote on the phenomena of astronomy.

For writers of this period, not worth naming, see Delambre, Hist. Ast. Mag. pp. 335, 444.

The Cardinal Cusan, A.D. 1446, on the correction of the Calendar. He is said to have maintained the motion of the earth.

George Purbach, A.D. 1466, extended trigonometrical tables, and published a theory of the planets based on that of Pтолемей.

John Müller, called Regiomontanus, (died A.D. 1476), made an abridgment of the Almagest, published more extensive trigonometrical tables, extended various parts of trigonometry, and made observations in that respect, superior to some of the Arabs. His almanacs were the first which were worthy of the name, and were in great repute.

The two last-mentioned writers deserve some special notice, though it cannot be said that they made any direct advances either in theory or observation. Their writings, and the facilities afforded by their tables, undoubtedly did much to promote a taste for astronomy. George of Trebizond, called Trasezinius, who died A.D. 1486, first translated the Almagest from the Greek into Latin.

Bianchini, A.D. 1495, published tables similar to those of Alphonsus.

Walltherus, died A.D. 1504, a pupil of Regiomontanus, made numerous observations, which were often reprinted.

The following names are inserted that the reader may know to what names to ascribe astronomy of the time immediately preceding the promulgation of the system of Copernicus. Except in this point of view, there is but little interest attached to their labours:—

Giampaolo, A.D. 1531, wrote a work on astronomy, containing much historical discussion.

Werner (died A.D. 1528) gave a more correct conception of the precession.

Sigüer (died about A.D. 1531) published almanacs for fifty years, on the astrolabe. Ségur (died A.D. 1552) wrote on clocks and diast.

Procuratorius (died A.D. 1543) wrote on the heavenly motions.

In 1528, Forni, who died in 1556, gave a very correct measure of a minute of the meridian, from such insufficient observations, that, as Delambre remarks, the correctness must have been accidental.

Copernicus, born 1473, died 1543. Applied himself to astronomy from A.D. 1500. In 1530, he had finished his tables of the planets and his book On the Revolution of the Heavenly Bodies, containing an explanation of the Copernican system, which it is almost unnecessary to say, was a revival of the opinions of the Pythagorean school on the motion of the earth. It was published in 1543, and its author died immediately afterwards. Copernicus improved the lunar tables, and gave, to a considerable extent, an explanation of celestial phenomena upon his own system. His book is a mixture of his own original and a famous portion of the old philosophy; and he was far from being able to answer the mechanical objections of his time. What might have struck so bold a thinker, had he lived to face opposition, cannot be told; but, as the history stands, we shall come to the time of Galileo before we find all objections satisfactorily answered.

From this period, at which the preservation of printed works commences, our limits will not permit our giving a more extended view of the history of astronomy. The reader must refer to the several articles. The following is the list of those who are worth mention between Copernicus and the death of Tycho Brahe; the dates are generally those of their death, but where the astronomer is not known, the date in brackets is that of the publication of some work.

Copernicus 1543 Vignon 1578
Aplet 1552 Stadt 1579
Gaufriz 1552 Schrenkenfuchius 1579
Reinhold 1553 Bresiaus 1581
Pecolomin 1553 John of Padua 1583
Orontius Finaeus 1555 Raimar 1588
Gemma Frisius 1555 Schöner 1590
Rosa 1555 Bombelli 1590
Reide 1557 Weigel, La Grueva
Record 1557 of Ziram, Castell 1592
Carell 1558 Mertarou, G. 1594
Vinet 1564 Digges 1595
Benedict 1574 Rothman 1596
Mauricibus 1575 Galuetic 1597
Rheticus 1576 Pini 1598
Nonius 1577 Tycho Brahe 1601

Of these must be mentioned—

Reinhold, the friend of Copernicus, and advocate of his doctrines, who died in 1574. A learned man, and one of the first printers of books in Germany.

Records, who wrote the first English treatise on the stellar phenomena.

Rheticus, editor of the Opus Palladium, a large trigonometrical table (see above).

Mauricibus, editor of several works and tables.

Nonius, inventor of an ingenious method of division of the circle, which has often caused it to be supposed that he anticipated the invention of Vernier.

Mercator (Gerard), who gave the first idea of the projection known by his name.

Up to this time, the means of observation had been undergoing gradual improvement, more by attention to the construction of the older instruments, than by the introduction of any new principle. The Copernican theory had its advocates, but was not yet adopted by many. Algebra had been introduced into most parts of Europe, but was not yet in a state to furnish the assistance which modern mathematicians could give. Although most of the astronomical calculations were not yet invented, nor do we find the instruments fixed in the meridian, the telescope, or the pendulum clock. The first observatory, which made any important additions to the phenomena of the heavens as received from the Arabs, was Tycho Brahe, to whom we now come.

Tycho Brahe, born 1546, began to study astronomy 1569; commenced his observations at Hoene, an island near Copenhagen, 1582; was driven from thence, 1597; died 1601. He made a catalogue of the fixed stars, more accurate than any which preceded: gave the first table of refractions: discovered the variation and annual equation (which see) of the moon, the variation of the motion of her nodes, and of the inclination of her orbit, and that of the obliquity of the ecliptic. When we consider that he was a seaman as any of the preceding, he discarded the tempestion of the pro
As we approach an age in which discoveries proceed rapidly, it would disturb the order of time if we were to enumerate those of individuals together. We shall therefore give the dates in chronological order of the principal acquisitions to the science, keeping, according to our original plan, only enough to direct the attention of the reader to points worthy of further reference.

1581, or thereabouts, Galileo remarks the isochronism of the pendulum.

1596. Kepler's Mysterium Cosmographicum, containing fanciful analogies between the orbits of the planets and the regular solids of geometry.

1605. Bayer's maps, in which the stars are first denoted by letters.

1604. Kepler approximates more nearly to the law of refraction.

1609. Galileo made a telescope from a general description of a magnifying instrument by one Jansen, in Holland. He used a concave object glass, Jansen a convex. Kepler publishes his work on Mars, in which he establishes, from Tycho Brahe's observations, the elliptic form of the orbit, and the proportionality of the areas to the times. These are called Kepler's first and second laws.

1610. Galileo announces the discoveries of Jupiter's satellites—of spots on the moon—of nebulae—of some new appearances in Saturn, afterwards found to proceed from the ring—phases of Venus. He also discovers the diurnal librations of the moon, and that in latitude. Harriot observes the spots on the sun. (This fact has only been known from examination of Harriot's papers in the present century. It appears he got telescopes from Holland.)

1611. Lyceum academy founded. Galileo observes the spots on the sun.

1614. Napier's invention of logarithms.

1616. Prohibition of the theory of Copernicus by the Roman court.

1617. Snellius measures an arc of the meridian at Leyden. This was the first done by triangulation; but astronomical instruments were not yet sufficiently perfect to make this method much better than the old one.

1618. Kepler announces his third law, that the squares of the periodic times of the planets are in proportion to the cubes of their distances from the sun.

1619. Snellius discovers the law of refraction from one medium into another.

1626. Wenzelius determines the diminution of the obliquity of the ecliptic. He also extended Kepler's law to Jupiter's satellites, and ascertained the sun's parallax.

1629. The Rudolphine Tables published by Kepler, from the observations of Tycho Brahe.

1631. Gasendi first observed the transit of Mercury over the sun's disc—measured the diameter of Mercury, and predicted that of Venus with success. Vernier publishes his invention of the instrument which bears his name.

1635. Norwood measured the meridian from York to London, and gave a more accurate value of the degree than his predecessors. Descartes produced his system of vortices.

1636. Galileo is urged to recant his Copernican opinions by the Inquisition of Rome.

1639. Horrox and Crabtree first observed a transit of Venus over the sun's disc. The former ascertained the diameter of Venus. They were the only two who saw this particular transit.

1640. Gascoigne applied the telescope to the quadrant, and a micrometer to the telescope.

1646. Fontana observes Jupiter's belts.

1647. Selelographia of Hevelius, in which the moon's libration in longitude is announced.

1650. Scheiner constructs a convex object-glass telescope.

1654. Hugghens completes the discovery of Saturn's ring.
1655. Huygens discovers Saturn's fourth satellite.

1657. Academia del Cimento founded.

1659. Huygens publishes the first pendulum clock.

1659. Huygens improved the micrometer.

1660. Mouton applied the simple pendulum to observations of differences of right ascension, and measured the sun's diameter very correctly by it.

1661. The Sun and Moon calendars of the English Almanac.

1662. But the North was incorporated. Cassini begins his research on refraction.

1663. Gregory makes his reflecting telescope.

1665. Cassini determines the time of rotation of Jupiter, and publishes the tables of the Satellites.

1666. Cassini determines the rotation of Mars, and makes a first approximation to that of Venus. Academy of Sciences founded at Paris, and observatory first thought of and commenced in the following year. Azoult applied the method of Newton's telescopes and the knowledge of Gascoyne. Newton first turned his attention to gravitation.

1667. Azoult and Picard applied the telescope to the mural quadrant, without knowing that Gascoyne had procured them.


1669. Newton made his first reflecting telescope.

1670. Mouton's first use of intercalations.

1671. Picard and Lahire publish the degree of the meridian of Paris from Paris to Amiens. Richer, in a voyage to Cayenne, observes the shortening of the second's pendulum in approaching the equator. Cassini discovers Saturn's fifth satellite. Flamsteed begins observing at Oxford, and within three years had completed the tables of the planets and computed the more important elements of the more prominent comets. Newton's 'Opticks' was published, and his knowledge of the nature of light was increased.

1672. Cassini discovers Saturn's third satellite.

1673. Huygens publishes his 'Horologium Oscillatorium', in which are found the first theories on central forces and centrifugal force. Flamsteed explains the equation of time.

1674. Hook devised the idea of attraction, but without suggesting any law, or connecting it with any observed facts. Spring watches were made under the direction of Huygens.


1679. Halley (who went to St. Helena for the purpose) published his Catalogue of Southern Stars.

1680. Flamsteed gave the law of the annual equation of the moon, and corrected the tables accordingly.

1682. Newton, who had laid aside his theory of gravitation when he found it not capable of verification by the best experiments, returned to it, and showed that, by means of his conception of the property of the central attraction of the masses of the universe, he could account for the phenomena of the planets. His views on gravitation were made public through a letter to Edmond Halley, and Halley published a paper giving the results of the calculations in the following year. Newton's 'Principia' was published in 1687.

1683. Cassini and Lahire discontinuè till 1700 the arc begun in 1680.

1684. Cassini discovers a satellite of Saturn. The telescope was invented by Galileo, who discovered the four satellites of Jupiter in 1610.

1687. Newton publishes the 'Principia'.

1688. Roemer first used the transit instrument; that is, a telescope in the meridian for the purpose of observing transits.


1693. Cassini's third tables of Jupiter's satellites. Announcement of his discoveries on libration. Halley discovers the acceleration of the moon's mean motion.

1700. The Cassini (D. and J.) extend the arc which the former had begun southward.

1705. Halley first predicted the return of a comet, viz. that of 1758.

1711. Berlin Observatory founded.

1715. Cassini extends the inclination of the orbit of Saturn's fifth satellite.

1715. J. Cassini discovers the divisions of Saturn's ring. Bradley publishes his tables of Jupiter's satellites.

1716. Cassini and Maraldi complete Dunkirk the arc begun by Cassini.


1735. Blaschke determines the rotation of Venus.

1736. Graham invented the mercurial pendulum.

1727. Bradley discovers aberration. Death of Newton. We have now brought the history to a most remarkable epoch. The science of observational instruments, the invention of the telescope, the measure of the circle, the elements of the planets, and the meritorious labours of the preceding table are not those which make most show. It takes as much space to say that Cassini discovered a satellite of Saturn as that Flamsteed has finished the longitude of the Royal Society to hear accidentally the measurement of the second pendulum, or to mouth that the 'Principia' might never have been published. Various methods and instruments have been invented over again by those who were ignorant of what their predecessors had published. This has been added to the injury accruing to science by the national feeling which discussions concerning the right to inventions has produced in several instances.

The distance of a great discovery, which is seldom well understood by any who have not studied it, is not the notion of attraction, which had occurred to many among the ancients, and to Borelli, it is stated, and Hook among the moderns—not the law, which had been suggested by Galileo, but the mechanical deductions from this law of attraction really do represent the celestial phenomena; a combination of improvements in mechanics and mathematics which none but the inventor of Newton could have made, and a spirit of sagacity which it needed the author of the optics to display. Still less is it true, as many believe, that the Newtonian theory is the Copernican, when they speak of Newton as the establisher of the latter. After what has been said, it is unnecessary to discuss this further than to observe, that it was Galileo who destroyed the mechanical objections to the notions of Copernicus, by the sound system of dynamics of which he was the inventor; and who re-enforced the conclusions of his discoveries by the accurate measurement, tries it, and finds a remarkable degree of nearness to the result deduced from his celebrated law.

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1735. Blaschke determines the rotation of Venus.

1736. Graham invented the mercurial pendulum.
1731. Hadley's quadrant invented.

1732. Maraldi (II.) improves the theory of the satellites of Jupiter by observation. The introduction, by Maupertuis, of the Newtonian Theory into France. Wright's Lunar Tables. Maupertuis, &c., measure the arc in Lapland, and Bouguer and La Condamine in Peru.

1737. Lacaille and Cassini de Thury re-measure the arc of D. Cassini. Clairaut improves the theory of the figure of the earth.

1739. Dunbourn's Lunar Tables.

1740. J. Cassini's Astronomy published, containing many new tables from his own and his father's observations.

1744. Euler's Theoria Motus, &c., the first analytical work on the planetary motions.

1745. Bradley discovers the nutation. Bird began to improve the graduation of mathematical instruments.


1748. Bouguer proposes a micrometer with two object-glasses, but not that of Dollond. Euler's prize essay on the motions of Jupiter and Saturn.

1749. Euler's and D'Alembert's researches on the precession, D'Alembert's on the motion, Clairaut's on the motion of the Lunar and Sun's Tables.


1751. Lacaille goes to observe at the Cape of Good Hope. He finds Lacaille's observations of the path of comets.

1753. Dollond makes his double object-glass micrometer. Mayer's first idea of the repeating circle.
1797. Delambre's observations on refraction. Laplace's theory of tides.
1798. Cavendish demonstrates and measures the mutual attraction of metal balls.
1799-1804. Humboldt's voyage and observations in South America.
1801. Lalande's catalogue. Piazzi discovers the planet Ceres. Schwaberg begins the measurement of an arc in Lapland.
1802. Others discovers the planet Pallas. Lambton begins the measurement of an arc in India. Herschel's catalogue of Nebulae.
1803. Cagnoli's catalogue. Herschel observes the changes in the position of double stars.
1804. Harding discovers the planet Juno. Piazzi gives the proper motion of 300 stars. Zach's Solar Tables.
1805. Legendre, method of least squares. Discussion on the parallax of the fixed stars, from this date to 1825.
1808. Lagrange and Laplace's Researches on the Planetary Theory.
1809. Troughton improves the division of graduated instruments. Ivory's Theorems on the Figure of the Earth.
1811. Lindemann's Tables of Mars.
1814. Piazzi's catalogue of 7646 stars, the best and largest extent.
1815. Dallmeyer's Tables of Refraction.
1823. Beginning of the erection of Cambridge observatory. Ivory's Researches on Refraction. Encke infers a resisting medium of very little density, from observations of the period of Titania (an unsettled point).
1825. Commencement of Berlin zones. Second mural circle (Jones) erected at Greenwich.
1826. Biela discovers the comet of short period known by his name.
1830. Sir J. Herschel's Measures of 1236 Double Stars. The following list of public observatories now in action is taken from the Report to the British Association above cited:—

Cambridge. Padua.
Dublin. Modena.
Armagh. Naples.
C. of Good Hope. Palermo.
Paramatta. Vienna.
Madras. Abo.
Bermay. Creuz.
St. Helena. Altona.
Marseilles. Weinf.
Copenhagen. Wilms.

There is no public observatory in America. We find in Lalande (Bibliographia, &c.) notices of the following, not mentioned in the above list, and, we presume, extinct:— St. Petersburg, Malta, Danzig, Lisbon, and Weissenburg. That of St. Petersburs, Italy and Malta, are private establishments. There is much information on different observatories in Bernoulli's Letters (Berlin, 1777), and in Quetelet's Correspondance, &c., a mathematical periodical now published at Brussels. The Nautical Almanac always contains a list of observatories, with their latitudes and longitudes.

To attempt to describe what is now doing and has been done within the last few years would be difficult, and would lead us beyond the modern limits. Undoubtedly the most principal accession to our knowledge of the system of the universe is the investigation of the law and quantity of the rotation of double stars. By this, in which the world is principally engaged, according to Sir J. Herschel and Professor Struve, many new connected subjects are opened up, and the computation of the orbits has proceeded, in several instances, to that degree of precision which justifies the prediction of future positions. (For further details, see Starks Double.)

The enormous mass of observations which is now published every year are silently affording the means of increased accuracy in every department, and are rapidly seized and applied for the improvement of the theory. Though we give no account of what is actually progressing, we shall, in various succeeding articles, perhaps be able to supply this defect; and there are some channels which we hope will become open to us during the course of this work.

Among the French, which we have touched on slightly, we must refer to Comtes, Pendulum, Goderey.

Works on the History of Astronomy—Sherburne's edition of Manlius (London, 1675) contains a list and short account of a very large number of astronomers, and has been much used by succeeding authors. It is superseded by the Bibliographie of Lalande (Paris, 1803), which gives a list of every astronomical work, with its title, and also an enormous alphabetical list of astronomers. This work also contains the history of astronomy from 1781 to 1802. Wittenberg's Astronomie (Wittenberg, 1741) is a valuable collection of facts, and may be consulted with better chance of finding a date than any we have seen. Costard's History of Astronomy (London, 1767) is of little use for reference, but would be instructive to a reader who does not much mathematics. It is well spoken of by Lalande. Ballii's Historiae—1. Of Antient Astronomy (Paris, 1775); 2. Of Modern Astronomy up to 1730 (Paris, 1778); 3. Of Modern Astronomy from 1730 to 1761 (Paris, 1782); 4. Of Indian and Oriental Astronomy (Paris, 1787)—are entirely devoted to a system, and should be looked at with caution. The Histories of Delambre—1. Of Antient Astronomy (Paris, 1817); 2. Of the Middle Ages (Paris, 1819); 3. Of Modern Astronomy (Paris, 1821); 4. Of the Eighteenth Century (posthumous) (Paris, 1827)—contain a full description and discussion in order of persones, not of time, which render them difficult of reference, but still they are the best works of the kind. The historians of mathematica—Vossius, Montuclais, Kantius, Boust, and Delambre, Rapport Historique, &c. (Paris, 1810)—treat astronomy as a part of their subject. The small work of Laplace, Précis sur l'Histoire de l'Univers (Paris, 1821), which is also the official set of the Systeme, is excellently written; and there is also much information in the historical chapters of the fifth volume of the Mémoires celestes, and occasionally in the other volumes. Lalande's Astronomie and La Grondeur contain an account of the varied historical and mythological information which it contains. Hutton's Dictionary, and Martin's Biographia Philostrica, contain information on English astronomers which is not to be found in the foreign works;
and there is a good deal in Thomson's History of the Royal Society. For the history of astronomy from 1781 to 1810, there is Voiron, Histoire, etc., de 1781 jusqu'à 1811, which contains a good account of the discoveries made in that branch of the sciences. The memoirs of the Royal Astronomer, Astruc, may consult with advantage the History of Astronomy, and the Lives of Kepler and Galileo, in the Library of Useful Knowledge, or of Natural Philosophy in the Cabinet Cyclopedia.

The principal objects of Astruc's hages published by the Academy of Sciences, which are to be found in their Mémoires; to the two separate collections of hages by D'Alembert and Condorcet; to the Annual Reports of the Royal Society, and British Association, Astruc, John, a French physician of great eminence, was born at Sauve, in Languedoc, in the year 1684: he studied in the University of Montpellier, and took the degree of doctor in medicine in 1763. In 1796, being then only twenty-two years of age, he began to teach medicine in the same university, acting as substitute to Chirone, one of its professors, who had been forced to attend the French army. In 1710 Astruc obtained by competition the chair of anatomy and surgery in the College of Toulouse, where he revived the study of anatomy. The reputation, however, which he now acquired caused him to be soon recalled to Montpellier, where he occupied a medical chair from 1715 to 1728, when he resided to Paris, chiefly urged, it is said, by the facilities offered by the great library and the best libraries of that capital. On his arrival at Paris, he was induced to accept the situation of first physician to the king of Poland and elector of Saxony, but after a very short stay at Dresden he returned to Paris, and was, in 1730, appointed a consulting physician to the king of France, and in 1731, professor of medicine in the College of France. He became a member of the medical faculty of Paris in 1743, and died in 1786, at the advanced age of 82. This man was endowed with an intellect of a very superior cast, and no great discovery is attached to his name; nevertheless, he acquired great celebrity among his contemporaries, both as a teacher and as an author; and the integrity of his character was justly appreciated. A simple and happy method in treating the subjects which he taught, and an easy, clear, and eloquent language, recommended him as a lecturer. His writings displayed a solid and extensive acquaintance with the science of medicine, his character among the country physicians even at that time,—the result of the unvaried assiduity with which from his early youth, and during the whole of his long career, he applied himself to bibliographical learning. Astruc is said to have made experimental observations on the topography of Languedoc, his native country, on metaphysics, and even on sacred history. We shall allude only to the more important of his literary labours; he published an Essay on Digestion, which he endeavoured to explain according to the principles then prevalent of the philosophy of Descartes. This subject led him at one time into a discussion with Vieuxens, and at another into a dispute with Pecariati, in which both adversaries probably were equally distant from the truth; but Astruc had greatly the advantage, in as far as he always kept within the bounds of calm and dignified language, while Pecariati was full of violence and abuse. When, in 1739, Astruc was on a visit to the Prince of France, he published an account of a case of cholera, or enteritis, or enteritis, Astruc published three successive treatises on this subject, in which he showed the disease to be contagious, and insisted on the necessity of quarantine measures. After his arrival in Paris, he took an active part on the renewal of the measures of the convention on this point, which, as the physician and surgeon of that capital, and his pamphlets seem to have materially contributed to bring about the victory which the physicians gained on this occasion (October 1793). The book De Morbis Veneris, which appeared in 1759, and which, being merely an abstract of Astruc's lectures, contains nothing new, was, in 1761, followed by a treatise on the Diseases of Women, in which the author displayed his usual erudition. Astruc's memoirs are of a kind that is not only well known to the physicians of France, but to the physicians of all Europe; he is the author of several works on the subject of medicine, but only two volumes of the work, De Morbis Veneris, first published in one vol. 4to, Paris 1736, and afterwards enlarged to two vol. 4to, in the second edition, 1740. The practical part of this work has ceased to have any value, in consequence of the various important changes which have been made in the treatment of the diseases treated of; but the literal history of the disease, which occupies the latter half of the work, and embraces a chronological account of above six hundred authors on the subject, will always be referred to as a valuable document of bibliographical research. The great many pamphlets collected by Astruc is by no means complete—a German writer, Gerthner, having since added about 500 names not mentioned by Astruc. Astruc was a strenuous partisan of the opinion that syphilis had been imported into Europe by the Spaniards, that it had been discovered in America, and that it was brought forward by him in support of this hypothesis has been the chief cause of its general adoption. He does not, however, seem to have been altogether impartial in this research, and his acknowledged preconceived ideas appear to have influenced his hypothesis, by showing on the one hand that traces of syphilis have occurred in Europe at all periods of history; and on the other, that the silence of the great majority of Spanish and Portuguese contemporary chronicles on the events supposed to have attended the introduction of the new disease, is irreconcilable with the statements on the authority of which the American origin of syphilis is maintained. The first edition of this work was translated into English by William Barrowey, M.D. Lond, 1737, 2 vols.éo.

A full account of Astruc's life has been given by Lorry in his posthumous edition of that author's Mémoires pour servir à l'Histoire de la Figure de la Fédération de la Nation, 4 vols. L'Académie des Sciences des Beaux Arts, livres III et IV, Paris 1787, p. 256; and in the Biographie Médicale, tom. i.

Astruc, in Zoology, a genus of habenulae found by Beichstein, and characterized by a short hook bent downwards from the base and convex above, with somewhat oval nostrils. The feet are rather short, and the toes (which of the exterior are united at the base by a membrane) are long.

Numerous species of this genus are diffused over all parts of the world; but Europe only contains one, Monteberrius, the goshawk, so highly prized by the falcons of old, and famous for its flights at cranes, geese, pheasants, and partridges.

Asturias, Principality of, a province of Spain, situated between 42° 28' and 43° 40' N. lat., and 4° 30' and 9° 8' W. long.; it is bounded on the east by that district of Old Castile commonly called Montañas de Santander, on the west by Galicia, on the south by the kingdom of Leon, and on the north and east by the provinces of Leon and Asturias, called by some geographers the Asturian Pyrenees, forms the entire southern boundary. This boundary runs from near the source of the Ebro, in a western direction, taking the different names of Asturias, Ebro, and Asturias, from the point of which is at an elevation of 5760 feet above the level of the sea; Sierra de Alba, 6950; Sierra de Pajares, 8628; Sierra de Peñafaranda, 11,031; Sierra de Pefiamelera or Pefiamelera, 9456. To this last point, the name bears the name of Montañas de Asturias, the Mon Vindius of Ptolemy. It then branches out in different directions, and crossing the provinces of Leon, Galicia, and the north of Portugal, abuts on the ocean at the points of Cape Ortegal, Finisterre, and Billeuro, north of the Minho. The southern slope of this range is very abrupt; but on the north it gradually diminishes in height as it approaches the sea. The main mass is composed of calcareous rocks, little inferior in height to the Aquitanian Pyrenees. They also contain the bones of the very rare and valuable marine animal, the Marvel. A hard kind of sand-stone used for grinding stones, are also found, as well as copper, scutum or mineral amber, though not of the purest kind, cinnabar, iron, zinc, lead, tin, and antimony. It is a mountainous district, and every year 4500 tons into the interior of the peninsula. About three miles west of Oviedo, at a place called Las Caldas, is a spring of mineral water almost at the boiling point, which, seething with a vast abundance of steam, has produced a musket-shot from that spring is a ruined castle built of limestone, in which a sort of inferior amethyst is found imbedded, erroneously taken for diamonds by Casal in his Historia Natural e Médica de Asturias.

The mountains of Asturias are covered with forests of oak, beech, chestnut, and other trees, which supply the arsenal of Ferrol with excellent timber. It is a common practice in Asturias to cut large boards out of the chestnut.
trees without entirely destroying them. Don Mariano Llagast says, that he saw several of these trees, half of the trunk of which had been sawed off in this manner, and still continuing to produce apples, and even nuts, without preventing any outward appearance of decay. These forests abound with bears, wolves, foxes, and other species of wild animals. There are likewise several medicinal plants, making the country about a hundred miles round, and rich in sulphur, that of the angels, the safranilla, and the dulcamara, have been made known by the celebrated botanist just quoted, Don M. Llagasa. The hills are covered with brush-wood, cistus, and fure, which the inhabitants use for fuel; the use of these trees is now prohibited, which is found in great abundance in the western districts.

The offsets of the great range form numerous lateral valleys, drained by a number of rivers which flow from the mountains, and often join one another. The principal of these rivers are the Sella, in the eastern part of the province, the Nalon, the Navia, and the Ro in the extreme west, which also forms the boundary between Asturias and Galicia in the lower part of its course.

The coast of Asturias is so exceedingly bold and rocky, that its ports can only receive small trading vessels and fishing boats. There are a great number of small ports and rias (mouths of rivers), up many of which the sea-water advances far inland. The principal of these are the ports, from east to west, Arlanza, Ribadesella, Lastres, Villaviciosa, Gijon, and Llanes, near the cape of Peñas, Aviles, Muros on the ria of Pravia, Cudillero, Luarca, Nava, and Puntal in the coast of Canada. The harbours of Ribadesella and Cudillero are safe and commodious; and the former has good docks capable of receiving ships of forty guns.

The Nalon has its source on the northern slope of the Asturian mountains (42° N. lat., and 5° 24' W. long.), and flows W.N.W. by Oviedo, forming, as it emeets itself into the sea, the ria of Pravia. Its affluent are the Caudal, the Trubia, and the Narces, all on the left bank. The Navia rises in the north-western part of the province, and flows into the Geno, which is a river of forty leagues in length; the course of the river cannot be exactly ascertained, but its length is estimated at sixty miles.

The valleys are extremely fertile, and afford pasturage for numerous horned cattle, pigs, and horses. The horses are of small size, but renowned for their strength and swiftness. The rocks on the sea-shore are covered with sea-weeds, polypi, and seaphytes, which are esteemed as manure. On some of these rocks the recesca textiera, or true divers orchil or archil, is found. Fruit is also very plentiful in this province. Chestnuts, hazel-nuts, apples, and pears, are the chief varieties. The vine is cultivated in the country, and in the town of Castrelos, there is a large vineyard called Cangados: in both places a sort of light and agreeable wine is made for home use, far superior to the chalice of Biscaya. There is however a deficiency of this article, which is abundantly compensated for by the quantity supplied by the exportation of fiesta to the principal towns of the kingdom. There is a road for carryages of any sort, and all the traffic with that part of the kingdom was carried on by means of mules and horses. The principal road, which is the new Camino Real de Asturias, and runs from Madrid to Modina-de-Rio-Seco, across the Meseta, and then to Oviedo, has been recently made. There is also another road between Oviedo and Guado, about twelve miles N.W. of Oviedo. The principal puertos, or passages across the mountain, are, reckoning from east to west, Tarna, Piedrafita, Pajares, Somiedo, Leitariegos, Cerrudo, and Peñamellera.

According to the historian Caribay, a Celt tribe called Astyges, or the people of Asturias, first settled in the mountains, and from this name are descended the Asturians, and the Romans, who often confounded them with their neighbours, the Gallaeci. For a long period they lived unknown in their valleys, without exciting either the envy or jealousy of their neighbours. The Asturians, after the invasion of the Iberian tribes, so reduced them, and at the fall of the Roman empire, they shared the same fate with the other Roman provinces in the Peninsula. When the hordes of Tartes and Musa overthrew the Goths, the Asturians were reduced, and the man who escaped the sword of the Infidels, or refused to bend their necks beneath the ignominious yoke, sought an asylum in the fastnesses of the Asturian mountains, and headed by the immortal Pelayo, dared alone to defy the power of the victorious Crescent. Azmanen Sulayman, 3 Z 20.
and Munuza, or Manuza, who successfully attempted to penetrate into this province, remained with their hosts buried in the deep ravines of Cabodanga; and these were the first of a succession of robberies, with the total expulsion of the Mohammedans from Spain.

Twelve kings reigned successively in Asturrias, from 718, in which Pelayo was proclaimed, until 914, when having extended their conquests over almost one-fourth of the Peninsula, and upon the title of kings of Leon; Ordulfo the Second was the first who established his court at the city of Leon. In 1388, the Infante Don Enrique, the eldest son of Juan I., was styled Principe de Asturias, from which period the Asturrians, and indeed all the kings of Spain have taken that title. 'It is in the inhabitants of Asturias,' says Bory de Saint Vincent, 'that the naturalist can discover the characteristic features of that Celtic race, which we consider to be the third of the Japhetic race.' The Asturians speak the Castilian language.

The Asturians are strong and resolute, frugal, honest, intelligent, not very active, but constant in their labours, passionately fond of their country, proud of their noble descent, and of having never mixed their blood with any of the nations that have had dominion over the Peninsula. (See Antillon, Miliano, Garibay, and Casal, Historia Natural y Medicina de Asturias; Ornographie de l'Europe, &c.)

Asy, or Asy, the river of Antioch. [See ORONTES.]

ASVLUM, the Latin and English form of the Greek ασύλον, which is generally supposed to be made up of a prefix α, meaning not, and εσύλος, unnecessary; and therefore to signify, properly a place free from robbery or violence. Some, however, have derived the Greek word from the Hebrew יגש, 'a grove'; the earliest asylum, it is said, having been usually groves sacred to certain deities. It is, however, more probable that the word is only very convincing illustration of this etymology, which is afforded by Virgil's expression as to the asylum opened by Romulus,—

Hinc locum ingentem, ope Romulus aor asylum

The tradition was, that Romulus made an asylum at the Palantine Hill preparatory to the building of Rome. Plutarch tells us that he dedicated the god Asylueus. (Plin. Hist. Nat. ii. 14.

Probably all that is meant by these stories is, that in those ages whoever joined a new community received shelter and protection; and even if he had committed any crime, was not put to death by the people who had become his brethren, nor surrendered to the vengeance of the laws or customs he had violated. Such an asylum was not an appointed place of refuge established by general consent; it was merely a congregation of outlaws biding defiance to the institutions of the community, and repeatedly proclaiming their willingness to receive all who chose to come to them.

But both in the Grecian states, and in Rome, the temples, or at least some of them, were endowed with the privilege of asylum, as well as the persons who fled to them, though they had committed the worst crimes. The practice of granting asylum to have been, that they could not be dragged from these sanctuaries; but that, nevertheless, they might be forced to come out, not only by being prevented from receiving food while they remained, but even by such compulsory measures as the application of fire to the building. (See Thucyd. i. 126, 134; Herodot. vi. 60.) Anything appears to have been permitted except the actual dragging forth of the criminal. Eventually, these places of refuge became great nuisances, being, especially among the Greek cities, established in such numbers as sometimes almost to put an end to the administration of justice. After Greece had become a part of the Roman empire, an attempt was made to repress this evil by an order of the senate, directed to all the pretended asylums, to produce legal proofs of the privilege which they claimed. (Taeit. Annul. iii. 60, &c.) Many were put down in consequence of not being able to satisfy this demand. At last, all the asylums that were not for empire were abol- ished by an edict of the Emperor Tiberius. (Sueton. in Tad Tiberi, cap. 37.)

The term 'Ἀσύλος was given as an epithet to certain divinities, for example, to the Ehebion Diane. It is also found on medals as an epithet of certain cities; in which application it probably denoted that the city or district was under the protection of both of two otherwise independent powers, and enjoyed accordingly the privileges of neutral ground.

After the decline and fall of Paganism, the privilege of serving as asylum for malefactors was obtained by the Christian temples. The credit of conferring this honour upon churches, even upon churches of the lowest endowment, goes to the Emperor Honorius. The Emperor Honorius in the beginning of the seventh century; but more than two hundred years before, certain sacred buildings of the new religion are said to have been declared asylums by the Emperor Heraclius. The practice was eventually new throughout all Christendom to be more intolerable abuse than those of the ancient world had been. In most countries, not only churches and convents, with their precincts, but even the houses of the bishops, came to be set up as places of asylum. But this asylum was not original. In all these places the most atrocious malefactors might be found bidding defiance to the civil power. At the same time, there can be no doubt, that while in these cases criminal proceedings were not infrequently used, this protection was also sometimes afforded to the innocent, who would not otherwise have been enabled to escape the oppression or private enmity which pursued them under the perverted forms of law. The institution was one of the many which then existed, having the effect of throwing the regulating power of society into the hands of the clergy, who certainly were, upon the whole, the class in whose hands such a discretion was by far least likely to be abused. When communism, however, saved the Roman Church and the law became strong with the progress of civilization, the rights which had at one time armed the church as a useful champion against tyranny, became not only useless, but positively dangerous. The Roman Church, after a long and hard struggle in defence of its old supremacy; and in the face of the stand thus made, and in opposition to ancient habits, and the popular superstition by which they were guarded, it was only very cautiously that attempts could be made to mitigate the evil. For a long time the legal extent of the privilege of sanctuary appears to have been matter of violent dispute between the church and the civil power. In this country, it was not till the year 1661, under the reign of Charles the Second, that a bull of Pope Innocent VIII. it was declared, that if thieves, robbers, and murderers, having taken refuge in sanctuaries, should sally out and commit fresh offences, and then return to the place of shelter, they might be taken out by the king's officers. It was only by an Act of Parliament passed in 1534, after the Reformation, that persons accused of treason were debarred of the privilege of sanctuary. After the complete establishment of the Reformation, however, in the reign of Elizabeth, neither the churches nor sanctuaries of any other description were allowed to become places of refuge for either murderers or other criminals. But various buildings and precincts in and near London were then put up as places of shelter to debtors. At length, in 1657, all such sanctuaries, or pretended sanctuaries, were finally suppressed by the Act 8 and 9 William III. chap. 26.

In Scotland, the precincts of the Palace of Holyrood in Edinburgh maintained a sanctuary for debtors. The boundaries of this privileged place are somewhat extensive, comprehending the whole of what is called the King's Park, in which is the remarkable hill called Arthur's Seat. The debtors find lodgings in a short street, the privileged part of which is divided from the remainder by a kennel running across it. Holyrood retains its privilege of sanctuary as being a royal place; but it is singular that it is being now used as a shelter neither for the persons, who, in particular description of the merely unfortunate or destitute. Thus there are in London,—the Asylum for Recovery of Health, Asylum for the Deaf and Dumb Children of the Poor, Asylum for Orphans, Hospital for Incurables, Victuallers' Asylum, Surrey Asylum for Employment of Discharged Prisoners, Westminster Asylum for Persons who have been Prosecuted for First Offences, Invalid Asylum for Females, &c.

The Jewish Cities of Refuge, established by Moses and
Joshua, may be quoted as the most remarkable instance on record of a system of asylum founded and protected by the state, and of the strict observance of the law. These cities, as we are informed in the twentieth chapter of the Book of Joshua, were six in number, three on each side of the Jordan. They only, however, protected the person who had killed another under the condition of an oath, and that only if the accused person be a thousand inches in breadth, which is about the truth, it is evident that two geometrical surfaces with asymptotic boundaries, such as ABC, DEC would appear to coincide from the point where the distance regarded is about the third part of an inch. The idea of a geometrical asymptote is therefore an effort of pure reason, and the possibility of it must be made manifest to the mind, not to the senses.

A M B C D is a vessel of water, of which the sides and bottom are extended indefinitely towards G and R; the end A L is fixed, but the end B M is moveable parallel to its first position, so as always to form a water-tight vessel in which the length of the vessel may be increased to any extent, while its breadth and height remain the same.

Let the water be a perfect fluid, without any adhesion to the sides of the vessel (which is geometrically possible, though not physically), and let the bottom of the vessel be geometrically horizontal. Then, as the end M B changes its position and moves towards G R, it is manifest that the vessel will grow larger, but that the vertex of the vessel at bottom C K; for so long as the preceding mathematical suppositions hold good, and there is some water in the vessel, it must stand at some determinate height above the bottom. As M M B moves towards the right, let the curve M V W W, &c., mark out the positions of the vertex B, and the edge of the moving end, as is done in the diagram. Then for the reason above given, this curve never can meet the line C K, though obviously in a state of continual approach it tends to it. Hence the curve M V W W and the line C K are asymptotes.

As another illustration, let there be two parallel lines A B, C D, the perpendicular distance of which is A C; and from A, with different radii, describe arcs of circles P 1, Q 1, R 1, S 1, &c., from A to B, on all these circles measure arcs equal in length to the straight line A C; that is, let P 1, Q 2, R 3, ..., W 7, &c., be all equal to A C. Now it is plain that the area Q 1, R 1, &c., are all greater than A C, and will continue so, however great the radius may be; for A C is the shortest distance which can be drawn from parallel to parallel. But as the radius is extended, the arcs T 1, V 1, &c., become more upright, as a person unused to geometrical phraseology would say, that is, more and more nearly coincident with a perpendicular drawn from A; they also become more and more nearly equal to A C. Hence the points 5, 6, 7, &c., come nearer and nearer to C D, with which they would actually coincide, if it were possible that one of the arcs could become equal to A C. Hence the curve, 1, 2, 3, &c., is an asymptote to C D.

The mathematicians of the 17th century were not content in all works on the theory of curves, and in most on the differential calculus. The following are the most general notions which it will be within our limits to give, and will be understood by a moderately well-educated mathematician. If the equation of a curve be $y = f(x)$, and if the function $f(x)$ can be separated into two others, say $\psi(x)$ and $\chi(x)$, of which $\chi(x)$ diminishes without limit either when $x$ is increased without limit, or made to approach without limit to any given value, then the curve $y = \psi(x)$ is an asymptote to the curve whose equation is $y = f(x)$ or $\psi(x) + \chi(x)$.

For the difference of the ordinates of the two curves (to a common value of $x$) is $\chi(x)$, which diminishes without limit. For instance, let the first curve have the equation

$$y = \frac{1}{x}$$
The term asymptote is first found in the Conic Sections of Apollonius; and the properties of the hyperbolic asymptote are found in the second book of his Conic Sections.

At the well-baked market-town of Lower Hungary, on the banks of the Wizatin, and on the banks of the Tisza, the three miles N.E. of Pesth. The Podmanitsky family have a large and handsome mansion near it, which is celebrated for its extensive cabinet of coins and its museum of natural history.

The inhabitants are remarkably industrious, and ingenious in all their arts and manufactures, and carry on considerable trade, as well in cloaks lined with sheeepskin, which they dye blue and green and export to distant markets in great quantities, as in corn and wine, the produce of the delightful valley in which the town is situated. At the time of the visit of the Emperor, it contained a mosque, a synagogue, and nearly 5000 inhabitants. 19° 29' E. long. (Bertuch.)

ATABEKS are the rulers of several of the small principalities into which the empire of the Seljuk Turks, soon after its establishment, became divided, during the eleventh, twelfth, and thirteenth centuries. The word Atabek is of Turkish origin, and properly signifies ' The Father of the Prince,' or, as Abbouda explains (' Ann. Mosl. t. iii. p. 226, ed. Reiske'), ' a faithful Parent.' According to the same author, the first chief honoured with the title of Atabek was Nizam-al-Mulk, the vizir of the third Seljuk sultan, Malek-shah, who at the same time gave him the title of Tus as his Property; yet neither the title nor the honours of sovereignty remained hereditary in his family. But several powerful emirs at the court of the Seljuks, on whom this title was conferred, continued to rule after they had led independent lives, and to be almost independent masters of separate provinces, in which they enjoyed all the prerogatives of sovereignty, with this exception only, that in the public prayers at the mosques the name of the reigning Seljuk prince was mentioned before theirs. Four dynasties of Atabeks are particularly noticed in eastern history; those of Syria (and Iraq), those of Azerbaijan, those of Persia, and those of Karistan.

Atabeks of Syria and Iraq. - The founder of the first dynasty of Atabeks was Kasim and Aksakar, originally a manukul or slave, but who had by degrees raised himself to a station of great influence at the Seljuk court. Sultan Malek-shah, the son of Alp Arslan, yielding to the request of the nobles, who were jealous of the power of Aksakar, in order to get rid of his presence at court, appointed him governor of the towns of Haleb, Hamam, Manbej, and Laodicea (a.d. 1088). After Malek-shah's death, Aksakar, instead of taking part of his children, became the supporter of Tutush, another Seljuk prince in Syria. But Tutush, so far from rewarding the services which Aksakar had rendered him, deprived him of a portion of his previous government, and finally of his life (a.d. 1094). Emmad-eddin Zenghi, the son of Aksakar, who was only ten years old when his father was murdered, executed this vengeance by military services in several Seljuk armies, and in a.d. 1122 received Basra as a fief from the Seljuk sultan Mahmud, besides which he was appointed governor of Bagdad. In consequence of the then alarming ascendancy of the Christian kingdom established by the crusaders, Emmad-eddin was sent to Mosul, in order to resist their further encroachments. He succeeded (a.d. 1127) in making himself master of Haleb, and of a considerable portion of Syria, over which country he afterward ruled as an independent sovereign. European chronicles of the history of the crusades call him Sanguinul, which is a corruption of Zenghi. After his death (a.d. 1145) a dissent arose among his two sons, Seif-eddin Ghazi and Nureddin Mahmud; they agreed at last that Seif-eddin should reign at Mosul, and Nureddin at Haleb. The Mosul branch continued to govern till the incursion of the Moguls into Syria, when Mosul fell into their power. A.d. 1269: the dominion of the Atabeks of Haleb an end was put by Saladin, a.d. 1183; who, however, had a side-branch of this dynasty to continue in the cities of Sanjar and Nisibin till a.d. 1219.

Atabeks of Azerbaijan. - Ildar-ghulal, who, from the condition of a slave, had successively risen to the rank of an officer at the court of the Seljuk Sultan Mas'ud, was, in a.d. 1136, invested with the dignity of Aksakar, and at the same time appointed governor of Azerbaijan. He kept his army with great power, and increased his dominions by conquest. Though still under allegiance to the sultan, he was almost independent in the government of Azerbaijan.
Four of his descendants successively ruled over Azerbaijan till the year 1325, when they were obliged to yield to the power of Jalal-eddin, sultan of Khwarazm.

Atabek of Persia—The other union of the Turks with Persia, of Turcoman origin, is the dynasty of Salgar, ruled over Fars, or Persia Proper, from A.D. 1148 till 1264. The first of these Atabeks was Mozaffar-eddin, and he was followed by ten others, the reigns of some of whom were, however, of very short duration. The throne of Quesirwas in the time of the Salgar dynasty was Ayeshah Khatun, a princess, who was confirmed by Hulagu in her character as sovereign, but reigned no longer than one year, and died in A.D. 1264. From their ancestor, Salgar, these Atabeks of Persia are sometimes numbered.

Atabek of Laristan.—Abu Taher, an officer of the Atabeks of Persia, had been sent with an army into Laristan, a province on the north-eastern side of the Persian Gulf. He conquered it, but instead of giving it up to a master, he assumed himself the independent dominion over it, and took the title of Atabek. Tekla, the grandson and third successor of Abu Taher, was reigning over Laristan when Hulagu invaded the country, who deposed and killed him but allowed his son, Shams-eddin Alp Argun, to succeed in the government. By the permission, and with the support, of the Mogeul Shah, Yusuf Shah, the son of Alp Argun, followed next, and he was succeeded by his son Ashtiyar, who was a usurper. On this account the country was again raised against him, upon himself the displeasure of the Mogeul Gahan Khan, who ordered him to be executed, and appointed Nosrat-eddin Ahmad, a son of Alp Arguun, as his successor. He was followed, by his brother, named Atabek Abasrej, and was succeeded by his younger brother, named Atabek Ariaftah, the son and successor of Rokn-eddin, the last of the Atabek of Laristan. (See D’Herbelot, Bibliotheque Orientale, art. Atabeakan. De Guignes, Histoire d’Armois, p. 254, &c.)

ATACAMA is a district belonging to the department of Potosi in Bolivia, in South America, and comprehends all the country of that republic which lies to the west of the Andes along the Pacific Ocean. It is of considerable extent, its northern boundary being formed by the river Lampa, which separates it from Peru, and runs between 21° and 22° S. lat., and its southern by the river Salado, which partly divides it from Chili, and flows near 26° S. lat., so that it extends along the coast upwards of 610 miles, with a breadth of from 25 to 40 miles. It is divided into the Upper (Sierra) and Lower country. The Sierra comprehends the smaller part of its surface, that which lies on the N.E. within the chain of the Andes, and contains some fertile valleys, in which the common fruits and some of the most valuable species of cereals are cultivated. The surrounding mountains contain mines of gold and silver, but they are not worked, and are inhabited by numerous herds of vicunas, which the Indians hunt with the guayampa, the Publican, which is tender and of excellent taste. The Lower country presents over nearly all its surface nothing but an uninhabited and uninhabitable desert, consisting of wide plains covered with a white sand, and where the blacks, either men or cattle, cannot exist, and the streams of water are scarce, or non-existent. On the plains rise some high ridges and a few immense rounded knobs; but in no part are any traces of vegetation to be discovered. This description is particularly applicable to the southern part, which extends towards the boundary of Chili, in which many Spaniards perished for want of water at the time of the first conquest, and which is known under the name of the desert of Atacama. Towards the boundary of Peru, a few miles south of the river Salado, the valleys extend, in which a rich vegetation is displayed, the soil producing bananas, cotton, figs, vines, and other fruits and vegetables. The most considerable of these rivers is the Conchopata, the course of which is a good harbour and a suburb to the towns of which it flows. All the streams are in fact frequented by fish for congers, which they salt and export to the interior and to other ports this town is now called Puerto de la Mar. In other parts of the coast a species of cod, called folleto, is abundant. The inhabitants are of the most industrious people, and the interior districts contain veins of crystal of various colours, of jasper, talc, copper, blue vitrilo, and alum. No rain ever falls on this coast, but in a few places the soil is occasionally refreshed by springs. In the desert, sandstorms are of frequent occurrence. (Alzete, Captain Basil Hall. Humboldt.)

ATAHUALPA, called by some historians ATABA-
LIPA, was the son of Huayna Capac, the eleventh Inca of Peru, by a princess of Quito, or Quito. According to the laws of Peru the incaes were only allowed to marry their sisters, or some other female of their own family: every other marriage was considered unlawful, and the fruit of such a union illegitimate. Atahualpa, thinking not on his account, succeeded his father. Huayna Capac, who loved him passionately, considering, moreover, the rank of his mother, was desirous that Atahualpa should succeed him in the empire. Through his influence, the Inca Capac predicted that he would become the master of the empire. He accordingly communicated his desire to the hereditary prince Huascar, who acquiesced in the will of his father; and at the death of the Inca, which, according to Garcilaso, took place in 1533, Atahualpa ascended the throne of Quito. His proud presumptions made him so ambitious that he undertook to invade the Inca family, and to destroy them all, in order to be proclaimed the only Inca of the empire. He did not succeed in his undertaking, but he was persuaded by one of the Inca family to offer a present of gold and silver to a foreigner, and to grant permission to visit Cuzco to celebrate the obsequies of their deceased father, and likewise to render him homage. Having obtained this permission, he gave secret orders to his principal officers to resemble as many men as they could, and without making any warlike appearance, to march towards Cuzco in small bodies. In this manner he assembled an army of more than 30,000 veterans who had always been under his command. These preparations, secretly as they were made, excited the apprehensions of many Inca officials in the minds of some of the old governors of the provinces, who acquainted Huascar with their fears. But before the Inca had time to prepare himself, more than 30,000 men belonging to the provincial officials and those who were within a hundred miles of Cuzco. They then cast off the mask, and presented themselves as enemies. Huascar assembled as large an army as he could muster, and offered battle to them, battle in which he was defeated, and six miles from Cuzco. Aguirre was obstinate and bloody, and at last victory declared in favour of Atahualpa. Huascar attempted to escape with a thousand men, but was taken prisoner. A messenger was sent to his brother, who was at Saunas, or Jauja, to acquaint him with the result of the battle. He ordered Huascar to be kept in chains, and summoned all the inhabitants of the Inca family to appear at Cuzco, under the specious pretext of some affairs of importance both to the family and to the state; but his real intention was to destroy them, and to possess the throne without fear of being disturbed. Atahualpa accordingly gave orders to his general, who caused more than 200 of the Inca’s family to be put to death, without sparing either age or sex. Some were beheaded, others precipitated from rocks, women and children hanging by their hair from trees, and left to die there. These inhuman executions, which were continued during two years, took place in a field near Cuzco, called, on that account, the Field of the Saints. But whenever one of these atrocious acts took place, was brought to the scene of blood, dressed in mourning, and with a rope tied round his neck, to witness the death of his relations. The servants of Cuzco, the inca city, were also beheld. As the supposed residence of the Inca, and was seen by all the inhabitants of the city of Cuzco, the number of the victims cannot be estimated. In the midst of these civil discords, the Spaniards arrived in Peru. Atahualpa, who was at Cuzco, or Cata-
marca, terrified at the accounts which he received of them, and knowing that the unfortunate Huascar had sought their assistance, sent an embassy, accompanied by a rich present, to request help of their friends. The ambassador was very civilly received by Francisco Pizarro, who, on his part, sent his brother Hernando to visit Atahualpa, to offer him his friendship, and to acquaint him with his intentions, which were no other than to contribute to the elevation of Christianity. The Spaniards, however, although at first they were disarmed and delivered to their subjects. On the following day, Atahualpa, accompanied by 8000 men unarm’d, went to visit Pizarro. On his arrival, Father Valverde, in a long harangue, endeavoured to induce him to acquiesce in the authority of the new religion, and declared to him that his kingdom had been given by the pope, the vicar of God, to the mighty Emperor Charles, and that consequently he was bound to surrender it, or face the consequence of being destroyed with fire and sword. The Inca, moved at such a proposal, and, uttering a deep sigh, answered by his interpreter, that, comparing the tenour of their former with their present discourse, he could infer nothing else but that
both they and their king were either tyrants, who went about the world plundering and usurping the kingdoms of others, or servants sent by God to punish mankind: that he could not conceive how he was to acknowledge three lords, and surrender his kingdom only to one: that if, with any justice, he could be bound to fight to Kyr, to Otho, or rather to God, and not to the emperor. The Spaniards would not suffer the Inca to finish his discourse. The cavalry fell upon the unarmed multitude who had assembled, attracted by the novelty of the sight, saw no danger in the mob, but took many of their homes, men, women, and children. Francisco Pizarro, at the head of the infantry, attacked the guard of Atahualpa, who, at the command of his Inca, offered no resistance; the Spaniards, after a short but sharp battle, killed the King of Quito with their arrows, and conducted him as a prisoner to the royal seat of the Incas at Caxamarca.

Atahualpa offered Pizarro, for his ransom, to cover the pavement of his prison with vessels full of gold and silver, and having observed, by the countenances of the Spaniards, that they either were not satisfied with the offer, or doubted the possibility of its accomplishment, he raised his hand as high as he could reach, and making a mark in the wall, promised to fill the room up to that height with the same precious metals. Pizarro agreed to this proposal, and the Inca gave the necessary orders for procuring the ransom. Atahualpa, though imprisoned, was in communication with his generals by persons who caused an order to be sent to Jahuay, where Huascar saw two officers of Pizarro, and again observed their importunity in his behalf. This circumstance having reached the ears of Atahualpa, he ordered him to be put to death. The Spaniards were not deceived, for Huascar, in his letter to Inca, said: 'I am deprived of my kingdom and existence by a tyrant, but he will not enjoy long his usurped power.'

A Peruvian renegade, called Felipillo, who served as an interpreter to the Spaniards, aiming at the possession of one of the wives of Atahualpa, falsely accused him of having secretly given orders to his subjects to arm against them. The Inca was accordingly brought to trial. Some of the names mentioned by Garcilaso, the Inca's Secretary, are mentioned by Garcilaso, demonstrated against the injustice of such proceedings, and endeavoured to prove to those who were of a contrary opinion that they would disgrace the Spanish character by their ungrateful and unchristian behavior to a man who had received them with such kindness, and to whom they had moreover pledged their word to set him at liberty after having received the sum agreed upon for his ransom; and finally, that if he was to be tried, he should be sent to Spain to be judged. The Inca, realizing that the party, which he thought just arrived, and were eager to seize upon the treasure of Atahualpa, pretended that he ought to be tried by a military commission. This last opinion prevailed. He was tried and convicted of having led a life of riot and robbery, the chief of which were the false one abovementioned, and the murder of his brother. On his way to the place of execution, he desired to be baptized, in consequence of which he was spared only. It is said that he exclaimed with great courage and firmness in his last moments. Atahualpa is described by the Spanish historians as a man of handsome and noble presence, of a clear, quick, and penetrating mind, cunning, sagacious, and brave. Garcilaso relates of him the following anecdote: while in prison he had observed some Spaniards reading and writing, and he thought that this accomplishment was not a thing learnt, but a faculty which all the Spaniards possessed; and in order to prove his opinion he asked one soldier to write the short poem of Díos (God) on the nail of his thumb. He then asked every Spaniard that came near him to read it, and as he received from all the same answer, he was confirmed in his opinion. He then putting the question to Francisco Pizarro, and finding that he was unable to answer it, he discovered this it was a science acquired. From that moment he formed so mean an idea of Pizarro, that he treated him with the greatest contempt.


ATA-MELIK, or with his complete name, ALA-SDDIN AT-ARIB (about 1208-1227), was a Mamluk of the Emirate of Qaitbey (probably the same as Ali, A.D. 1226 or 1227) in the district of Joway near Nishabur in Khurasan, in which country his father Bohu-eddin successively filled several offices of importance under the Mogol government. Ata-Melik received a careful education; but at an early age political employments withdrew his attention from literary pursuits. Argun, the governor of Khurasan, chose him for his companion on two journeys into Tartary, and in 1251 introduced him at the court of the Mogol emperor Mangu Khan to Ata-Melik. Although he remained for a considerable time, and began to write his great work on the history of the Mogols, on account of which he undertook several excursions into Mawaranahr, on the borders of the empire of the Lighuns, it is not informed of the precise period at which Ata-Melik quitted Karakorum. But when Argun, in A.D. 1253, again called to the court of Mangu Khan, he left his son Karal-Melik, with Ata-Melik, in the camp of Sultan Hulaku, and after the death of the latter, he married a daughter of Hulaku to Ata-Melik, and Mazenderan, during his absence. Ata-Melik soon gained the entire confidence of Hulaku: as a proof of this, it is recorded that he induced him by his intercession to rebuild the town of Jezauhan, which had been destroyed by the Mogols when they first conquered Khurasan. He afterwards accompanied Hulaku in his expedition against the Abbaside caliph Moustasem; and after the capture of Baghdad the Mogol Emperor Mangu Khan, about A.D. 1260, caused to be published the new edict of that city, while on his brother Shams-eddin the dignity of vizir was conferred. Both continued to hold these offices under Abaka Khan, the successor of Hulaku, and the province of Bagdad, which had suffered much from the inroads of the Tartars, was restored to the house of the Mongol administration. But in consequence of a charge of peculation brought against Ata-Melik, he was thrown into prison, and deprived of every thing he possessed, even of his wife and children. The Inca, Hai-Husak, in his letter to Inca, said: 'I am deprived of my kingdom and existence by a tyrant, but he will not enjoy long his usurped power.' A Peruvian renegade, called Felipillo, who served as an interpreter to the Spaniards, aiming at the possession of one of the wives of Atahualpa, falsely accused him of having secretly given orders to his subjects to arm against them. The Inca was accordingly brought to trial. Some of the names mentioned by Garcilaso, the Inca's Secretary, are mentioned by Garcilaso, demonstrated against the injustice of such proceedings, and endeavoured to prove to those who were of a contrary opinion that they would disgrace the Spanish character by their ungrateful and unchristian behavior to a man who had received them with such kindness, and to whom they had moreover pledged their word to set him at liberty after having received the sum agreed upon for his ransom; and finally, that if he was to be tried, he should be sent to Spain to be judged. The Inca, realizing that the party, which he thought just arrived, and were eager to seize upon the treasure of Atahualpa, pretended that he ought to be tried by a military commission. This last opinion prevailed. He was tried and convicted of leading a life of riot and robbery, the chief of which were the false one abovementioned, and the murder of his brother. On his way to the place of execution, he desired to be baptized, in consequence of which he was spared only. It is said that he exclaimed with great courage and firmness in his last moments. Atahualpa is described by the Spanish historians as a man of handsome and noble presence, of a clear, quick, and penetrating mind, cunning, sagacious, and brave. Garcilaso relates of him the following anecdote: while in prison he had observed some Spaniards reading and writing, and he thought that this accomplishment was not a thing learnt, but a faculty which all the Spaniards possessed; and in order to prove his opinion he asked one soldier to write the short poem of Díos (God) on the nail of his thumb. He then asked every Spaniard that came near him to read it, and as he received from all the same answer, he was confirmed in his opinion. He then putting the question to Francisco Pizarro, and finding that he was unable to answer it, he discovered this it was a science acquired. From that moment he formed so mean an idea of Pizarro, that he treated him with the greatest contempt.


ATAULPHUS, brother-in-law of Alaric, king of the Visigoths, assisted him in his invasion of Gaul. After Alaric's death, near Cosenza, Ataulphus was elected his successor, A.D. 411. In the following year he led his bands out of Italy into Gaul, with the intention, as it would appear, of occupying the whole of Gaul as a base of operations for his empire, and of sharing the Gauls with him. Jovinus not being inclined to an alliance with the Goths, Ataulphus sent messengers to Honorius offering him peace, and at the same time attacked the town of Narbonne. Placidia, the sister of Honorius, had been for some time a captive with Ataulphus, who at last prevailed on her to give him her hand. The marriage took place at Narbo (Narbonne) in southern Gaul, at the beginning of March, A.D. 414. Ataulphus appeared on this occasion dressed after the Roman fashion, and presented his bride with many vases full of gold and jewels taken at the plunder of Rome in A.D. 410. Ataulphus afterwards passed into Spain with his army, and was deposed and put to death by one of his equerries, A.D. 417. A child that he had by Placidia, and to whom he had given the name of Theodosius, died before him. Vallerius, the successor of Ataulphus, restored Placidia to her brother Honorius, and she gave her in marriage to the constable Constantius. (Jornandes, Zosimus, Orosius, and Gibbon).

ATBARA, a river of Nubia. [See TACAEEZ and NIHIL.]

ATCCHAFALAYA (an Indian word, signifying lost scoter) is one of the distributaries of the Nile, it issues from the main stream on the right bank in 81° N. lat., and 14° 47' W. long., from Washington. The Atchafalaya is here about 110 yards wide, and the Mississippian nearly 300. It is about 80 miles long, and contains about 1,000 square miles of land. It sometimes runs backward from the Atchafalaya into the Great River; but when the Mississippian is at its height, there is an immense mass of water swept down the Atchafalaya, and
great extent of country between the Atchafalaya and the Mississippi, and also to the west of the Atchafalaya, is thus annually inundated. The Atchafalaya has a general southern course for thirty-five miles till it is joined by the Courtableau and the N.W., which comes from the hilly pine forests between the Red River and the head of Calcasieu. From the junction of the Courtableau, the Atchafalaya runs S.S.E. for twenty miles; here one stream runs into the long narrow bay called the Atchafalaya River, another branch runs eastward fifteen miles, and receives the Plaquemine, another branch of the Mississippi detached from the main stream, on the right. The Atchafalaya now runs a little E. of S. for thirty miles, and enters the bay called Atchafalaya Bay. At Vegetation.—The country is diversified by the Teche, which rises in the prairies of Opelousas, and has an entire course of about 200 miles.

The Atchafalaya is remarkable for a phenomenon called the Raft, which includes several places in its course. This raft consists of the rubbish brought down the Mississippi and thrown at some remote time into the Atchafalaya, where it has been caught in the bends of this narrow and tortuous stream, and has received successive augmentations by more recent floating trees. This raft is not always stationary, but when disturbed by the rise of the waters, it breaks off in large masses, which soon lodge again in some angle of the river. Several points are marked in Darby's map where the named rafts are situated. The Atchafalaya, like the Teche, has many branches, which join it at various points, but the principal one is the Courtableau—a fact which shows that this portion of the country has a very small elevation above the Gulf, or perhaps none at all. (See Darby's Geography of the United States.)

ATCHEEN, or ACHÉEN (properly ACHEEN), is one of the petty kingdoms into which the island of Sumatra is divided. It occupies the north-western extremity of the island, and borders generally on the country of the Bataas. The kingdom of Atcheen does not extend beyond a circle which has for its radius about thirty-five miles. It stretches along the coast to the south-westward as far as the town of Barus, in 2° N. lat. and 98° 39' E. long. On the northern coast the territory of Atcheen reaches as far eastward as Karhi, in 3° 16' N. lat. and 97° 40' E. long.

When the Portuguese, early in the sixteenth century, were prosecuting their discoveries and conquests in the Indian Seas, a fleet of five ships, under the command of Jeronimo Lacerda, acted on behalf of the Portuguese chief of Sumatra, and anchored at Pedir, then a principal port on the north-west coast, within the kingdom of Atcheen. Here the Portuguese found trading vessels from Pegu, from Bengal, and from the Moluccas, procured by the Company in September 1509. It was nearly a century later (June, 1602) when the first English ships visited that country. These were the fleet under the command of Sir James Lancaster, who bore a letter from the queen of England, and was received by the sovereign of Atcheen with every mark of respect. On this occasion a regular commercial treaty between the two governments was drawn up and executed. The chief object of contemplated traffic was pepper, for which article Europe was principally dependent at that time upon the Dutch. Very little advantage was taken of the treaty here mentioned until the year 1639, when the reigning queen of Atcheen, having granted some additional privileges to the English, which were in part abolished in 1659, undertook to supply the body in the capital of her dominions. The trade, however, was never very flourishing in this quarter, and may be said to have ceased upon the establishment of the Company's settlement at Bengcoon, on the south coast of Sumatra, from the neighbourhood of which place the pepper was principally collected.

A 'treaty of friendship and alliance' was concluded with the Sultan of Atcheen, in April, 1819, by Sir Stamford Raffles, acting on behalf of the governor general of the British India Company, whereby the right of trading freely to all the ports of that kingdom was assured to the British upon the payment of 'fixed and declared rates of duty.' By this treaty the sovereignty of the king extended to any person whatever a monopoly of the produce of his state, and to exclude the subjects of every other European power, and likewise all Americans, from a fixed habitation or residence in his dominions.'

On the occasion of concluding this treaty, the East India Company advanced to the Sultan of Atcheen a loan of 50000 dollars, and presented to him as a gift six pair of brass field-pieces, and a considerable quantity of ammunition. The government of Atcheen is an hereditary monarchy, and the king or sultan is limited in his authority only by the power of the greater vassals, so that the bulk of the people are not in the enjoyment of much political liberty. The whole kingdom is divided into about 180 native districts or communities, equivalent to our parishes. These districts are grouped together in various numbers, varying from 20 to 26, under the management of a provincial governor. The state revenues come from the coast, to which money, sent from each district, and delivered at the king's store; but the principal income of the crown consists in customs-duites imposed on the import and export of merchandise.

The climate of this part of the island is comparatively healthy. The country is more free from most of the other parts from stagnant waters and from woods, for which reason the inhabitants are likewise less liable to fevers and dysenteries.

A chain of mountains, in some parts double and in others treble, runs from the north-western point through the whole extent of Sumatra, including, of course, the territory of Atcheen, and from it spring all the other principal geographical features of the country, will be described in our general account of the island. The Atchinese are in general taller and stouter, and their features more complex than those of the other inhabitants of Sumatra. They are likewise considered to be of more active and industrious habits, as well as more sagacious. They are fond of commercial adventure, and their degree of knowledge, more particularly as regards other countries, is greater than that possessed by other races of Sumatrans who do not engage so largely in commerce. This superiority of character and intelligence has been attributed as much to a considerable admixture of Malay blood, as to the great intercourse that has existed between their ports and the western parts of India.

The language in use among the Atchinese is one of the general dialects of the Eastern Islands: in writing they make use of the Malay character. In religion they are followers of Mohammed, and maintain the forms and ceremonies of the Moslem faith with much strictness. Atcheen is now no longer, as it once was, the great mart for Eastern products, but it still carries on a very considerable traffic with the Company's coast, to which it furnishes gold-dust, raw silk, betel-nut, pepper, sulphur, camphor, and benzoin; receiving in return salt and cotton piece-goods. The camphor and benzoin exported from Atcheen are mostly bought in Java or from the Bataas. A considerable trade is also carried on between Atcheen and the British settlements of Singapore and Prince of Wales's Island.

The few and small manufactures known in other parts of Sumatra are likewise pursued in the kingdom of Atcheen, where some of them are carried to a greater degree of perfection. A fabric of thick cotton cloth and of striped or chequered stuffs is carried on, and affords a considerable supply for the Malayan peninsula. A sort of rich silk goods is also manufactured, but not to so great an extent now as formerly. This falling off has been attributed to a failure in the breed of silk-worms, but as such an accident could not be more regular, it is probable that there are other causes for the decay.

The soil throughout the kingdom is for the most part light and fertile, producing abundant crops of rice and succulent vegetables, as well as of cotton and the finest tropical fruits, such as the mango and mangustin, which are of delicious quality. Cattle and all kinds of provisions are abundant and at reasonable prices, and the Atchinese display their superior intelligence as much in their better skills as in their greater urbanity and politeness. This kingdom furnishes the same description of animals as are common throughout the island. Elephants are found here domesticated, and were probably originally imported.

(See Marsden's History of Sumatra; Captain Forrest's Voyage to the Mergui Archipelago; and Early Records of the East India Company, as given in the Appendix to the Report of the Select Committee of the House of Lords.)
ATCHEEN, or ACHIEEN, the capital of the kingdom of the same name in Sumatra, is situated at the mouth of the large estuary of the island in 5° 36' N. lat., and 98° 45' E. long.

The town stands on a river which empties itself by several channels near to Atchen-head, and is about a league from the sea. The town lying in a vicinity, which is securely sheltered by several small islands. The river having a bar at its mouth, with a depth of no more than four feet at low water during spring-tides, only the small vessels of the country can enter; and even of these many are prevented from passing over the bar during the dry monsoon.

The town, which is said to be populous and to contain 5000 houses, is situated on a plain in a wide valley formed by an amphitheater cut by a genus of lofty hills. The houses are all detached; they are built of bamboo and rough timber, and are mostly raised on piles some feet above the ground in order to guard against the effects of inundations. The dwellings of the inhabitants has occasioned the circulation of a greater number of mosques and other public buildings than are usually seen in towns of similar magnitude in the Malay Peninsula. The palace of the Sultan is built more with a view to strength than beauty, and is surrounded by a low wall. Near it are several pieces of brass ordnance of an extraordinary size. Most of these are of Portuguese make, but two among them are English, and were sent as a present by King James the First of Britain to the Sultan of Atcheon; the bore of one of these pieces is eighteen inches, and of the other twenty-two inches diameter.

Owing to the plan of its construction, and the luxuriant growth of the numerous trees which surround and intersect it, the town, when seen from a short distance, has a very pleasing and picturesque appearance. The country beyond it exhibits a high degree of cultivation, and contains many small villages with white mosques, which add to the beauty of the scene. (See Map of Sumatra.)

ATCHUJEFF, ATCHUK, or ATCHU, an island on the eastern shore of the Sea of Aqoz, one side of it being formed by the Sea of that name, and the other three sides by branches of the Kuban. It lies to the N.E. of Taman or Phanagoria, but is more mountainous and as full of swamps as that island. Among the spots of note upon it are a castle with a port, also called Atchujjef, the fortifications of which are of wood; Kuman, on the principal beach of the island, the most considerable place in this part of the world in the fourteenth century; and Cosozj, a small town on the Kumli-Kuban. The inhabitants are of a mixed tribe who are called Cossacks, and are a branch of the Kuban, which was the most considerable place in this part of the world in the fourteenth century; and Cosozj, a small town on the Kuban. The inhabitants are of a mixed tribe who are Cossacks, and are a branch of the Kuban, which was the most considerable place in this part of the world in the fourteenth century; and Cosozj, a small town on the Kuban.

A. TELES, a common term of Sapejous, or American monkeys, formed by M. Geoffroy St. Hilaire, and presenting numerous and remarkable modifications of organic structure, which readily distinguish them from all other groups of quadrumanes. The largest individual character of the genus consist in their long, attenuated, and powerfully prehensile tails; fore-arms either entirely deprived of thumbs, or having only a very small rudiment of that organ; and their deep-set eyes, which, like that of all the American quadrumanes, consists of two rows of teeth in each jaw, on each side, more than are found either in man, or in the kindred genera of the old world. The first and last of these modifications are common to the stoles and other American quadrumanes, the differences arising by the modification of a small African genus, consisting only of two species, neither of which has been observed by any zoologist since the days of Pennant, and with whose other characters we are very imperfectly acquainted. There are further distinguished by their small round heads, concave bodies, and remarkably long slender limbs, which characterize giving these animals much of the general appearance of a spider, having procured for them the appellation of 'spider-monkeys,' by which thing disparagement. Among the quadrumanes of the new world, they are destitute of cheek pouches and callousities, characters which approximate them in some measure to the real apes. The skull of the stoles is rounder and the brain larger than in the common monkeys; the forehead also is more elevated, and the muzzle less prominent. The eyes are widely separated from one another by the broad bridges, which are formed in a peculiar manner, and are separated by a thick cartilaginous partition; the ear only differs from that of man in having no inferior lobe; the mouth is small; the lips thin and extensible; and the hair generally long, coarse, and of a glossy appearance.

But the organs of locomotion chiefly distinguish the stoles. The anterior extremities, in particular, are by their length and the slenderness of their form set off from all other parts; they are in general, as the above account has shown, destitute of the powers of grasping. The hands are provided with this organ, it is only in a rudimentary form, and consists merely of a flat nail, or at most of a single joint. On the posterior extremities, on the contrary, another hand is ingeniously developed; the thumb is, in fact, a fifth limb, though probably, on account of its distance from the seat of sensation, it is not endowed with a very delicate sense of touch. For six or seven inches from the point it is naked and callous on the under surface; and it is by this peculiarly powerful and indispensible organ that they grasp branches, or swings, itself from tree to tree with an ease and velocity almost incredible.

Their entire organization is adapted exclusively to an arboreal life. They are impotent to walk on the ground, and forward and embarrassed than their motions. They trail themselves along with a slow and vacillating gait, sometimes using their long fore-arms as crutches, and resting upon their half-closed fists while they project the body and hind legs forward; at other times walking in a crouching position on the hind legs only, balanced by the long arms and tail, which are elevated in front and rear respectively, and always ready to take advantage of any object by which they may be raised to an elevated position.

But in proportion to their embarrassment on a plain our face is their dexterity and agility among the trees of their native forests. Here they live in numerous troops, mutually support one another in danger, boast and exploit the less favourably organized stoles from the vicinity of their cantonments, and exercise a perfect tyranny over all the other arboreal mammals of their neighbourhood. Though leaves and wild fruits compose the principal part of their diet, yet they do not reject flesh, but hunt after insects and eggs and young of birds, and are even said to adopt the stratagem of fishing for crabs with their long tails. They are exceedingly intelligent, easily domesticated, and soon become strongly attached to those who treat them kindly; and the petulance and intractable curiosity of the common monkeys; their character, on the contrary is, grave, and approaches even to melancholy; but if their passions are less violent, and more difficult to excite, their sensations are more distinctly stronger, and if they are exposed to the amusing tricks of the monkeys, so likewise are they without their quickness and mischief.

Dampier relates, that when a troop of stoles have occasion to pass any of the larger rivers of South America, they select a situation in which the trees are highest and project farthest over the stream; then mounting to the topmost branches, they form a long chain by grasping one another's tails successively. This being being being suspended from the top, is put in motion, and successively swung backwards and forwards till it acquires an impetus sufficient to carry it over to the opposite bank. When this is accomplished, the animal which was at the top readily descends to the bottom, and comes within his reach, and mounts to the highest, where as soon as he is firmly attached, the other end of the chain is permitted to swing, and thus the whole troop are passed over. The stoles, as well in their ferocity as in their inhumanity, are esteemed as an article of food by the native Indians; and even Europeans, whom curiosity or necessity has induced to taste it, report their flesh to be white, juicy, and agreeable. There is but one instance that the ape can be compared to the whole body, and particularly the head and hands, bear to those of a young infant. Nor is it without being strongly disposed to question the nature of the act, that Europeans sometimes, unac-
customed to shooting monkeys, witness for the first time the dying struggles of these animals. Without uttering a complaint, they silently watch the blood as it flows from the wound, from time to time turning their eyes upon the sportsman with an expression of reproach which cannot be misinterpreted: some travellers even go so far as to assert that the companions of the wounded individual will not only assist him to climb beyond the reach of further danger, but will even chew leaves and apply them to the wound for the purpose of stopping the hemorrhage. The following species of atelas have been distinguished and characterised by naturalists and travellers:

1. The Quata (*A. panteus*, Geoff.), or, as the French write it, *caita*, is a large species, covered with long coarse hair, of a glossy black colour; the belly is protuberant, the head small and round, the limbs long and slender, the fore-hands entirely deprived of thumbs, the tail robust and powerful, the eyes and cheeks deeply sunk, and the face copper colour. On the back and outsides of the limbs the hair is very long and thick, but the belly and groins are nearly naked, and the mamma of the females are placed in the armpits. The hair of the head is directed forwards, and the ears, concealed beneath it, differ from those of the human species only in having no inferior lobe. This species is very common in the woods of Surinam and Brazil. It is active and intelligent, and unites considerable prudence and penetration to great gentleness of disposition. They go in large companies, and when they meet with a man or any animal which is strange to them, come down to the lower branches of the trees to examine them, and having satisfied their curiosity, begin to pelt them with sticks, and endeavour to frighten them away. They cannot leap, but exhibit the most surprising agility in swinging from tree to tree. Acosta, in his *History of the West Indies*, relates the following anecdote of a quata which belonged to the Governor of Carthagena:—"They sent him," says he, "to the tavern for wine, putting the pot in one hand and the money in the other; they could not possibly get the money out of his hand before his pot was full of wine. If any children met him in the street, and threw stones at him, he would set his pot down and cast stones against the children, till he had assured his way, then would he return to carry home his pot. And what is more

although he was a good bibber of wine, yet he would never touch it till leave was given him."

2. The Chuaa (*A. marginatus*, Geoff.) closely resembles the quata in physiognomy, size, and proportions; the quality and colour of the hair are also the same in both, except that the face of the chuaa is surrounded with a rim of white, which, on the forehead particularly, is broad, and directed upwards, so as to encounter the hair of the occiput, and form a low crest on the top of the head. The hair of the fore-arm is directed partially towards the elbow; like that of the body it is long and coarse, and though perfectly black,

has not the glossy appearance of the quata's covering. The face is nearly naked, and tan-coloured; the palms of the hands, soles of the feet, and callous part of the tail, are violet black, and the whole skin beneath the hair appears to be of the same hue. According to Humboldt, who discovered this species on the banks of the Amazon, the male and female differ in the colour of the circle which surrounds the face, and which he describes as yellow in the former and white in the latter. A young male, examined by M. Geoffroy St. Hilaire, did not present this difference: but, as in many other instances, it is probable that the young males of this species have at first the colours of the female, and that it is only on attaining their adult state that they assume those marks which distinguish their sex. It appears also that individuals differ considerably in the extent as well as the colour of this circle. The specimens described by MM. Humboldt and Geoffroy had it entirely surrounding the face; that examined by M. F. Cuvier had only the hair of the cheeks and forehead white; and, finally, there is at present a female in the gardens of the Zoological Society of London, in which the latter part alone differs in colour from the rest of the head. In this individual the hair of the forehead is much shorter and more thinly scattered than on other parts; it covers the whole extent of the forehead, is turned upwards, and is of a silvery-grey colour, whilst that of the surrounding parts is deep black. The disposition and manners differ in no respect from those of the quata.

3. The Cayon (*A. ater*, Cuv.) is considered by MM. Geoffroy and Desmarest as a variety of the quata; but M. F. Cuvier, from observations made upon the living animal, has recognised and described it as a distinct species. It must however be confessed, that it approaches so nearly to the quata as to render further observations necessary to determine the question of their specific difference. The size, form, and colour are the same in both, and the only marked distinction reported by M. Cuvier consists in the colour of the face, which is black in the cayon and copper-coloured in the quata. 'The hair,' says M. Cuvier, 'is long, and of a harsh silky quality. It is rather shorter on the head and tail than on the rest of the body, where it falls backwards in the ordinary way, but on the head it is directed forward, and falls over the face.'

4. The Marimonda (*A. Belzebuh*, Geoff.) has the top of the head, the back, sides, and external surface of the extremities black, and all the under parts, the cheeks, throat, breast, belly, inside of the limbs, and under surface of the tail for its first half, white, with a slight shade of yellow. The naked parts are violet black, except immediately about the eyes, which are surrounded by a flesh-coloured circle.

This species, according to Humboldt, replaces the common quata in Spanish Guayana, where it is extremely common, and is eaten by the Indians. 'It is,' says this celebrated traveller, 'an animal very slow in its movements, and of a gentle, melancholy, and timid character; if it occasionally bites, it does so only in its fits of terror. The marimondas unite in great companies, and form the most grotesque groups. All their attitudes announce the extremity of sloth.
I have frequently seen them, when exposed to the heat of a tropical sun, throw their heads backwards, turn their eyes upwards, bend their arms over their backs, and remain motionless in this extraordinary position for many hours together.

The young of this species appear to have the upper parts of the body mixed slightly with grey, but this mixture gradually disappears as it grows towards maturity, till the adult animal presents the uniform black above and white below, as already described.

A. \textit{Arocynoides}, of which we are unacquainted with the native Indian name, is also a distinct species. The head, members, and tail are black, or dark brown, on the superior surface; the internal face of the arms and legs is of the same colour as the wings of the thighs, and legs, under the surface of the tail, the throat, breast, belly, and sides of the hips, are white or silvery grey; the shoulders are yellowish grey, and the remainder of the upper parts of the body, as well as the whiskers, are pure grey; the four hands and the naked part of the tail are black, as are also the face, the cheeks, and the under half of the nose; but round the mouth and eyes is flesh-coloured. The hair is uniformly of a silky quality: that on the black and white parts is of the same colour throughout, but on the grey parts it is annulated with alternate rings of black and white.

This species, as well as all those hitherto described, is entirely deprived of the fore-thumb, and does not even exhibit a rudiment of that organ. Only a single individual has been observed alive; its manners are the same as those of the stelae in general, but its habitat has not been definitely determined. A specimen preserved in the Museum of the Jardin des Plantes presents a distribution of colours which differs in some degree from what is here described; but it is not improbable that the difference arises in a great measure from the fading which naturally takes place in the colours of skins which have been long mounted and exposed to the action of the atmosphere, if indeed it be more than an accidental or individual distinction.

6. The \textit{A. Arocynoides}, or Brown Quatu, as it is called by Baron Cuvier, partakes, in fact, very much of the characters and appearance of the common quatu, from which it is principally distinguished by its uniform reddish-brown colour. This species, when full grown, measures rather better than two feet in length; the tail is about a couple of inches longer than the body; the fore legs are one foot nine inches long, the hind legs one foot eight, and the hand six inches. The hair is short, fine, and soft, and that of the forehead is directed backwards, contrary to what is usually observed in the other stelae; the back and upper parts of the body are generally speaking, well furnished, but the breast, belly, and groins are nearly naked, or at least sparsely covered with scattered hairs. It is of longer and coarser quality than those on other parts; the root of the tail is rough and thick, but towards the point, and, for the last ten inches, naked underneath. The general colour is uniform chestnut-brown, the first of these colours becoming clearer and more intense upon the head, and more especially the eyes; the body is directly bordered by a circle of stiff coarse black hairs, beneath which a semicircle of light silvery grey passes over the eyes in the form of a bow, and becomes gradually more and more obscure, till it is finally lost in the uniform reddish-brown of the temples. The face is naked and flesh-coloured, the under parts of the body of a silvery grey slightly tinged with yellow, with the exception of the abdomen, which, as well as the inner surface of the thighs, and of the inside of the limbs, is of a bright yellowish grey colour. The manners and habits of this species are unknown in its native forests; those which have been observed in a state of confinement exhibited all the gentleness and listlessness of character which distinguish the stelae from the common monkeys of South America, as eminently as they do the gibbons of the Indian isles from the other quadrumanes of the Old World. Except in the total want of the thumb on the anterior extremities, the \textit{A. Arocynoides} resembles the following species, and appears, indeed, to be intermediate between them and the common quatu.

7. The mono, or miriki (\textit{A. hyprencanthus}, Kuhl) inhabits the forests in the interior of Brazil, and, as has just been observed, approaches very nearly to the \textit{A. Arocynoides}, as well in the colour of its fur as in the general form and proportions of its body and members; but it is readily distinguished from that species as well as from all the other stelae hitherto described, by the presence of a small rudimentary thumb on the fore-hands. The face also is more uniformly covered with hair than in the generality of the other species, being naked only about the region of the eyes; the hairs which compose the eyebrows are long, black, and directed upwards; the cheeks, lips, nose, and a narrow line descending from the forehead, are covered with short hairs of a pale yellowish-white colour; the chin also is furnished with short hair of the same colour and quality, but intermixed with thinly scattered long black hairs, forming a species of beard, and extending over the upper lip in the form of thin moustaches. The ears are small and nearly concealed by the hair of the head, which though not very long, is thickly furnished, and of a pale grey colour slightly tinged with yellow. The whole body and members are of a uniform greyish fawn colour, only differing in the greater degree of intensity which distinguishes the back and upper parts from those beneath, and in the lighter grey tinge which predominates on the extremities. The backs of the fingers are hairless down to the very nails, and there is a rudiment of a thumb on the fore-feet, covered with a short compressed nail.

The mono was discovered by Prince Maximilian of Neuwied, during his travels in Brazil. It is the largest species of the quadrumanes which inhabit the part of the country through which that scientific traveller passed, and though sufficiently common in particular districts, appears to have upon the whole but a very limited geographical range. Its hide is said to be more impervious to moisture than any other description of fur known in that part of the world, and for this reason the Brazilian sportsmen have cases of the skin of the mono made to protect the locks of their guns from the rain.

8. The chamek (\textit{A. subpentadactylus}, Geoffry) is the last species of the genus distinctly known at present, resembles the mono in having a small rudimentary thumb on the anterior extremities, but it is without a tail, and in other respects the two animals are sufficiently distinguished by their difference of colour and habit. The chamek indeed approaches more nearly in external form and appearance to the quatu than to any other of its congeners, being furnished with a similar cost of long dense hair, of an intense and uniform black colour; but it may be readily distinguished from those species by the presence of the rudimentary thumb on the anterior members, as well as by its
size, which considerably exceeds that of the quatuor. It has a
protuberant muzzle, and its lips, like those of the quatuor,
are capable of protrusion; the forehead is high; the face,
cheeks, ears, and chin, are naked and of a brown colour,
with a few long black hairs thinly scattered over them;
the hair of the head is long, matted, and directed forwards
over the forehead, that of the body and neck thick; the
fingers, both upon the anterior and posterior extremities,
are long, slender, and nearly naked; the tail is considerably
longer than the body, very thick and covered at the
base with short, hard, pointed hairs; and it sits at right
angles to the body. The Atellana is about four feet long,
and entirely naked underneath.

This species inhabits Guiana and some of the neigh-
bouring provinces of Brazil. Von Sack, in his Voyage to
South America, describes its external characters under
the name of quatuor, with which species its general appear-
ance probably causes it to be frequently confounded.
The quatuor, says this author, is of a very docile disposition,
and capable of being quite domesticated: I have seen a pair
of them at a gentleman's house at Paramaribo, which
were left quite at liberty; when the female negroes were
employed at their needlework, they used to come and sit
amongst them, and play with a piece of paper, and after-
wards go out to gambol upon the trees, but never went over
to the neighbouring gardens; and they knew well the
usual hour of dinner at their master's, when they would
come back, and试剂 at the window, and appearing a
bit high with attempting to enter the room, being aware that
this was a liberty not allowed them; they therefore patiently
waited for their dinner on the outside.

ATELLANAE FABULAE, a species of comedy which
was not very much practised in the afterwards
and forgotten, was there
introduced at Rome, where it met with much favour.
The name of Atellana, or Atellana, was derived from Atella,
an antient town of Campania, now ruined, the site of which is
now two miles S. of the modern town of Avellino, and
near the village of Sant Elpidio. The Atellanae were also
known by the name of ' Ludi Oesi,' on account of the name
of the people among whom they originated. The Roman
writers were much addicted to their plays, and, in order to
the nature of these plays, of which no specimen has reached
us. The Atellanae seem to have somewhat resembled the
Greek Satyrion drama, with this difference, that, instead of
satyrs and other fantastic characters, they had real Oscan
characters, or actors speaking their own language, and
who were the representatives of some peculiar class or descrip-
tion of people of that country, much in the same manner
as the Brighella, Arlecchino, Folloncinia, &c. of the modern
Italian Commedia dell' Arte, who are continually represented,
in many of certain classes in their respective provinces, and
who speak each his own dialect in all its native humour. Indeed
these modern macchere, as the Italians call them, may be
considered as the successors of the old maccheres of the
Atellana. One of these Oscan characters was Mac-
chus, a sort of clown or fool. There were others called
Buconecci, i.e., babblers, empty talkers. (Diomede de
Grammaticis, lib. iii.) The Atellanae had a mixture of high
and low, pathetic and burlesque, without however degenerating into triiviality
or buffoonery. They seem to have been a union of high
comedy and its parody. They were also distinct from the
performances of the mimi, who indulged in squarities and
in obscene jokes and gestures. (Cicero, Epistula ad Popp.
riae, lib. ii.) There is no more connection between the
Atellanae and the mimi; ' the latter made use of the Roman
language, and not of the Oscan, like the Atellana; the performances of the mimi consisted of one act, while the plays of the Atellanae had (intermezzo with exodia (interludes consisting of songs) between the acts;
lastly, the mimi had not the accompaniment of the
tibicines, nor of vocal music like the others.' Valerius

The Atellanae were performed by Roman citizens, who were
not thereby disgraced, like the common mimi, or actors;
their names were erased from the lists, and they and they
were not obliged to take off their masks at the will of the
audience. In course of time, however, and in the
general corruption of morals under the empire, the
Atellanae degenerated; and long since had appeared in them,
and they became as loose in their language as the
performances of the mimi. This may explain the
different judgments given of the Atellanae by different
writers. Thus, for instance, or interludes played before the
plays of the Atellanae are mentioned by Seneca (Sat. 77),
and Suetonius quotes from one of them a line in which
Tiberius is alluded to as an old goat; the pun resting on
the word capris, which means goats as well as the island
of Capri, or Caprrae (Capri). When Caligula or Galba entered Rome, an actor in one of the Atellanae began
singing the first line of a familiar tune: ' Venit o Simius
a villa, i.e. the baboon is come to town, which the audience
immediately took up, and continued the song in chorus,
repeating the first line as a burthen.

The Atellanae were written in verse, chiefly iambic, with
a frequent recurrence of tribrachs and other trisyllabic feet. Lucius Sylla, the famous dictator, is said to have written
Atellanae. Quintus Novius, who flourished soon after
Sylla's abdication, wrote about fifty plays of this kind:
the titles of some of them have come down to us; as
Macchus Exilius, Macchus in Exilia, and Macchus in
Vindemietarium, or the Vintageurs; Gallinarum, or the
Deaf Man, &c. Lucius Pomponius of Bononia, who lived
about the same time, wrote Macchus Miles, i.e.
Macchus Soldier, the Pseudum Agamemnon, &c. The At-
ellanae appear to have been esteemed by no less
Tullius Mummianus, mentioned by Macrobius, who however
does not state the epoch of the revival. They were, as we have
seen, in full vigour under the emperors. (Scaiger, Poetices,
lib. vi. c. 26.)

A TEMPO, in music (Ital. in time), signifies, that
after any change in motion, by retardation or acceleration,
the original movement is to be restored.

ATH or ATH, a handsome town in the kingdom of
Belgium and the province of Hanegouwen (Hainaut), on
the Dender, an affluent of the Schelde, 50° 30' N. lat.,
3° 46' E. long., and 32 miles W.S.W. of Brussels.

This town was enlarged and strengthened by Albert of
Brabant, Count of Flanders, who had taken Ath from the
French taking Ath, it was strongly fortified by Vauban:
the French lost it again in 1678. The Hôtel-de-Ville is a
handsome building, and the spire of the church of St. Julian
is also much celebrated in Ath, as being one of the
most bomb-proof magazines. It has also a college with
150 pupils at present, a school of design, a school for poor children
of both sexes, and eight private schools: it has also an hospi-
tal, a theatre, and an establishment for orphans. The
manufactures are caps, hats, Several kinds of
bleaching, and asbestos cloth. It carries on also some trade
in grain, and in the products of the neighbouring county,
among which are tobacco, poppies, and rape. The popu-

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ATHALIAH. The name Ἀθαλία, or Ἀθαλία, means whom the Eternal remembered.

Athaliah is considered to be the daughter of Ahab, king of Samaria; 'did evil above all that were before him,' and of his wife Jezabel, the daughter of Ethbaal, king of the Zidonians. She is also called the daughter of Omri, who was the father of Ahab; but by comparing the various passages, it is ascertained that she was the daughter of Ahab, and grand-daughter of Omri.

Athaliah became the wife of Jehoram, king of Judah, who walked in the idolatrous ways of the house of Ahab, for 'he had the daughter of Ahab to wife, and he wrought that which was evil in the eyes of the Lord.' Jehoram died in the year n.c. 885, and the kingdom devolved upon Athaliah his youngest son. Athaliah reigned one year. Athaliah, who possessed much influence in the government of her son, used it for evil purposes. On the untimely death of Athaliah, Athaliah conceived and executed the horrid purpose of a general massacre of all the male branches of the royal family. 'She arose and slew all the seed-royal of the house of Judah;' thus, by imbraining her hands in the blood of her grand-children, she completed the work of devastation which Jehu had begun.

Athaliah ascended the throne which she had thus rendered vacant n.c. 884, and reigned during six years. In the seventh year of her reign the sound of a young virgin, belonging to one of the precincts of the temple reached her ears, and the acclamations of the soldiers and priests proclaiming a king, brought Athaliah in person to the scene of tumult. She there found, to her terror, the consternation and sorrow of Judas with a crown upon his head, and acknowledged as sovereign of Judah by the assembled multitude. Jehoeshua, the daughter of Jehoram, king of Judah, sister of Athaliah (2 Kings xi. 2) and wife of Jehoiada the high-priest, had saved an infant from the general slaughter of the royal race, and had concealed him during six years within the temple, guarding him so carefully that no notice of his existence had reached Athaliah. When Josiah had attained the age of eight years, Jehoiada assembled the priests and soldiers, and producing Josiah before them, presented him king. Athaliah, on reaching the crowd, endeavoured to excite a reaction in her own favour, by raising a cry of 'treason,' but in vain, for Jehoiada gave instant orders that she should be removed from the sacred inclosure and slain.

The command was immediately obeyed, n.c. 878. (See 2 Kings ix. 25; xi. 2, 2 Chron. xxix. 5, 7—12; xxii. 2—10; xxiii.) The discovery of Josiah is the subject of a fine narrative by St. Jerome, written at the instance of Madame de Maintenon, to be performed before Louis XIV. by young ladies of well-esteemed families, educated in the seminary established by Madame de Maintenon at St. Cyr. The tragedy was composed for the express purpose of affording an emblematic representation of the purifying process by which God purifies His people—a process which is sometimes very painful and which is always very important.

ATHANAGILDE, a captain of the Spanish Goths, revolted against his king, Agila, and being joined by the Roman force from Gaul, sent by the emperor Justinian, was defeated and killed Agila, near Seville, A.D. 554. Athanagilde was then proclaimed king of the Goths in Spain. He afterwards quarrelled with his Roman allies, who were disarmed, but not successfully. He retreated into Spain. He reigned, however, fourteen years over that part of the country which was occupied by the Visigoths, and his administration has been spoken of by the historians as firm and judicious. He had two sons of letters, one of whom, Giselbert, became a marriage to Chilperic, the French king of Soissons; and the other, Brunehaut, married Siegbert, king of Mâcon, or Austrasia, and became famous in French history. [See Bau- \n
ATHANAGILDE died an untimely death. An interregnum was succeeded by Liuba. Mariana, in his History of Spain, mentions a village near Guima- raes, in Portugal, which was still in his time called Athanagilda, having been built during the reign of this king.

END OF VOLUME THE SECOND.