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VOLUME II.

ANDOCIDES—ATHANAGILDE.

LONDON:
CHARLES KNIGHT, 22, LUDGATE STREET.
NEW YORK; WILLIAM JACKSON, 53, CEDAR STREET.
BOSTON; MUNROE AND FRANCIS, 128, WASHINGTON STREET.

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ANDOCIDES, the son of Leogoras, of a noble Athenian family, was born about B.C. 469. 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. 415) Andocides was involved in the charge of mutin- lating the Hermès, (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 became on good terms with the king of Cittium, 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 attacked 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 once more compelled to quit the place to go into exile. On thecreations (1753), in birth, Treaty warrants by Thrasybulus, (B.C. 405,) 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 Lacedemon on the subject of the peace (τις εις την ημιατηρας), in which affair he conducted himself in such a way as not to venture back to Athens. This peace has been conjectured 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 that 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 Peace with the Lacedaemontians; and that 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 (1756), in that by Reiske, and in the later edition of Bekker. They are also in Dobson's collection (1828), with the Lecionum Andocideus of Shutier, 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 Moncat, 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 Puigcerdá, by Talarn on the west, and on the north by the Pyrenees and the county of Foix, in France. The rivers Balir, Ondino, 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 pastureage. At Caldes, 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.

The kingdom of Andorra is an independent republic, and though in double 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 Viziers, 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 Sisibertus, 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 parish in the N.W. part of the county of Hants, and on the border of the downs which stretch 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, Andesforan,) i. e. ferry, or passage over the river Ando. 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 chapelry of Focke, annexed, is in the patronage of Winchester College.
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 Merrimac River. It is in Middlesex County. Its history begins in 1638. It is divided into three parishes, and has some considerable manufactures. The north parish contains the Franklin Academy, and the south portion the Theological Seminary, and colored schools. Andover has a high school, and a local seminary opened in 1808; it has four professors and (in 1831) 139 students, with a library of 10,000 volumes. The whole number that has been educated here was (in 1831) 314. This establishment has acquired some celebrity from the fact that in 1790, it was the place of residence of the celebrated John Adams, president of the United States. The population of Andover in 1820, was 399. (Encyclopedia American.; Journal of Education, No. x. xi.)

ANDRE (ST.), or ST. ENDRE, the capital of a lordship in Hungary, in the circle called the Hither Danube, and in the department of Pest; 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 one church to every 200 families. This singular circumstance originated in the immigration of the Serbs under Leopold I, each sect of whom founded their own place of worship.
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 disguised and bearing a false name was considered as taking from his service, cheating, entering the lists of a party in which both these points he had acted in obedience to the commands of Arnold, under whose orders he was while he bore his flag of truce. The decision of the court-martial, though the result was to rank it as a pardonable, sometimes as a false, the prisoner ought to be considered as a spy; and he was accordingly sentenced to be executed. Both entreaties and remonstrances were employed to bring the men of his own profession to his feeling. But as 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 resignation to his fate, and does not after his condemnation 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 morning of the 15th of October, he perceived that he was to perish on a gibbet, he exclaimed, 'It is but a momentary pang, and will be the first consolation to his feelings.' He died with the respect even of those who did not comprehend the necessity of obliging 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 gallant officer, he has restored to 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 as that of André, there is no good sail for conduct to say that he acted under the orders of an officer whom he knew to be 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 assumed that persons not to be trusted, being despised, might even under whatever such 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 stripped of everything, he had concealed the picture of Honorina S—— in his inner pocket. After his execution, the picture was found. Having been informed of the event, had died of consumption only a few months before.

This unfortunate officer was a person of cultivated mind and refined spirit; but, not content, he cultivated the culture of music, and was also a despicable writer of verse. His humorous poem, entitled the Cow-chase, which appeared in three successive portions at New York, in 1786, the last being published on the very day on which his author was taken prisoner, is a production of derided talent. It is in the style of Cowper's John Gilpin, which celebrated poem was not written till some years later. For further particulars respecting the subject of this notice, see Miss S—— in her valuable work called the Death of Major André, London, 1781, from the notes and letters attached to which we have taken most of the facts of his private history; a publication by Joshua Ewart Smith, Esq., (the person who acted as his guide on his return to New York,) entitled An Authentic Narrative of the Cause which led to the Death of Major André, s——, London, 1809, and an elaborate article in the Encyclopaedia Americana, under the head of Arnold, British Spy.

ANDREA VANNUCHI, called DEL SARTO, from the occupation of his father, a tailor at Florence, was born in that city, in 1486. He was initiated in the principles of design by Giovanni Barile, and he studied subse- quently at the school of Pietro Cosimo. He learned less from these masters than the mechanical practices of his art, but in the frescoes of Massochio and Ghirlandajo, and in the cartoons of Michel Angelo 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, which he painted a short time after his return from independent reputation, 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 artery of the Academy, was painting so well that, excited by 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 Raffaello, he felt so humiliated, that he returned immediately to Florence, not daring to investigate 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, dividing his attention between the study of Michel Angelo, Raffaello, 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 last of the series of 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 1529, the soldiers having got possession of the prints, and had exhibited them in the monastery, on entering the refectory were struck with such reverence at the sight of the painting, that they remained a while motionless, and then returned, without committing any furth- er injuries.

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 poetical troubles of his country, which rendered the pursuit of art a precarious and unprofit- able employment, induced Andrea to embrace with eagerness the proposal of the French monarch, and he set out for his court, where he was received with the most flattering demonstrations, and rapid and respectful, which performances was 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 circumstance 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 demonstrations 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's illustrious 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- measured; he was in his youth a model of moral firmness, which, beginning in weakness, too often ends in vice. His wife was imprudent, and he was surrounded 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 that also which the monarch had consigned to him for the purpose of selecting objects for his museum. Of course, he never returned to France. Indigence came upon him, and his poverty was so great that the consciousness of ingratitude towards his royal benefactor, was aggravated, not only by the desertion of his gay friends, but by that of his wife also, who fled from him, leaving him a prey to despondency and distress. His affairs 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 out of Florence, but they abound in the churches, convents, palaces, and apartments of that city; so various it is difficult to say what was the natural bent of his mind. He was not incapable, when the subject demanded it, of impressing his works with an air of stern magnificence, and such a talent as the effect of chiaro oscuro; but his more general characteristics 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
of Leo X., by Raffaelli, 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 pictures of Andrea, though 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 repose on a sack of corn. The penicrafts of Andrea have asserted that if he had studied longer in Italy he would have probably have rivalled the works of Raffaelli 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 piling up glories, and that his name has kept itself amidst all the revolutions of taste, during a lapse of three hundred years.

ANDREASBERG, (Mount of St. Andrew,) the second in importance of the mountain-towns of the Upper Harz, is six miles from the most elevated peaks, and is the scene of the Tessinerberg Loo, a summer residence of the crown, and contains an eminence which stands at an elevation of 3936 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 yarn, lace-making, and the rearing of cattle, afford profitable employment to its inhabitants, who are above 4000 in number. It has a public school for the middling classes. In 1728 a piece of silver ore, weighing eighty pounds, was found in the district; but it has since been lost. In 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 the highest peak at which the Harz rises.

ANDREW, (or ANDRESWA,) also called Endery or Endri,) is a principality of the Kumikian Tartars, lying along the Kasna, between the river Akasi and the Caspian; about 25 miles west of the last-mentioned sea. It forms at present one of the districts composing the government of Caucasus in Russia in Asia, and embraces the peninsula and gulf of Agrassianski. Its surface presents an intermixture of fertile plains and arid wastes of sand; produces linseed, hemp, tobacco, and cotton; and is watered by the rivers of Wena and springs of naphtha. Andrewes was likewise the name given to its capital, and is the mart to which the Caucasus tribes resort for the purpose of disposing of the produce of their deprivations. It is an open town, situated on the Akstah, at the foot of Mount Tschmin, 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.

Andrewes was, not long since, an averted asylum for all the vagabonds and freebooters in the Caucasian regions, 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 proverbial position with the seat of the school, to which the Circassian Mollachs 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 own people, with the means of being 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.

ANDREW, SAINT, one of the apostles, brother of Peter. His name is found in the chapter of St. John's Gospel, he appears to have been one of the followers of John the Baptist, whom he left at the call of Jesus, being the first disciple whom the Saviour is recorded to have received. Andrew introduced Peter to Jesus. According to St. Matthew and St. Mark, Jesus found Peter and Andrew together, following their occupation of fishermen, as he was walking by the sea of Galilee, and called them, when they immediately left their nets and followed him; and as, according to the Gospels, he had been with Jesus some time after the first interview recorded by St. John, that evangelist mentions Andrew as the disciple who intimated the presence of the lad with the few loaves and fishes, when the miracle of feeding the five thousand was performed. Such is nearly all that is stated respecting this apostle in Scripture.

The ecclesiastical historians, however, have professed to give its accounts in considerable detail of the latter part of his life. According to Theodore, he lived himself for some years in journeying and preaching the faith throughout Greece; but Eusebius, and other writers, speak of Scythia as the province of his missionary labours. The complaint statement, however, is by no means certain. After the death of Patro, now Paris, in Achaea, having been put to death by order of Eusebus, the pro-consul of that province. The year in which this event took place is not mentioned; but both in the Greek and in the Latin church the festival commemorating his death, kept on the 29th November, under the name of St. Andrew, is reckoned. The mention that St. Andrew suffered on a cross of the form of the letter X, appears to be of considerable antiquity; but the oldest written say that he was nailed to an olive-tree. They used to keep in the church of St. Andrew, at Marseilles, what was affirmed to be the very cross on which he had been suspended; it was enclosed in a silver shrine, and was of the common form, that is, with one limb perpendicular, and the other horizontal.

The Scottish Reformation delivers a legend respecting the relics of St. Andrew, which several of his countrymen have copied. In the middle of the fourth century, it seems, the bones of the saint, which still remained at Alexandria, were in a state of decay, and extremely rare; and in other accounts style him, a bishop of the Greek church. In the year 345, the Emperor Constantius II. gave orders that these precious remains should be brought to Constantinople; but on the third night before their being taken, it was revealed to Regulus, and ordered him to abstract from the chest in which they were kept the upper bone or one of the arms, three of the fingers of the right hand, and the pan of one of the knees. Some accounts say that the last of these was also done as he was commanded, was, some years after, directed by another vision to take his departure, with the relics, from Patro; and, having accordingly set out, he was, after
A long voyage, shipwrecked with his companions in the bay of the Soke, for their parting with them. A voyage to 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 missioners landed. On the dedication of the church 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 assumption of St. Andrew as its patron, as is set out in ancient records.

Several of the fathers, but none earlier than the seventh century, cite a book called the Acts of St. Andrew, professing to be written by that apostle, but which they contain as a forgery of the Manicheans, or other heretics. The book is entirely apocryphal, but professing to be written by the priests of the Church of Achas, and entirely different from the former. It may be found in the sixth volume of Surius's Fidei Sacrorum, and in other collections indicated by J. A. Fabricius in his Codex Apocryphi Novi 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 holiness is represented as sixty seven years, and now exists.

ANDREW, (St.) [See IREA or BOURBON.]

ANDREWS, (St.) an ancient city of Scotland, on the coast of Fifeshire, and on the small bay of St. Andrews. The direction of the side of the bay on which the city stands is W. S. W., and St. Andrews is open to 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 some respects, healthy, or liable to rheumatism, or have weak lungs. Since the establishment 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 2000 tons. The residence of the theological students. On the '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 S. 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 or Street, are the principal. The main part of South Street, runs 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 is now, however, chiefly occupied 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 it sixty seven bakers and 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: 'Of all its streets is now lost; and in those that remain, there is a W. and E. solitude of inactive indigence and gloomy depopulation. By the exertions of individuals, however, a considerable revival has been effected, and many additional improvements have been made upon the place. It is now a town of sixty persons, and is still the scene of the usual coastingtrade. 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 sombre 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 rather rebuilt in 1797. It is 162 feet long, and 63 broad, and will accommodate 2500 persons: on the wall inside, is a monument to the memory of Archbishop Sharp, erected by his son, exhibiting, in rude sculpture, the murder of the unfortunate priest, and his praises in a long inscription. There is a spire to the church. The chapel of St. Salvator's college is a handsome edifice with a Gothic front, situated in North Street. Within is the handsome monument of Bishop Kennedy, the founder of the college, and the plate of 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 college, but this is not the case now. There are three dissenting places 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 one or two antiquities of local interest. The town is noted for its old and broad, and for the tombs of worthies buried in the churchyard. St. Andrews was made a Royal Burgh in 1149: the magistracy consists of a provost, a dean of guild, and four bailies. The town, conjunctly with Cupar, Anstruther Easter, Anstruther Wester, Crail, Kirkcudbright, and Pittenweem, 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 virtually 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 4500 annually are exported, which is sent to Edinburgh, Glasgow, and other places. Some ten or eleven vessels belong to the port, and are chiefly employed in the coasting trade; and eight or ten boats are engaged in fishing. 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 of students to the town. The charter of the Bishop Wardlaw was confirmed by the pope; and in 1421, further immunities were granted by King James I. of Scotland, and ratified by succeeding sovereigns. The seat of the college was moved from the two colleges of The, to St. Andrews College now stands, and was called the Pedagogium. St. Salvator's College was founded in 1455, or 1456,?7 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 professor, 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 a stone bridge 156 feet long, and a clock; 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 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 the principal fund. The above-mentioned hospital was made the seat of the college.

In 1747, it was found expedient to unite the two colleges. The joint establishment was accordingly transferred to

* A school had been tauched on this spot even before the foundation of the university, but it was superseded by that institution.

† Bishop Kennedy had to have a sum of ten pounds assigned for the college, and to have granted the first charter in 1455; the second charter is dated in 1456, and the college was granted the same various privileges as the college.

‡ Authority varies here — in Stirling's Statistical Account it is stated, that the parish was probably formed about the time of the erection of the college.
St. Andrews's and the buildings of St. Leonard's were sold, and everything into decaying.

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 sea had been made archiepiscopal in the time of Bishop Kennedy's success. The building was further enlarged by Bishop Beaton, 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 begun in the year 1578, the year in which it 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 substantially and tastefully repaired. The course of studies at 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.

The study of mathematics has always formed a principal branch of St. Andrews' College. In each of the colleges are lodging-rooms for the students, which have been for some time unoccupied; and there are bursaries or endowments, entitling the holders to a certain subsistence for many years. The United College, and seventeen to St. Mary's. (Journal of Educ. vol. iv. p. 35.) The students of St. Mary's pay no fees. The emoluments of the professors arise from their services, and are increased from time to time in addition. The number of students at the university was, in 1822-27, 320. (Journal 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 Dissenters, who are allowed to attend their own places of worship.

The revenues of the United College are somewhat more than $3000 per annum, including the sums received on account of rooms, the daily 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 1822, was rather greater than the expenditure, and amounted to above $1000. The university has little property distinct from that possessed by the colleges individually, except the library, which is entered to by the students, entered at Stationer's Hall, and contained upwards of 40,000 volumes in 1830. The officer of highest dignity is the chancellor, but his office is merely honorary: the rector (who is appointed by the principals, the professors, or the college) of theology, and natural philosophy is the acting head. He is appointed annually, and one of the principals, or of the professors of divinity or church history, must be elected. He is praeus of the sensus academicius, by which body, consisting of the principal and professors of each college, all the academical degrees are conferred. The flourishing trade once carried on in medical degrees has been given up. A grammar-school and a 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. 3 per cent. stock, for the establishment of a comprehensive seminary of education, the first of its kind, to be 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 of St. Mary's College, are nearly completed.

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The buildings for St. Andrews, are numerous and interesting. Those which are ecclesiastical stand nearly together just by the harbour. The most antient is the chapel, (founded about forty years B.C. of the cathedral,) the foundation for the number of priests belonging to St. Andrews was first thrown by Hugh de Regulus, alias Regulus de Regula, the most called St. Rule,) the trinity founder of the place, but which is probably 1000 years old at least. The story is, that a holy monk, the abbot of a monastery at Patro (Patras,) in Achaia, having been warned in a dream to depart without delay to an island called Alben, situated in the farthest extremity of the Western world, set sail with seven monks and three nuns, carrying with him some relics of St. Andrew; and on his arrival in the bay now called St. Andrews, (the shores of which are covered with wood, and infested with huge wild boars,) and lost all except his companions and the precious relics. He succeeded in converting the King of the Picts, who then governed this island, and afterwards of the country, by the good advice on by the bishops appointed by St. Rule, the and the grateful prince erected for the saint the chapel of which the ruins still remain. They consist of the walls of the chapel, including an area of thirty-one and a half feet by forty-five, and the greatest dimension from east to west.

The west is the door, a square building with a base of twenty feet each way, (measured outside of the walls,) and 105 feet high. There is no trace of the Gothic architecture in these ruins, which are doubtless very antient. Adjoining the eastern side of the tower was another chapel of which no part remains.

The cathedral of St. Andrews was nearly 160 years in building, (a.d. 1159, or 1261 to 1326,) and was demolished in one day. In June 1659, by a and excited by a sermon of the celebrated John Knox. The eastern gable with its two towers is, however, still standing, and there remains also one of the towers of the western gable, part of the south wall from the western gable to the south transept, and the whole wall of the south transept between two feet high from the ground to the summit; they rose considerably above the roof of the church. The architecture varies, Saxon and Gothic (or late Norman and early English) being the most prominent; and the building is ancient, and in a much richer and more ornamented style than the other; and exceeded it in width by ten or twelve feet. The length of the cathedral, as nearly as can be estimated from the unvenness of the ground, was 350 feet, (Sinclair's Statistical Account of Scotland,) or 372 feet (Grierson, and Beauties of Scotland,) and the breadth of the transept from north to south was 160 feet, (Sinclair's Statistical Account of Scotland,) or 160 feet, (Grierson.) The stone is by no means of so durable a nature as that of which St. Regulus's chapel is built; and the dissolution has been further increased by the use of the materials for later erections. The ruined church of St. Leonard's adjoins the cathedral to the north.

An extensive wall about 870 yards in length, twenty-two feet high, and four feet thick, with sixteen round or square turrets at different distances, was erected by Prior Hepburn (the founder of St. Leonard's College) in the beginning of the sixteenth century, to enclose for nearly the whole of their circuit the grounds of the great priory of St. Andrews, which had been erected about a.d. 1120. The enclosure is about eighteen acres, and contains the ruins of the cathedral and St. Leonard's College, the buildings and other buildings belonging to the priory. This wall having been constructed of durable stone is tolerably entire, and has three gates still standing; one, a stately gothic arch, fronts the end of South Street.

There are in the priory of St. Leonard's relics of two monasteries, one of the Dominicans, founded by Bishop Wishart in 1274, and the other of the Observantines (a species of Franciscans), founded by Bishop Kennedy at least 156 years later. Part of one of these edifices, though it is not decided to which of the orders it belonged, is used for the grammar-school, and stands in South Street, about 200 yards from the west port; it has, however, been entirely modernised. Another fragment of the same convent with an arched roof, is, perhaps, the most beautiful specimen of pointed architecture in St. Andrews. The other convent was about 100 yards from the west port of North Street outside of the town. Both were demolished in consequence of Knox's preaching in June, 1569, when he was in Edinburgh.

On the shore of St. Andrew's Bay, on a ridge or cliff, washed on the N. and E. sides by the sea are the ruins of the castle, which serves as a land-mark to seamen. There are some parts of the walls standing on the N. and E., but others have fallen from the encroachment of the sea, which has here gained considerably on the land, while a little N.W. of the castle, (on the Links,) as we have seen, before a.d. 1520, the town of St. Andrews, the north-west corner is entire. This castle was built by Bishop Roger about a.d. 1200, and subsequently enlarged. In 1336, it was taken and garrisoned by Edward III. of England; re-taken the following year, and nearly demolished. Bishop Trot laid the foundation to the end of the fourteenth century, and it became the episcopal residence. It was
He died at Winchester-house, in Southwark, on the 25th of September, 1626, and was buried in the church of St. Ed- ward's, where a handsome marble monument, bearing a long Latin inscription, was erected over his remains. His tomb was opened, and his coffin disclosed, in the course of the recent repairation of the church.

The principal work which Bishop Andrews published during his life was a thick quarto volume, printed in 1609, with the title Tormentis Totidem; being an answer to a treatise in which Cardinal Crichton, Bishop of Dunkeld, had attacked 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 eccle- siastical. Andrews, being pleased with the public demand of his 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 Year, and a Manual of Directions for the Visitation of the Sick. After his death, a volume, containing nineteen 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 1622. His work, entitled The Moral Law Expounded, or Lectures on the Ten Commandments, was first published in 1642. His Aregnum- paria Sacer, or Collection of Posthumous and Orphan Lectures delivered at St. Paul's, and St. Giles's Crip- plegate, two volumes, appeared in 1648. 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 Kings inclusive.

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 fantastic figurations, 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 elegant writing, or good taste, or admirable sentiment, or puérile 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 admired for his style, 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 to compete with him, volubly and unconsciously 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 Felton,' he says, 'his contemporary and colleague, endeavoured in vain in his sermons to copy a style in which the name of himself and his master, I had almost marred my own natural tone by endeavouring to imitate his artificial simile.'

Bishop Andrews was all his life a hard student, and is stated to have made his self-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 his own tutor, and studied in a branch of science with which he was before unacquainted. Casaubon, Cluverius, Grotius, Vesalius, and other eminent scholars of the time, have all highly eulogized his extensive erudition, which, as we went, it appears, to overflow in 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 Waller, the poet, prefixed to his works. Waller having one day gone to see Bishop Andrews, there met the bishop, then Bishop Neale, Bishop of Durham, standing behind the king's chair, and overheard the following conversation; 'His majesty asked the bishops,—My lords, cannot I take my money's worth?—My vicar,—Why, it is a question about all this formality in parliament? The Bishop of Durham, seeing the king seated at the table, and with a kind of smile, said, 'God forbid, sir, but you should; you are the breath of our nostrils. Whereupon, the king turned, and said to the Bishop of Winchester, Well, my lord, what say you? Sir, replied the bishop, I have no skill to judge of parliamentary cases. The king answered, No put off, my lord; an-
ANDRONICUS was the advocate of the Jews under the reign of Ptolemaeus Philometor in their proceedings against the Samaritans in Egypt, who, by asserting himself in the sanctuary of the temple on Mount Gerizim, or Gerizon, against the temple at Jerusalem, occasioned a controversy which terminated in bloodshed. The Egyptian Jews (although they had built, about the year 156 B.C., a heretical temple of their own in the same place) referred the controversy to 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 appealed to the King, Ptolemaeus Philometor, who pronounced 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, Sahhâb (Sabbatus), and Antistius, on the contrary, were put to death. The arbitrary administration of justice in those times, and the character of Ptolemaeus Philometor, render this account not quite incre-
dible. (See Josephus’s Antiquities, lib. xiii, cap. 7, ed. Aurelius Alschah, p. 434; and Jost’s Geschichte der Juden, vol. ii. pp. 308, 309.)

ANDRONICUS COMMENUS, emperor of Constantinople, was暴风沙and of Andrews, by whom he distinguished himself in the army under his father, the Emperor Manuel, against the Turks and Armenians, but having entered into a treacherous correspondence with the King of Hungary, he was arrested and confined in a tower of the palace, where he remained twelve years to contrive to escape, and after several romantic adventures arrived at Kiew, in Russia, where he won the favour of the Grand Duke Jerusaleus. Like Alcibiades, Andro-

nus was said to have have a most 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 forsook the palace, and accompanied her lover in his early campaigns. Andronicus, in his exile at Kiew, became instrumental in forming all the alliances by which Russia, 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 assisted the Poles and Hungarians at the siege of Semlin. After the peace, having returned to Constanti-

nople, 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 procured a divorce of the marriage, and the release 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 Alexis 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 Andro-
nicus with his own sister-in-law; and Andronicus, being obliged, to leave Philippa, undertook a pilgrimage with a band of adventurers, a pilgrimage to Jerusalem, where he won the favour of Almeric, the Christian king of that country, and one of the successors of Godefroy de Bonillon. Andronicus, from his home in Constantinople, received from him the principalcy of Baroet (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. Andro-
nicus 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, and thence he travelled through the parts of the east, 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 exiled by the emperor. The Emperor Nourreddin having found means to seize Theodora and her two children, and send them to Constantinople, Andronicus, in despair, made his submission to the emperor, and repair-
ing to Constantinople, sued for pardon in the most abject manner. He was banished to Crete, then to Russia, 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 succes-
sion. The emperor, indignant at the unfaithfulness of and the principal patriarchs 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 Alexis as emperor, but arrested the emperor-heir, he had been in some measure the cause of the troubles. Andronicus was associated in the empire as colleague and guardian to Alexis. He then developed his ambitious views. He first caused the empress-mother to be tried on a false charge of treasonable complicity, who sentenced to death, and was strangled, and her body thrown into the sea. He next murdered young Alexis himself, and then assumed the undivided authority as emperor in 1183. He married Agnes, the widow of Wenceslas of Bohemia, who was still almost a child. ‘Andronicus’s short reign,’ says Gibbon, ‘exhibited a singular contrast of virtue and vice; when he listened to his passions, he was the
scourge; when he consulted his reason, the father of his peace. On the private justice he was equitable and rigorous; he repressed venality, and filled the offices with the most deserving candidates. The provinces, so long the objects of oppression or neglect, revived in prosperity and plenty, and millions applauded the distant blessings of his reign. Athens, distinguished by its public and private cruelties. The ancient proverb, that bloodthirsty is the man who returns from banishment to power, was verified again in Andronicus. (Decline and Fall of the Roman Empire.) His son, Michael, whom he had left in Asia, and 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 empress and of her son. A wrangle of the name of Aaron, who had been secretary to the emperor in his absence, and who, on his return, 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 Propontis that were inhabited by the antient Greeks. 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 insulted and tormented in every possible way, eyes, ears, and hair were torn from him, and lastly, he was hung by the feet between two pilaris. In his painful agony he was heard to appeal to heavenly mercy, entreatying it 'not to bruise a broken reed.' At last some one ran a sword through his body, and put an end to his sufferings. This dreadful catastrophe happened in September, 1183; Andronicus was then past sixty years of age.

ANDRONICUS CYRHESTRIS, an architect who constructed, or, at least, a portion of which is stated to have been built, of the four remaining columns of antient Athens, commonly called the Tower of the Winds; the building takes its name from the figures of the eight winds being cut in relief on the exterior wall of the building, with their names above them on the frieze. (See Spenn, ii., p. 135; 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—namely, in the Etruscan reckoning, which builds 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 (metre), on which he placed a Triglyph. He erected a column from the top of this; 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. Colonel Leake is disposed to assign the date of this building to the second century B.C. The ancient Topog. of Athens; British Museum, Elgin Marbles, vol. i., p. 29.)

ANDRONICUS, LIVIUS. [See Livius.]

ANDRONICUS PALAULOGUS, the elder son of Michael, emperor of Constantinople, was raised by his father as his colleague to the throne in 1723, and after Michael's death in 1282, he reigned forty-six years more. The reign of Andronicus, like that of most Byzantine emperors, was marked by the continual alternation of domestic revolutions, 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 Cilician and other adventurers came to Constantinople in 1325, to give Andronicus their assistance against the Turks, but in fact to live at the expense of the empire, and to plunder both sides of the Channel. They defeated the Thryb'in Asia, but they ravaged the country, sacked Philadelphia, besieged Magnesia, which had a Greek garrison, seized Callinicum 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 1329, Michael, son of Andronicus, having died, Michael's son, Andronicus Palaeologus by birth, was of a younger, revolted against his grandfather; and after several years of a ruinous war, was crowned as colleague to the old emperor in 1325. Another sedition broke out in 1328, which ended in the deposition of the younger, and the retiral to a convent under the name of the monk Anthology. He died in his cell four years after his abdication, and in the seventy-fourth year of his age. He was a weak and bigoted, though not uncomelie, prince. It was during these last years of the two centuries that the Turks had repressed almost without resistance the conquest of all Bithynia and advanced within sight of Constantinople, while other Turkish emirs took possession of Lydia and Ionia and the adjacent islands. The seven churches of Asia was then consumed. Andronicus, the younger, attempted bravely to stem the torrent, but was defeated and wounded by Orchan, the son of Othman, who took Prusa, Nicaea, and Nicomedia. He was, however, spared the mortification of seeing the Ottomans despoiling the European coast. He died in 1341, in the forty-fifth year of his age, leaving by his wife Jane or Anne of Savoy, a boy, John Palaeologus, who was put under the care of the young heir to the throne, and of the Byzantine historians Gregorius, Pachymar, and Cantacuzenus; and Hammer, Geschichte der Osmnenische Reiches.)

ANDRONICUS RHOIUS, or 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 composed a treatise, published by David Hoeschelius, in 12mo., at Auggsburg, in 1594, under the title of Andronicus Rhodius Peripatetic Phanosphilus Iepi Iabov. In his preface, dedicated to the emperor, he mentions a third work, which he 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, on Aristotle's Nicomachean Ethics, probably so original from him. It was soon followed by the translation of the Nicomachean Ethics. 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 in the title-page. The inscription on the manuscript, he says in his preface, was evidently an illiterate hand; and he insinuates that there is no proof that Andronicus, although he arranged and indexed the writings of Aristotle, was the author of either of the two works above mentioned. Nevertheless, in which he refers to the other antient authors, besides Phe-
ANDROSCOGGIN, or AMARISCOGGIN, a river of New England, rises in about 44° 19′ N. lat., 71° 19′ W. long., bordering on the States of New Hampshire, Maine, 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 highlands. The river is about twenty-five miles south into a number of lakes, the chief and most western of which is Umbagog. The united waters forming a large stream flow from this lake in a north-easterly direction, and have been traced for about thirty miles, under the name of Amariscoggin. The river having reached the northern base of the nucleus of the White mountains, turns due east, and piercing the mountain-chain flows in this direction for fifty miles. Here it makes another bend at right angles, and ascends in a northerly direction to the latitude of 44°. Below this point, by a curving course of twenty miles south-east, then east, and finally north-east, it joins the Kennebec at Merry-meeting Bay, about thirty miles above Augusta, a branch of the Casco Bay. The entire course, measured along the windings, as given by the maps, is not less than 200 miles. Below the mountains, the river is called the Androscoggin; it has no large tributaries, but is increased by numerous rivulets, and, like the other rivers of Maine, is, for its length, a very large one. The tide ascends the Androscoggin to near Durimants, about thirty-five miles from the open ocean. Though obstructed by falls and shoals, like the Kennebec, both these rivers bear no great name for inland navigation: the chief article transported down them is timber. (See Darby's Geographical View of the United States.)

ANDUJAR, a town of Spain, in Andalusia, 36° 1′. lat., 4° 20′ W. long., on the right bank of the river Guadalquivir, 30 miles from Seville. It has a castle, a church, and a great market for inland produce. (See Darby's Geographical View of the United States.)

ANDUZE, 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, cloths, serge, silk stockings, pottery, and glass, which find a sale at the great fair of Beaucaire, in the same department. (See Darby's Geographical View of the United States.)

ANEGADA, 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 Ethyphytum, based on a submarine foundation. The island is for the most part a dead level. 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 the slow decay which has been going on for ages. The surface is elevated a little, by the sun's heat, 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 continually and of various widths, larger quantities of vegetable mould have been accumulated, in which plants grow of a

Andalusia, vegetable sale and about a gradual quarto.

[See the sweetening.]
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 favoured, being covered with sandy deposits thrown forward by the surf. The island is 275 feet forty feet high, and where they do not occur, detached masses of limestone and coral may be seen, many of which are upwards of thirty feet high. Behind these rocky hillocks some patches of productive soil are found, and these are cultivated 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 sea 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 Anegada are not numerous, but it 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. Anegada is chiefly noted for the numerous wrecks which have happened on the reef by which its windward or eastern side is bordered, and which, continues, under the name of the Horseshoe, about four leagues to the south-east, terminating seven miles from the east end of Virgin Gorda. The chief profit of the inhabitants consists in these shipwrecks and, except at 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 in the Turks.

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° 46' N. lat., and 64° 15' W. long. The population consists of eleven whites and twenty-one coloured and black families. (See Purdy's Columbian Navigator, and Journal of the Royal Geographical Society, vol. ii.)

ANEMOMETER, from the Greek language, signifying wind-measurer, is the 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 Elementa Mathematica, vol. ii. p. 319 (Geiser's edition, 1746). 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 second axis, placed at right angles to the first. To the periphery of this wheel is attached a bar, on which a weight is fixed, so that the sails 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 of the weight on the screw causes the motion of the bar to be equal to 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.

The principle of Dr. Lind's anemometer is as follows:—

A, a curved tube of glass, as represented in the figure, is partially filled with water. The bore of the tube is diminished at the bottom, as a check on the oscillation to which the water is subject from slight variations in the force of the wind. The wind acts upon the open end A, and depresses the water to B, until the moving force of a wind of 80 feet per second on a square foot is 12 ounces.

The following table, calculated by Dr. Hutton, who made some experiments with Dr. Lind's anemometer, at Woolwich in his Miscellanies, in his Math. and Geography Dictionary, may be used with that instrument, and indicates what velocity of wind corresponds to various differences between the levels.

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<th>Difference of Levels in ft.</th>
<th>Force of Wind in parts</th>
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Dr. Lind's anemometer, a bar, carrying a flat wooden surface at right angles to it, protrudes from a box, through a hole in the front of which it slides. This bar is met by a spring, which resists its further entry, until force is applied against the wooden surface. In the interior of the box, the under side of the bar carries rack-work, which plays on a cog-wheel, the axis of which, passing through a side of the box, carries a hand round a dial-plate. The flat surface of wood is presented to the wind, which presses upon it and forces back the bar, thereby depressing the cog-wheel; and being moved in an angle, greater or less, according to the greater or less impulse of the wind.

Various other contrivances have been proposed; but those which we have described contain their main principles. For a table of the force of winds, see AERODYNAMICS.

ANE'MONE is a genus of the natural order Ranunculaceae, in which are comprehended many beautiful flowers. It consists of lovely herbs, usually perennials, with white or purple, or scarlet, or even yellow blossoms, in which there is no distinct calyx, and which are succeeded by a cluster of grains, each terminated by a long silky feathery tail. As the species generally grow on open plains or in high exposed situations, their feathers acquire a singular shining appearance when waved by the breeze, whence it has been derived their name (from the Greek ἀνέμος), which literally signifies Wind-flower, the appellation actually bestowed by the English.

All the anemones possess, in common with other Ranunculaceae, the property of extreme acridity. The leaves of A. pulsatilla will raise blisters on the skin; if chewed, they produce irritation to the tongue and generally to the mouth, as well as those of A. pratensis, nearly related species. They produce nausea, and vomiting if administered in very small doses, on which account they have been strongly recommended by some medical men, in various complaints. The leaves of A. corona, a species of A. pratensis, are used to cure the lice in the head of children. The following are the most remarkable species:

1. A. pulsatilla or pasque flower; this grows wild upon exposed downs in various parts of England, as on the Bog-magog Hills near Cambridges, the heaths at Newmarket, &c. It has large purple flowers and finely cut hairy leaves; and it is very nearly the same as the A. pratensis, the use of which, in diseases of the eye, has been so strongly recommended by Baron Stoner and others.

2. A. nemorosa, the wood anemone; found abundantly in woods all over England, covering the ground with its neat white flowers under the shelter of bushes as early as March and April. It is an annual plant with small knobs, and a short stem having one or two smooth, bright green, deeply cut leaves. It is poisonous to cattle.

3. A. pavonina, the Peacock anemone; a native of the vineyards in France, among which, and in most of the southern parts of the south of Europe. This is not very uncommon in gardens, where it is, usually, but improperly, named A. stellata. It is known by its scarlet or scarlet and white flowers, which are usually double, and have their divisions very sharply pointed. In habit it is like A. corona, for a variety of which it is often mistaken. It is one of the handiest of the cultivated species.

4. A. corona, the common garden anemone. Found in a wild state in most meadows of the south of France, Italy, and Greece, and different parts of Asia Minor; Dr. Russell speaks of it as abundant near Aleppo. In these places it is seen only in a single state, but even then sporting into a
variety of colours, the principal of which are white, scarlet, and purple in different shades. In the gardens 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 consideration of the stamens and pistils of the single petals; they 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 vigour, or the greatest tenderness, to a 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 grower. One of the most following, has enabled the Dutch to improve the race of anemones so much as to obtain within a few years with stems nearly half a yard high, and with blossoms six inches across.

5. A. stellata; 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 stem than 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, indeed, from the nature of the plants, which have been well deduced from the consideration of the natural habits 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 manure 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 bunching 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 in the open air. 3. They thrive in 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 condition, the objects of counties have, by means of little force, and they are consequently not prepared to bear much exposure; for this reason, florists find it necessary to shade them, when they flower during the hot weather of our country.

Like all other rules in gardening, the above directions may be modified and departed from without any great evil; but if the object is to cultivate this class of flowers in the greatest perfection, and to improve their race, these rules will be found too important to be materially neglected.

For A. Hepatica, see Hepatica.

ANE/MOSCOPE, an instrument for determining the direction of the wind, usually constructed by connecting with the spindle a series of the hand of a dial on which the points of the compass are marked.

ANE/THUM. [See Fenricium and Pimpinella.]

A/N/ERIUM, is a Greek word (ἀνεμορούμενος), literally signifying, 'a widening, or dilation,' and is used in signifying the existence 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 corresponding disease in a vein is termed Va/rius.

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 tunic or coat, and are divided into three states or states of condition: the first is called the primary, or natural state, and it is only to a certain extent the impulsion 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 tunic to a preternatural extent, causing that great disproportion of the parts of the artery, represented as a tumour or bag. The distention of the costs of the artery progressively increasing, they are at last capable of no farther stretch-
The sac, as they often do, 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 disappear, and at length are so completely destroyed that not the least indication of the aneurism, when fully removed, and long after the tumor is small, it is unattended with pain, but the changes which it produces in other parts, such as the stretching of the nerves and the absorption of the bones, is something to be ascribed to the great extent of the latter, 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. 

Rysch relates that a friend of his, in the last stage of an aneurism, was not suspecting it to be an aneurism, and the hemorrhage, though suppressed at last, placed the life of the patient in the utmost jeopardy. A person consulted Boerhaave, who advised him to lean against it to allow 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, preparing to open it. If the ligature had been for the swelling of the limb, the characters by which the aneurismal swelling may be distinguished from all other diseases are given at great length in surgical books.

There 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. The principal arteries are subject to the predisinguss cause. 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 disease in a child only eleven years old, and that he has operated for it with 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 and the vessel and its branches by the sudden violent extension of an limb, as apparently to justify the common opinion that external violence is among the most frequent exciting causes of the malady.

The cause of the aneurism led him to believe that the spontaneous cure, already explained, is effected, this disease, when left to itself, uniformly proves fatal by the ultimate rupture of the tumor, in consequence of which the patient expires either instantly from the great and sudden loss of blood, or by degrees from oppressed toeses. 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, indeed, who believed that these arteries are 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 intervention of the physician, that the number of persons who have perished by this disease, from the beginning of the world to the time of Galen, it would help to convey some conception of the extent to which anatomical knowledge is the means of saving human life. The eventful death, the painful mitigation of the prenatural 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. The ligature is tied around the limb, and passing a ligature around it above 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 inflammation on the parts of the vessel, brought into close contact by the ligature, permanently adhering together, 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, the operation is completely abortive. The cavity 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 as close as possible to the seat of the aneurism; they laid open the aneurismal sac, yet gave whole extent, and scooped out the blood contained in it. The consequent was that a large deep-seated sore, consisting of parts in an unhealthy state, was formed; and it was necessary to apply a ligature which should support the arterial wall, 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 scarce found knowledge of healthy and of diseased structure, and of the laws of the animal economy by which both are regulated, which John Hunter had acquired from anatomy, suggested to this eminent man a mode of operating, the effect of which, allowing the preternatural vessel to be thin, is to support the sides of the aneurism, a process which the constitution was frequently unable to support. More over, there was a constant danger. But to this there was one capitall objection, namely, that it would often be necessary to apply the ligature around the main trunk of an artery, before it is divided into its branches, in consequence of which the parts below the ligature would be deprived of their supply of blood, and must therefore morify. He was well acquainted, however, with this danger, and suggested to the patient that it would be a sufficient supply of blood to maintain its vitality through the medium of its collateral branches only. By an opening in the ham, be, 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 near the exterior, and the collateral vessels of the external iliac are so near the skin, that though he had 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 the fibres of the muscle were thus taken off from the aneurismal sac, the progress of the disease would be stopped; that the sac itself, with all its contents, would be absorbed; that by this means the whole tumor would be spontaneously removed, and that an opening into it would be unnecessary. The most complete success followed this noble experiment; and the sensations which this philosopher experienced on witnessing the event constituted an appropriate reward for the application of profound knowledge to the mitigation of human suffering. After Hunter followed Abernethy, who, treading in the footsteps of his master, for an aneurism of the femoral, placed a ligature around the external iliac artery; lately the operation has been performed with success, in some tied 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 marked by it from certain and inevitable destruction. See Surgery; Hodges' on the Diseases of Arteries and Veins; Bell's Surgery; Abernethy's Surgical Works; Use of the Dead to the Living, &c., &c.
fifteenth century. The angel was originally a gold coin of France, where it was first coined, at least, by that name, in 1479. (See Duvaucel, v. Moneta, and Le Blanc, Traité des Monnayes de France, 4to. 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 with 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., whom 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 8s. 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 and the half angels of the finest gold; but it was 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 raising 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 surrounding the device. The reverse, from Edward IV. to Edward VI., bore the inscription, 'PER CRUCEM TVM SALVA NOSTRÆ CHRISTI REDemption.' The reverses of the angels of Edward II. and Edward III. bear, partly in length, and partly abridged, the sentence, 'A DOMINIC PACTUM EST IVDI ET EUST MIRAMILE IN OCVLIS NOTRIS.' Charles I.'s angel had on the reverse, AMOR PAVIVI PÆR SIVIVM REXS. Folkes (pl. xii., of his Gold Coins) has engraved a piece in silver, from the reverse only 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 VIII. are known from those of Henry VII. is, that in the former, the archangel Michael stands with his left foot upon the dragon; in the latter, the angel stands with both foot upon the dragon. In the collection of Lord Pembroke there is an angel-piece, but it is not certain that it was intended for a coin. The Angelists of Edward IV., and to Edward VI., and Henry VIII., have on the reverse, O CVXM AVE SPES UNICA. The angelists of Edward VI. have the same inscription on the reverse as the angel.

ANGELICA, a genus of plants belonging to the natural order umbelliferae; 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 esculent 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 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 yellow-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 blanched stem, with its leaves, form a very agreeable sweetmeat, possessing tonic and stomachic qualities. Its roots contain a pungent, aromatic, stimulating principle,
de Medici, and Michel Angelo was invited among other youth to study from the collection of antique statues arranged in the Medici gardens. It is said that the sight of these sculptured figures would have sufficed to turn a painter or sculptor; he began, not merely by copy, but by investigating the principles on which the Greek artists had wrought, and having found a head of a laughing faun, considerably mutilated, he imitated that part of it which was perfect, and reattached the limbs in progress, where he 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 Lorenzo, he executed for this illustrious patron his first work, the Battle of the Centaurs; he resumed the pencil also during this period, and made many studies from the works of Masaccio. Lorenzo died in 1492. His brother Pietro continued to patronize 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 bad government, the city on the verge of a rebellion, which was driven to 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 Medici Staircase; his loftiness, fouring of his gallery, and his whole approach to Rome, where it was shown as a piece of sculpture which had been dug up from a vineyard, and was pronounced by some connoisseurs to be a genuine antique, and superior to any yet discovered. His next work was the Depris, in which he was capable of producing. This statue having been purchased at a high price by the Cardinal S. Giorgio, the trick became known, and Michel Angelo's reputation was so much augmented by it, that the cardinal, though vexed at the deception, invited him to Rome. He devoted himself to his house, and his first residence in the imperial city, to intense study, and executed several works, particularly a Virgin weeping over the dead body of Christ, for St. Peter's church, which excited astonishment, not only by its excellence, but by the apparent familiarity with which the greatest difficulties of art were surmounted.

Several great works in art having at this time been projected by the government of Florence, Michel Angelo, at the earnest advice of his friends, returned to that city, and the first undertaking on which he exercised his talent was a gigantic statue of David, hewn from a solid block of marble. This work had been commenced some years previously by one Simon da Fiesole, who, finding that he could not bring it to a finish, gave it up, and then abandoned it in despair. The misshapen mass which had been thus left, Michel Angelo accommodated to a new design, and produced from it the sublime statue which ornaments the great square at Florence. The Gonfaloniere, Pietro Soderini, was now anxious to enrich the city with some grand production of Michel Angelo's pencil. Leonardo da Vinci had been commissioned to paint an historical picture for one end of the hall of the Ducal palace, and Michel Angelo was engaged to execute another at the opposite extremity. He selected a subject from the wars of Pisa, in which a number of men, while lusting in the Arno, are surprised by a sudden attack on the city, and start up to repulse the enemy. Trumpets are sounding; some of the women are weeping; others of furiously excitement to draw their garments over their wet limbs; others rush half clad into the combat; horse and foot are intermingled, and the whole scene breathes fierce and slaughter. This canvas was commenced, although Michel Angelo's genius has perished, but as long as it existed, it was studied by artists from all countries, and Benvenuto Cellini, a scholar and admirer of Michel Angelo, affirms, that he never equalled the execution of the men. It appeared to Michel Angelo at this time attained only his twenty-ninth year, and had not only established his reputation as the greatest artist of his day, but had created by the novelty and grandeur of his style a new era in the arts. Julius II., sated with the admiration with which his name had been held in this country, resolved, among other strong recommendations, to make himself, having now settled upon the papal chair, called him immediately to Rome, and commissioned him to make his monument, a work conceived on a scale which Michel Angelo felt to be commensurate to his powers. He made a design, which, had it been finished according to his original intention, would have surpassed in size, colour, beauty, and richness of ornament every ancient and imperial statue that had been seen, and which he shaped in a short time. The interior of the old edifice would not allow sufficient space for the monument to be properly seen, the pontiff determined to rebuild the church on a larger scale. While the monument was being designed, the church was not yet completed, and Michel Angelo laboured with a great deal of anxiety in order to carry it out; he begins to study, and inspect it; but the work was interrupted by an accident which clearly marks 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 slighted, he determined to have his complaints heard 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 Poggiofranci before five couriers had arrived from Julius commending his compliance, but Michel Angelo was inflexible, and continued his journey. On arriving at Florence, he set about finishing the cartoon of Pisa, but three briefs were dispatched to Soderini the Gonfaloniere, and Michel Angelo was requested to come to Rome, to undertake the work which had been commenced by 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 determined to dismiss Michel Angelo. The pope saw in him only pleasure through Michel Angelo's contumacy, persuaded him to go to that city. Immediately on his arrival, and before he had had time to adjust himself, he was commanded by the pope's officers before his holiness, who, looking at him with an angry glance, said, 'What then? What coming to seek us, thou wast determined that we should come to seek thee?' Michel Angelo excused himself, saying, 'that he had quitted Rome, being unable, after his faithful service and endurance to make himself worthy of being admitted admission to him.' 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 kneel, he gave him his benediction, and received him into full favour, giving him directions to undertake the commission, which Michel Angelo soon completed the clay model; the statue was the personification of majesty, but the face had such a striking expression, that the pope denounced, 'Am I to wear that face?' Michel Angelo said no; but as he 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 earlie pontiff, 'I know nothing of books.'

On his return to Rome, Julius was treated by one of the officers of the pope's commission, and went to the church of the Sistine Chapel, and gave orders to Michel Angelo to paint the vault of the Sistine Chapel. It is said, that Bramante was indisposed by unworthy motives in giving his counsel 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, who preferred the practice of sculpture to that of painting, would introduce some new mode of payment in 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. Such are the motives ascribed to him, to which may be added various others. He commenced the work, and set about the vault of the chapel, and suspended the work for about four years, on account of the vast extent 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
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the chapel was commenced by these assistants, under his direction; but a portion, however, fell short of his conception, and entering the chapel on his return, he 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 mortification to find his labour threatened by its commencement being interrupted, as it is probable the fermentation had taken place, and in utter disappointment he renounced the undertaking. The pope, being made acquainted with this misfortune, sent to him his architect, Stefano Maderno, 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 immediately ordered his chapel to be opened.

Many other persons found admission, and among the rest Raffaello d'Urbino, who then first became acquainted with Michel Angelo's powers as a painter. Struck with admiration, he immediately changed his own style, and with the cælorum 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. All Saints' chapel was opened with a solemn mass, at which the pope assisted in person.

The roof is divided into twelve compartments, in which is painted the history of the antediluvian world. In three of the first compartments Michel Angelo has personified the Saviour, obtruding the light that created 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 excused by those images of divine power and majesty which Michel Angelo has here embodied. The eleventh subject of the series on the roof is the Deluge, and the twelfth is from the story of the building of the ark. The harrowing and distressing scene is well preserved 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 1513, when he was succeeded by Leo X.

It might have been expected that Leo X., whose name is associated with the ideas of taste and munificence, and who affected fully to appreciate the powers of Michel Angelo, would have engaged him on some work worthy of his talent. But, unfortunately, he was not in the situation of this great artist a display of injustice not easily explained. He obstreperous 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 difficulties of conveying it being 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 the building of roads and roads of roads. The short life of Adrian VI. which followed, although generally unfavourable to the arts, was less injurious to Michel Angelo, as it allowed him leisure to proceed with the monuments 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 Michel Angelo acting in the capacity of engineer in the defence of the city. It was now that he was appointed superintendent of the fortifications by the local government, and he exercised extraordinary skill in fortifying the important post of San Miniato. Having continued his services until the fall of the city, he is affirmed by some authorities, that he gave, the design for the bridge of the Uffizi.
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began by substituting for the Saracen design of San Gallo, a more Christian and superb model; in the shape of a Greek cross, the latter being forced, like that of the Baptistery, into an ellipse by 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 remainder of his life. His largest and most important achievement is San Miniato, which adorns the Capitol 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 caused it to be assigned to his latter years, with serious trouble of health. 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; and vexations were so great to press his office: 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 long 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 it was Jesus of Nazareth who died with honour in the church of the Apostolii at Rome; but his remains were afterwards removed to the church of Santa Croce, at Florence.

Considered in relation to the degree or the variety of his skill, 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 his predecessors, was 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 erected to the honour of the Christian religion. The finest 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 mind, and that, even in point of execution, they appear excellent in the best in Italian literature. His talents in engineering need no other attestation than the fact, that Vauban, 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 especial study. The moral qualities also of Michel Angelo are entitled to our respect. He was benevolent, temperate, and pious; and although he had no time to indulge his passions, 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 various talents, and he employed it in the establishment of his friars and mendicants, 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 through 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 statutory and painting. His predilections were decidedly 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; nevertheless, in subjects requiring that quality is not indispensable, he sometimes reaches a peak of unimagined excellence; nor can there be found perhaps, in the whole range of Greek sculpture, any thing approximating to the profound sense and terror of expression of Lorenzo and of Moses. As a painter, he has no competitor in the highest qualities of art, except Raffaelle, to whom, it appears to us, he stands in the same relation which, in our literature, Milton bears to Shakespeare. The capacities of a superior genius, in the delineation of passions, in varieties of character, and the power of telling his story, Raffaelle 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 is Michel Angelo, without doubt, the greatest painter that ever existed.

ANGEL CARAVAGGIO. [See CARAVAGGIO.] ANGELIN is that part of Schleswig which is enclosed by the bay of Flensburg, the Baltic, and the Schlei. The greatest diameter of Schleswig is 180 miles from E. to W., is about twenty English miles. Its surface comprehends about 230 square miles, of which the population amounts to 30,000. Among their neighbours the inhabitants are divided into a great number of petty cities, with small spirit, and love of liberty; they are industrious, and in a country where the criminal calendar is insignificant, they contribute towards it the smallest number: in this district prosperity is general.

As we enter it is very fertile; the western is more sandy: of late years some part has been reclaimed, and improved; but the roads are so indifferent, that they are a subject of general complaint. "Angeln 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 ones to that of Gottorf." ANGER, (according to Aristotle, Rhetor. b. ii., c. 2.) is a desire of revenge, a passion, on account 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 thus produced is not to be of such a nature as is either gratuitous or accidental. 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 that he is not worthy, for example, when a person insults, reviles, ridicules and banterers, or annoys, teases and teases another: passively, as when a person omits the marks of attention and respect which an inferior is entitled to, or that an inferior does not treat 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 set himself above his inferior, or treat him as an 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 honour; the other to be the insolvency 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 cause pain, without the least of his own 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 paying him, so that he may know that he is not exempt from the law. He is the person who has 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 unenlightened 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 foreseeing the pleasure which it affords, that Shakespeare enumerates among the rare instances of female perfection:

* She who being angered, her revenge being nigh,
Bids her wrong stop, 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 agent. Anger, therefore, is divided into two kinds: 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, in this particular, divided also into two kinds: one 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

* On a similar reason was founded the advice of Bernadotte to Louis XVIII., that France was to be governed with an iron hand, and aobel gne: o: rm is eapest o e e of an nopic extent.

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is a hatred of the whole human race. Anger is often satisfied with a slight infraction of pain, whereas hatred desires nothing less than the extinction of the persons hated; hence pity is consistent with anger, but never with hatred. Anger seeks the indirect pain; hatred desires to do harm. Anger requires a personal retaliation, hatred is pleaded that harm should come to the person hated, from whatever quarter, and by whatever means. (See Aristot. Rhet., b. 2, c. 4.)

An anger is a bad passion, and in a state of civil society its effects are much oftener hurtful than beneficial. Its force (as sometimes said, its cause) is not less obvious than its effects. In the nature, before the institution of government, if instead of men being prompted by the constant and violent influence of a passion to retaliate harm for harm, the retribution of wrongs had been left to the irrevocable disposal of the wronged, it must have been evident that 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 have been avoided. 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 with entire impunity. In the barbarous states of the ancient world, which were not intermixed as in ancient times in Arabia, Greece, Germany, Scotland, and other countries, the imbecility of person which existed was owing chiefly to the duty of revenge imposed by traditionary 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 judicators, the use of revenge, as an instrument for the repression of wrongs, has ceased, and it must give place to a far better institute. The good, says 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 measure, owe its existence, and substitute for it, 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 distorts it, and impairs its utility when complete. [See Punishment.]

ANGERSBURG, one of the cities of the government of Gumbinnen, in the province of eastern Prussia, containing a surface of 369 square miles, and about 15,600 inhabitants. Angersburg is the name also of a small town, with a castle, lying on the Gross-Mauer Lake, in this province. It makes linens and woollens; has a manufactory of salt, and a fishery; and some trade in timber. The population is about 2474. [8°, 17° 4' 19" N. lat.; 25° 15' 24" E. long.; seventy miles S.E. of Königsberg.

ANGERMENLAND, a province of Sweden on the Baltic Sea, or rather on that narrow part of it, called the Gulf of Bothnia. It is now comprehended under the political division of Angermanland; of which it forms the northern, most extensive, and important part; the southern, and smaller, is the ancient province of Modenap. The political union of these provinces obviates the inconvenience which sometimes occurs when these make the more easy, as they resemble one another in almost every respect.

It is remarked by Souerey, that these effects which were required to be contrivings, to shew the preservation from physical harm, the propagation of the species, as well as the perfection of the human language. In fact, it is a species of government in which the acts of men are often more easily concealed. See the admirable review of this metaphysical work by Dr. Johnson.

See Bishop Beverley's Sermon on Anger.
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these mountains; numerous rapid rivers descend to the lake, which discharges these collected waters by one outlet, the river Indael-Eif. It issues from the lake on its northern side and flows in a direct line; 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 letter part of its course is to the south-east. It is of more than 400 miles, and contains, besides the cataracts, and only navigable for boats and craft, for a short distance. Its inundations are much dreaded; one of them, in 1736, laid waste all the valleys through which it flows, and changed the course of the river in many places. Since that time, the common fishery has been taken up by other fish, which formerly abounded, have left it; only a kind of whiting (tetrao lugurtus) is occasionally taken. It runs about 140 miles. The third and most southern river is the Ljungan-Eif. It rises in that part of Östermala-Land which bears the name of Herydelan, 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 Angermland-Land 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 Sundewall. Twenty years ago this river was not navigable; but since then, indeed, it has been rendered 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 thirds of this river may be rendered fit at all times, the current of which, however, is increased by the early night-frost in September, the inner bark of the pine is mingled with flour in making bread. The metallic riches of this province are not important, but are yet very useful to the inhabitants, and are manufactured into flax and hemp. The climate is very healthy, is also very severe, as might be expected in such a latitude. The winter commonly lasts from three to five months, and the ice covers the lakes, and sledge 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 evening by a dense fog, rarely often the lake and rivers, which impairs 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; a short autumn follows: rarely a summer than the spring, and then comes the winter with all its severity.

Travellers commonly speak with rapture of the fertility of this province, and assert that it surpasses all the other parts of Sweden. But this remark can only apply to tracts of very small extent, especially to the valleys along the large rivers, and to the low lands 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 1:28 Swedish, or little more than 28 English square miles, consequently not much more than 300 acres of tracts of the same size in the more fertile parts of Rutlandshire. The meadows extend over a space equal to 6:49 Swedish, or 261 English square miles, nearly the extent of Middlesex. The remainder is covered with mountains, heath, and forests, which only furnish abundant pasture to the cattle.

Bears, wolves, and foxes, are numerous, but the two former only in those parts which are distant from the coast. Deer was formerly found in greater numbers, but has much decreased, though still remains, which is sufficient for the parts. The elk is only met with in some forests of Medelpad. The smaller animals whose skin is used for fur, as hares, martens, &c., are found everywhere, but not in any great numbers.

Many of these forests are large, woodcocks, heathcocks, and partridges exist in the forests in such numbers, as can hardly be conceived. Many thousands are annually killed, and brought in winter to Stockholm and even to Gothenburg, from which latter place some are brought to England. Eagles of considerable size inhabit the solitary places. Fish abound in the sea, the rivers, and the lakes. The sea-fish are surface and deep water fish; the latter are the number of stromblings, a smaller kind of herrings, which in summer time are caught along the coast. This fish is found along the whole eastern coast of Sweden, but nowhere so considerable as in Gothenburg. It is a branch of the Ljungan-Eif; trouts also abound in some of them.

The forests which cover the greatest part of the country, the upper part of the slopes, and even sometimes the tops of the hills and mountains, consist chiefly of pine, fir, and birch. The oak does not succeed, on account of the severity and length of the winters. These forests not only afford the necessary firewood to the inhabitants, but also some articles of exportation. In some of the higher parts of the country, where the crops are scanty, and the hills are very steep, there is a considerable export of hay and mutton, and it is sold at a premium by numerous kinds of wild growing berries. Besides different sorts of vaccinium and rubus, which are common in some other parts of Europe, there are two species of delicious berries, which are peculiar to the north of Sweden, the rubus arcticus, and the rubus chamamosorus, or cranberry, of which the first is by far the more delicate, and very extensively used; all trials to transplant it to the south of 42° have been unavailing. Cranberries are exported to England.

Though only a very small portion of the whole surface is allotted to agriculture, it cannot be said that this most important branch of industry is neglected; not only are the fields cultivated with great care and attention, but continual efforts are made to extend the dominion of agriculture more and more. The induecement is great, as the produce of agriculture by no means sufficient for home consumption, and a considerable quantity of corn is imported from Wess and other towns of Fennmark. Rice, barley, and oats succeed very well, whenever they are not destroyed by early night-frost. Wheat does not succeed every year, and therefore its culture has been almost entirely abandoned. The cultivation of flax and hemp have been introduced which prevail in the Alps of Switzerland, and 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 straw, and are furnished with little more than the food of the bear, 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-field; that they may be able to increase their stock of cattle, and consequently want the necessary fodder for the winter. Many of these farmers, therefore, 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, rather small, and in good condition. Horses are bred in numbers; they are also of a middling size, but larger than those of the southern provinces of Sweden, swift and hardy. Sheep too are numerous, but the wool is coarse, and only employed by the country people for their own use. The pig is very scarce, as this animal encroaches on the food of man, which here is rather scarce. In many places in the higher valleys goats are kept in great numbers.
The scanty population of this country might lead us to suppose that no kind of manufacturing industry could be maintained, but this is not the case. The manufacture of linen is very extensive. Great quantities of it are made, especially in the country along the coast to the north of Hernösand. The finer sorts are said not to be inferior to those of Holland, but many think that this assertion is somewhat given to them by the traders who make it. At all events, the manufacture is considerable, as in the year 1825 not less than 595,370 ell of (or nearly two English feet) were exported to Stockholm. The legend has encouraged a branch of this industry by premiums, and since that time not only the flax grown in the province, but also a considerable quantity brought from Russia, is worked up. No other branch of manufacturing industry is carried to any extent, because the inhabitants, who have been accustomed to satisfy all their necessities by their own labour.

Since government has rendered the rivers more navigable than they were twenty years ago, great quantities of timber are floated down the Angerman-Elf and the Ljungan-Elf. The timber is sawed and sent to England. The exportation in 1825 amounted to 16,379 dozen planks and boards, and since that period it has much increased in magnitude and made, but much less than in the more northern province of Umeå-Län.

The coasting trade to and from Stockholm, and some places in Finland, gives occupation to some people who live in Storöförs of the Angermanland-Län, and Sundsöförs, the former, the capital of the province, and the seat of the provincial government, is situated on the island of Hernö, at the mouth of the Angerman-Elf, and joined to the continent by a bridge. The hays between the islands are a great form of trade for the town, which itself consists of well-looking houses, mostly built of wood. Its streets are large, and, for the most part, paved. The principal articles shipped here are planks and deal, and articles made by the inhabitants, which go to England, the latter to Stockholm. But the greatest part of the inhabitants, whose number in 1825 amounted only to 1,840, gain their livelihood by the fishery of the straits. A few vessels are built. This town has an excellent grammar-school, a society for the improvement of agriculture, an hospital, and a poor-house.

Sundsöförs is situated in the southern part of Angermanland-Län, or in Medelpad, in a very fine, pleasant valley, much admired by Dr. Clarke and other travellers, and on a bay, into which the Ljungan-Elf discharges its waters, opposite the island of Alnö. The houses are neat, though mostly of wood, but the streets not paved. It has some commerce particularly in planks and deal; but the greatest part of the inhabitants, who, in 1825, amounted to upwards of 1,600, are engaged in the fishery of the straits.

At Wistaf, a small place, with a good and safe harbour, five miles to the north of Sundsöförs, a few vessels are built. Though what other products the provincial towns of Sundsöförs is situated in the southern part of Angermanland-Län, or in Medelpad, in a very fine, pleasant valley, much admired by Dr. Clarke and other travellers, and on a bay, into which the Ljungan-Elf discharges its waters, opposite the island of Alnö. The houses are neat, though mostly of wood, but the streets not paved. It has some commerce particularly in planks and deal; but the greatest part of the inhabitants, who, in 1825, amounted to upwards of 1,600, are engaged in the fishery of the straits.

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The whole population of this country was, about the middle of the last century, estimated at about 43,000; but the census of 1825 gives it 74,337; and for the year 1830, it was calculated, by Forsell, to amount to 78,621; so that every English square mile, at present, is inhabited by only eight or nine persons. The inhabitants are nearly all of Swedish origin.

New Finland, or Angermanland-Län, among them two centuries ago, have lost their peculiar habits and customs, and nearly their language. The Laplanders, and their herds of reindeer, pass the winter in the higher parts of the province, but in the summer they leave it, and go to the mountains. No mention is made of 1820 of this cold and unpromising region by the country. The whole extent of life, on account of the elephants, and the climate and pasture assigned to them.

The inhabitants of Angermanland are of a middling size, and do not attain the large stature of the Dalseländs; but they are stout, vigorous, and, at the same time, quick in their motions and work. They are gifted with great talent, and employ it in some arts, especially in architecture and carving. Many churches and houses, distinguished for the beauty of the statues exactly observed. Their masamans 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 the 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 sell more of their numerous and important

ANGEMUENDE, 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 3600 souls, produces woolens for the Honic Län, 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 was once the capital 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 houses are generally built of wood and plaster, and the gardens luxuriantly in the district, is frequently seen entrained round their Gothic mouldings, or running across the street from house to house. The more modern quarters are regular, and very well built. The principal is the square, or castle and the cathedral. The former is a steep rock, at the base of which the Mayenne flows, has walls of great height and thickness, flanked by eighteen massive circular towers, the work of early ages; the chapel and palace within the castle, built by Retail of Anjou, in the fifteenth 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 Richelieu, (nearly 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 destroyed, though other principal buildings in the province, such as 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 ancient antecedents, is supported by an English merchant.

The manufactures of Angers are of sail-cloth, camblet
sage, handkerchiefs, hosier, &c.; and these are establishments 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, cotton, wool and brandy, flax, hemp, wax, honey, and dried fruits. In the town itself there are two considerable establishments in 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 Encyclopædia Metropolitana, 1776, viz., 50,000, showing a diminution within the last half century. In 1670, before the revocation of the edict of Nantes, it is said to have been 80,000.

The town is a see of a bishop, and the seat of a "court royale" (assize court). It has an "académie," "collège royal," (high school), a school for the deaf and dumb, and a "éminaire," (place of education for the priesthood,) a public library of 26,000 volumes, a museum of natural history, a fine collection of French paintings, a botanic garden, 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 Moreau de St. Mery, the "anglorist," of its acuteness and intimation to the Romans, the town was called Juliomagus, and subsequently Andecavi. It is 178 miles S.W. of Paris; latitude 47° 38' N.; longitude 6° 33' W.

A description of Angers contains 99 communes and 92,810 inhabitants. Its extent is equal to 486 square miles, or 279,040 acres.

ERSTEIN GALLERY. [See NATIONAL GALLERY.]

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, commencing in the left side, and the patient supposes it 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 frequently these latter symptoms are absent; the pulse is commonly quick, weak, irregular, or intermittent, though sometimes it is little affected; the countenance is commonly pale, and the expression anxious and depressed. This is a common affection 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 causes, and to the whole external condition of the patient. The health at first is tolerably good during the intervals, but in the progress of the disease a great variety of uneasy sensations distress the patient even when the paroxysm is absent, chills, tremors, which indicate a disordered state of the digestive and respiratory organs.

Much investigation has been instituted to ascertain the seat 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 a primordially nervous affection, and that the nerves in fault are those which supply the heart and lungs, and consequently have an influence on the disease of its nerves being unable perfectly to decarboxylate the blood, and the heart, in consequence of the disease of its nerves, not being duly nourished, and consequently not laboring in the proper way, in circulation with the requisite energy 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 following appearances is the best and most probable cause of its muscular substance, which becomes pallid, soft, flabby, thin, and easily torn. This change in the muscular substance of the heart is by far the most constant morbid appearance; 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 exhibited. Angina pectoris is most frequent at the meridian of life and beyond it; it may occur in adolescence, and 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 under 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, instantaneously, 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 gout affects the extremities, in its regular and decided form, more frequently and severely such persons suffer from angina pectoris.

It is of the nature of this disease to progress progressively from bad to worse. At first it is a 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 success often attends the early, active, and judicious treatment of this disease. 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 recurrence 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 subsides, vigorous friction with a stimulating liniment should be applied over the whole chest, and the patient should instantly take some warm antisepsic and stimulant medicine, such as two ounces of the camphor tulep, with a team 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. One can procure as quickly as possible. It is during the interval that the most effectual treatment must be employed. It is impossible to discuss here the remedies which the physician 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 conform to the plan prescribed in diet, in exercise, in every locomotive movement, in sleep, temperature, and medicine, but above all in the regulation of the mind, the physician can do but very little for him.

ANGIOSPERMA. [See DIUMN.] ANGLE OF CONTINGENCE, or CONTACT, the opening made by the cause of curvature.

ANGLE (CURVILINEAR), the reciliens of a curve 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, ELOSION, ELEVATION, THE VERTICAL—see these several terms.

ANGLE, PLANE, SPHERICAL, SOLID, PARALACTIC—see these terms.

Similarly, the entire circle is also called a solid angle, and 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 recollect 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 $\angle B$ and $\angle D$ as shown at the points $A$ and $B$ by the straight lines $AP$ and $AQ$ at $A$, and by $BR$ and $BS$ at $B$, and transfer the first figure to the second, so that the point $A$ shall fall upon $B$, and the straight line $AQ$ upon $BS$ and let the remainder of $AQ$ form a continuation of $BS$: also let $AP$ and $BR$ be made to lie upon the same side of $BS$. We have now no longer any control over the position of $AP$ with respect to $AQ$, since the first figure is not to undergo any change except that of simple removal into another position. If after $A$ has been placed upon $BS$, $AP$ then fall upon $BR$, the two openings or angles at $A$ and $B$ are the same. If $AP$, in its new position, fall between $BS$ and $BR$, the opening or angle at $A$ is less than that at $B$; and if $AP$ fall further from $BS$ than $BR$ does, the angle at $A$ is greater than that at $B$. But this is simply the case of the angle $PAQ$, and that at $B$, the angle $RBS$. Hence the notion of one angle being twice or three times, etc., as great as another may be fixed.

For example, the angle $\angle MAN$ being made up of the two $\angle MAN$ and $\angle NAP$, each of which is equal to the angle $\angle DBC$, is twice $\angle DBC$; the angle $\angle QAM$ is three times $\angle DBC$; $\angle RAM$ is four times $\angle DBC$; and so on. Similarly, the angle $\angle DBC$ is one-half of $\angle PAM$, one-third of $\angle QAM$, etc. The angle made by two lines does not depend upon the length of these lines; if a part $DE$ be cut off from $BD$, the angle is not altered, that is, the angle $\angle EBC$ is the same as $\angle DBC$. If $E$ and $D$ be respectively equal to $EB$ and $BD$, and if $BC$ be turned round $B$, the same quantity of turning which brings $E$ into the position $E'$, will bring $BD$ into that of $BD'$.

When we cast our eyes on two angles, the sides containing which are nearly equal in both, we judge of their comparative magnitude by the spaces which are included between the lines. This notion is not a notion capable of being rendered rigorous, because one boundary of the space is indefinite. Nevertheless we may correct this method of judging, and produce a precise idea of an angle, if we admit the propriety of comparing with one another spaces which are absolutely infinite in extent. The longer the lines are, the more nearly is the preceding notion absolutely correct, because the space at and near the mouth of the angle, which for want of a definite boundary is doubtful as to whether it is or is not to be considered a part of the angular opening, becomes less and less with respect to that about which there is no doubt. If then we suppose the lines which contain the angle to be produced without end, the infinite spaces so imagined will be correctly in the same proportion to one another as the angles. The objection to introducing this into geometry is the real or supposed want of rigour in the comparison of unbounded spaces.

[See INFINITES.] It must be remarked, however, that the disputed theory of parallels follows immediately and rigorously from the preceding, (see Library of Useful Knowledge, Study of Mathematics, pp. 77, 78; and Lacroix, Éléments de Géométrie, p. 23, note,) and it is therefore in the choice of every person to decide for himself whether he will add the words in italics to the first of the two following axioms, and prove the second, or omit the words in italics, and assume the second.

1. Two spaces, whether of finite or infinite extent, are equal when the one can be placed upon the other, so that the two shall coincide in all their parts.

2. Through a given point, not more than one parallel can be drawn to a given straight line.

In order to bound the preceding spaces, and compare angles by means of spaces or squares, it is necessary to draw arcs of circles having equal radii through the two points. Let $PQ$ and $RS$ be arcs of circles having the equal radii $AP$ and $RBS$. Then the angles $\angle PAQ$ and $\angle RBS$ are in the same proportion as the spaces (called sectors) $\angle PAQ$ and $\angle RBS$, and also as the lengths of the arcs $PQ$ and $RS$. This proposition, which is Euclid, vi. 33, 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 antecedent to, the first four books; if this were supposed, the preceding proposition might be easily made to follow from case i. s. 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.e., 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 $A$ be conceived to revolve round the point $A$, it will in every position form two openings or angles with its original position $AB$. For example, in the position $AC$, $AB$ and $AC$ will form the smaller angle $BAC$, and the larger angle made up of the angles $CAF$, $PAK$, and $KAB$. Only the former of these is usually considered in geometry, but the latter is frequently used in analysis. When half a revolution has been made, and $AB$ has come to $AP$, at first sight we might say there was no angle formed; but on looking at the preceding position $AE$, we see that the opening $BAE$ is $\frac{1}{2}$ greater than that of $AB$ and $AE$. The half of this opening $BAE$, that is, $BAD$, is called a right angle. A whole revolution makes $BAE = 4$ right angles, and, in analysis, if we wish to point out the line $AC$ is supposed to have made a complete revolution, and to have come into the position $BAC$ for the second time, the angle made with $AB$ is said to be $4$ right angles $+ BAC$.

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 $\overline{PQ}$ is of the radius, is the number chosen to represent the angle. It is shown in geometry that if any number of arcs be drawn with the centre $A$, subtending the same angle $\angle PAQ$, that part sooner any 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 $\overline{PQ}$ be equal to the radius, the angle $\angle PAQ$ is the angle $1$. If $\overline{PQ}$ be two-thirds of the radius the angle $\angle PAQ$ is the angle $\frac{2}{3}$. This unit of the measure is therefore the angle whose arc is equal in length to its radius. It is usual to employ for this purpose for any terms for are (or 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 actually 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 contains its radius $3.14159, 26535, 89793, 23846$ times, very nearly. This is then the number of theoretical units contained in two right angles. The right angle is therefore $3.14159, 26535, 89793, 23846$.

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

- $0.01745, 32925, 19943, 59577$ degree
- $0.000299, 08889, 06669, 72160$ minute
- $0.000000, 05556, 42128, 83882$ second

In the second measure, in which angles are said to be measured in space, (the word space being here opposed to time, as we shall see, and not to length) the whole angle traced out in one revolution, equal to four right angles, is divided into 360 equal parts, each of which is called one degree and marked thus (°). Each degree is divided into 60 equal parts, each called one minute (′), and each minute into 60 equal parts, each called one second (″). Formally, 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>Degree</th>
<th>Minutes</th>
<th>Seconds</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>3600</td>
</tr>
<tr>
<td>1</td>
<td>60</td>
<td>360</td>
</tr>
</tbody>
</table>

To convert an angle from theoretical units into degrees, simultaneously the last-mentioned unit is $360° = 21600′ = 1296000″$ in seconds $3437° = 21600′ = 1296000″$ in minutes $57° = 3437.70707070707$ 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 in which the angle is to be reduced. As many decimals may be taken as shall be considered necessary. The following tables, however, will be found more convenient:

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<tr>
<th>Degrees</th>
<th>Minutes</th>
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<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>3600</td>
</tr>
<tr>
<td>2</td>
<td>120</td>
<td>7200</td>
</tr>
<tr>
<td>3</td>
<td>180</td>
<td>10800</td>
</tr>
<tr>
<td>4</td>
<td>240</td>
<td>14400</td>
</tr>
<tr>
<td>5</td>
<td>300</td>
<td>18000</td>
</tr>
<tr>
<td>6</td>
<td>360</td>
<td>21600</td>
</tr>
</tbody>
</table>

Example. It is required to express in theoretical units the angle $89° 52′ 34″$. 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.

<table>
<thead>
<tr>
<th>Degrees</th>
<th>Minutes</th>
<th>Seconds</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>89</td>
<td>52000</td>
</tr>
<tr>
<td>2</td>
<td>178</td>
<td>104000</td>
</tr>
<tr>
<td>3</td>
<td>267</td>
<td>156000</td>
</tr>
<tr>
<td>4</td>
<td>356</td>
<td>208000</td>
</tr>
<tr>
<td>5</td>
<td>445</td>
<td>260000</td>
</tr>
<tr>
<td>6</td>
<td>534</td>
<td>312000</td>
</tr>
<tr>
<td>7</td>
<td>623</td>
<td>364000</td>
</tr>
</tbody>
</table>

and the answer is $1.5686340$.

Given any angle, and a radius, required the circumscribed 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 $89° 52′ 34″$ is $1.5686340 \times 100 = 15686340$ feet.

In the attempt to effect a universal change of weights and measures, which followed the French Revolution, the circle was divided into 490 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 is customary in this country to distinguish the French degrees by the name of grades, and to denote one grade by $1°$ or $1^\circ$. The convenience of this method, from its close affinity with the decimal system, is certainly great: for example, grades and decimals of grades, such as $120°$ or $120^\circ$, are converted into grades, minutes, and seconds, by mere separation of the figures: thus, $120° = 120^\circ$. 
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° is 6° 9' or 54' 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 apparent 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 the measures of their corresponding 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, &c., of space, into the corresponding measures in time, and the converse.

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<th>TIME INTO SPACE.</th>
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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, &c., of space.

From the first table.

1° is 15° 0' 0''

8° 120° 0''

10° 180° 0''

1° 15° 0''

30° 90° 0''

5 15° 0''

0° 3 4° 5'

18° 11' 35° is 272° 53' 49° 5''

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

90° is 6° 0° 0''

3° 28° 0''

3° 30° 0''

4° 16° 0''

20° 1° 333''

8° 0° 200''

97° 54° 23'' is 31° 37° 33''

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° are called signs of the 12th and 13th.

ANGLE (TRISECTION OF). [See Trisectrix.]

ANGLES, or ANGLI. The earliest record of the people we find in Tacitus' book on the Germans (chap. xi.); but this author only mentions their name, states a few particulars relative to their religions, and intimates that they were a branch of the Suevi. Having spoken of the Semnones as the most antient and illustrious tribe of the Suevi, he thus continues: 'But the Langobards are ennobled by their small number being surrounded by multitudes, and most valiant nations, they live in a state of security, not by submitting to them, but by fighting battles and braving dauphers. After them follow (in this description he is proceeding not so correctly) the Aviones, the Angli, the Varini, the Eyubes, the Suadrians, and the Naudones; all these are protected by woods and rivers. Singly, these nations present nothing that is remarkable, except that in common worship Hertha, that is, Mother Earth, is worshipped, and the chieftains are entertained in 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 permitted to touch it. He knows it is present in this 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 goddes visits, and honours 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 satiated with the converse of mortals: immediately after this, enter the chariot and the vessel, and if you 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 worship is entertained at what is usually called the goddes: it is 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 will convince most readers that Tacitus knew very little about these nations. Lindemæg and Leiham سي (Scriptor Hermit Brown suarum, tom. i. p. 81) have preserved fragments of the antient laws used in common by the Angli and the Varini. D'Anville has in his map assigned to them the same districts which they occupied in the 3d century. Their emigration to England, and parts of which the modern Angles still occupy. He allot's to them the greatest portion of modern Schleswig and some part of Holstein, making the German coast their western boundary, the Saxons bringing the 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 Saxton 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 differences raised by historians such as Haus and Dörfer, that the Angles, in inhabiting only the district of modern Angloin, were too insignificant a nation to occupy Great Britain, are indeed idle: for 1st. it has never been asserted that their domain did not extend beyond the boundaries of modern Angles; 2d. the quarters which Hengist and Hornsea first led over to England to the assistance of Vrigeorn against the Pihts 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 critics do not sufficiently consider that the occupation of England was effected as much by circumstance as by open force, and that the Angles obtained new allies in the Pihts among whom they at first came to expel. It is, therefore, needless to extend the boundaries of the Angles to the Ebe and Thames, or to even to spread them over the whole of the Cimbrian Chersonesus (Modern Jutland). [See Saxons.]

ANGLESEY, or ANGLESEA, an island in the Irish sea, in the western coast of Wales, where it is inclusive, and from the main land of which it is separated by the narrow strait, (or, as it is sometimes, though incorrectly, termed, river,) Menai. This strait has a direction very nearly north-west and south-east, throughout its course. It is thought that Anglesey was once united with the main by an isthmus, at a place called Wll Ceris, where may still be traced a line of small rocks crossing the channel. It appears also that the Menai is
wider than formerly, lines of stones having been observed below the present high-water mark, which seem to have been once boundaries or fences between the sea and the land. (Rowlands's *Mona Restaurata*.) From the south-west end of this channel, the coast runs in a north-west direction to the farthest point of Holyhead Island, which is separated from the rest of Anglesey by a sandy strait, across which the Holyhead road is carried by a long embankment or causeway, in the centre of which is an opening for the water, arched over. The general direction of the coast on the north-east side of Anglesey is similar to that on the south-west side. (viz., north-west and south-east) except near Beaumaris, where the land juts out into the sea. The remaining part of the coast from the extremity of Holyhead Island first curves inward, forming Holyhead bay, and then runs east to beyond Amlwch. The length of a line drawn from south-west to north-east along the whole of the Menai from Aber-Menyi Ferry to Trwynedd Point, opposite the little island of Priestholm, is 17 miles: a line drawn at right angles to the above from Carnel's Point, in the north-west, to the Menai, is about 12 miles long; and seems 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 Trwynedd, mentioned above; this distance is about 27 miles. (Evans's large *Map of North Wales*, Llwynygroes, 1795.) The number of square miles of surface is variously given. The population, in 1831, was 46,300. There are several smaller islands round the coast. Holyhead, the largest of these, is at the western extremity; Priestholm, or Paifion Island, 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 farthestmost island,) and Ynys-y-Cedweni, (the island of the monks.) The name of this island is called Mona (which name it shared with the Isle of Man); the name of Anglesey, (Angle's ey, Englishman's island), it received from the Saxons. It was a great seat of Druidical superstition. Suentronius Paulinus, the Roman commander, landed here (a.d. 61) in spite of the resistance of the natives, and the terrors 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 Boadicea, and again conquered by Agricola a.d. 76. Several Druidical remains still exist, cromlechs (flat stones resting upon others) and carnddi (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 three tall stones. There is at Tre'r Dryw, in the parish of LLanddan, 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 (lowlands). It is supposed to have been the seat of a Druidical *conocent.* Near are the remains of a cromlech and a *Gorseddau,* or heap of stones, now dispersed, and of a large circle of stones. Rowlands supposes the whole to have been sur-

[Chromelch in the Park of Plas Newydd.]

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. 1246; and finally subdued by Edward L., 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 Beaumaris.]

The climate of Anglesey is rendered by the sea breeze 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 fevers 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 gentry can with difficulty raise a plantation around their own seats. There are, however, considerable 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 Redwcliff Bay, on the west coast; it has a large intermixture, amounting to two-thirds, or from that to four-fifths, of sea shalles. 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-twelfth 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 herds are exported. These, before the erection of the bridge, were driven across the strait. The export is estimated at about 8000 head, but such numbers are of course liable to change. The dairy is so little regarded, that the produce of it is hardly sufficient for the consumption of the island. The export of butter is also very large, and is sent to North Wales; they have white faces and legs, and are generally without horns. The export is from 5000 to 7000 head annually. The export of hogs used to be considerable, but the quantity of Irish pigs brought into Anglesey has, in a great degree, caused it to be given up. The horses are in no repute. (Davies’s General View of the Agriculture of North Wales.)

The coasts of Anglesey supply an abundance of fish; some which are not common elsewhere. Shell-fish are abundant. The mineral riches are also great. The Mona and Parrys copper mines, on the north-east coast, began to be worked about 1765, but at first with little success; they have since produced immense wealth to the proprietors. (See AMLWCH.) Mr. Pennant supposes these mines to have been worked by the Romans, and traces of the ancient operations were perceived by him. Lead ore, rich in silver, has also been worked in Parrys. Veins of gold occasionally traverse the island; marbles, both white and variegated, are procured; mill-stones are quarried at Redwharf at Penmon; and there are coal-mines at Porthaethwy. These mines do not appear to have been pursued with much success. They are, however, remarkable in a geological point of view, because they afford the only known instance in this country of a coal formation in the slate. The coal-field is irregular and uncertain. Several unprofitable trials have been made, and occasionally coal has been worked to a considerable extent. In one pit a vein three feet and a half thick was found at a depth of only twenty-five yards. A singular phenomenon occurs in this formation; large alluvial balls of coal, some of which weigh a ton or upwards, are found scattered upon the surface. (See COAL-FIELDS.) It may be observed, that Anglesey is the only part of the whole principality of Wales in which granite has been observed, and the granite near the centre. The inhabitants do not carry on any great manufacture: they buy wool at Caernarvon and Bangor fairs, and make coarse blue cloths, blankets, flannels, &c., just sufficient for their own use.

The main road to Holyhead, the usual place of embarkation for Dublin, runs through the island. It crosses the Menai Strait over a magnificent suspension-bridge, the under side of the roadway of which is about 100 feet above the water. The bridge is in the form of a vessel’s which navigate the strait; and the distance from centre to centre of the pyramids of masonry from which the bridge is suspended is 580 feet, rather more than the width of the strait at low water, but considerably less than the breadth of the Menai Straits. (See Historical and Descriptive Account of the Menai Bridge.)

The communication between the island and the main land was formerly entirely by ferries, of which there were five or six; that of Porthaethwy, or Bangor, a success; the other four were named the Menai Bridge, being the principal. The county of Anglesey is divided into three cantrefs, a union which originated at a very early period; and these cantrefs are subdivided each into two comtoms (towns). Of the three cantrefs when the subdivision was made, there appears to be some doubt. For civil purposes, these terms are equivalent to hundreds. It is in the diocese of Bangor and in the province of Canterbury, and in the North Wales circuit. The market towns are Beaumaris, (population in 1831, 2497) the county town, on the south-east coast; (see BEAUMARIS; Holyhead (population 4392), the great place of embarkation for Ireland, situated on an island of the same name, on the west coast (see HOLMEHEAD); Llandinam-y-Medd, on the road to Amlwch, with a market, once the most considerable in Anglesey, but of less extent since the opening of the Menai bridge; Llanfairfechan, a few miles from the Holyhead Bridge, on the Holyhead (population 1746); Aberffraw, on the south-west coast, once the residence of the Welsh princes (population 1367); and Newborough, not far south east of Aberffraw (population 864); but the last two seem to have come into disuse, while a customary has grown up at Amlwch (population 6283), a place of greater importance than either. (See AMILWICH.) Holyhead, Amlwch, and Llanfairfechan, are now the chief towns of the county. The only great river is the River Alwen, a head water of the Dee, which rises near the town of Bangor, and passes through the county of Snowdonia, and empty into the sea near Caernarvon. It rises in the county of Denbigh, and flows through a very immeasurable length of land, before it reaches the river Conway, which it enters near the town of Bangor, on the south-west side of the county. It is navigable to Bangor, but nothing is known of the navigation of the river, above that town.

The chief gentlemen’s seats are Plas Newydd, on the Menai, the seat of the Marquis of Anglesea; and Baron Hill, near Beaumaris, the seat of Sir W. B. Williams Bulkeley, Bart. There are few antiquities except Druidic, the chief of which is the Druid’s chair, the great seat of which will be noticed in the article BEAUMARIS; there are also the remains of a priory at Llanvea, and of another at Penmon, both in the same neighbourhood. The couventual church of the latter is built of the parish church, which was formerly established in the island in 1604. The measures in use here differ from the common ones; the acre of land is about two-thirds of the statute acre, and the yard of cloth contains forty inches. (Rowlandia’s Mona Antica Restaurata; Penmans and Binghey’s Tours in North Wales; Davies’s Gen. View of the Agric. of North Wales.)

ANGLO-SAXONS. [See SAXONS.]

ANGOLA, a country on the west coast of Africa, according to Dapper the Dutch navigator, whose Voyage à la Côte Occidentale d’Afrique, fait dans les années 1758 et 1757, appeared at Paris in two volumes, 8vo, in 1801, the name is often used to comprehend the whole coast of Angola to the Benguela, from the 10° 44’ S. to 8. Felipe de Benguela, in 12° 14’ S. The whole of this space appears to be considered as one country by the natives; but by them it is called, not Angola, but Congo, and is divided into the separate districts of Lomongo, Congo Proper, Angola, and Benguela. The country is properly called Angola commences only at lat. 8° 29’ S., where it is divided by the river Danda from Congo, and is bounded on the south by the river Coas, in lat. 7° 20’ S. The country immediately to the east of Angola is commonly considered to be part of Benguela, although that name appears to sometimes be used as applicable only to the country to the south of the river Cabuamba, immediately south of Benguela, at most; to that south from the river Longa in lat. 11° S. Anciently, Benguela, which afterwards became a separate kingdom, is said to have formed one of the provinces of Angola, and have extended as far south as Cape Negro, in lat. 16° S. This is the account given by Father A. Cavalli de Monte Cuculo, a Jesuit, who resided in Angola for many years as a missionary, and whose description of the country may be found in Labat’s Relation Historique de l’Ethiopie Occiden-
tale, vol. 16°, p. 179. Benguela, in Angola Proper, is said to be Donga Angola; and Donga is the aboriginal name among the natives, or at least among those on the coast.

The coast of Angola was first discovered by the Portuguese navigator, Bartolomeu Dias, in 1488. Very soon after this the Portuguese began to form settlements both along the banks of the Zaire, and at various points of the coast to the south of that river. It was not, however, till 1579 that the town of Luanda on San Paolo, commonly called St. Paul de Loanda, the capital of Angola, was begun to be built. Since then the Portuguese governor has resided here, and has been called governor of Angola, instead of governor of Congo, as formerly. In 1649, the Portuguese were driven from St. Paul by the Dutch, who maintained possession of the place till 1648, when it was recovered by its former masters. It has ever since remained in the hands of Portugal.

Mr. Bowdich, in his Account of the Discovery of the Portu-
guese in the Interior of Angola and Mozambique, states, on information derived from Count Sandalhas de Gama, who had been governor-general of Angola, that the Portuguese settlements extend into the interior for about seven hundred miles from that coast. It is not to be understood, however, that the whole of this territory is, in any sense, under the dominion of the crown of Portugal. It only possesses a few forts, and some commercial establishments, called Pueblos, or Fairs, at great distances from each other. Two of the latter are seven days journey from any other, and are assigned to the superintendence of a Portuguese resident. The Portuguese colonists and the natives meet at these stations for the pur-

* The population given is that of the province. These are also very exten-
sive places where it is usual to append the name of Angola, or the place of Angoly.

† The population given is that of the province. These are also very exten-
sive places where it is usual to append the name of Angola, or the place of Angoly.
posts of exchange. If one of Mr. Bowdich's maps, Ca-
must be read as an agent, and the situa-
tions between the 18th and 19th meridians; but in another, ced is on the south bank of the river Manibella, two fairs are set down near each other, in about long. 29° E. Cahenda is on the south bank of the river Manibella, which appears to be the origin of the Benga. There is, or was, a town named Benga. Situated north of the Benga, about 10°, where a caravelle mission is stated to have been established. The forts in the interior of Angola, laid down in Mr. Bowdich's map,—which was formerly occupied by a French expedition, from Lieutenant-colonel Furtado, an officer of engineers,—are: Fort Massangano, at the junction of the river Lucesa with the Coana, about long. 16° 16' E. from Greenwich; Fort Corpas, higher up the Coana; Fungo Andongo, at the junction of the Gongo, or Mungo, and Massangano; an island, with the Coana, a little beyond the 18th meridian; Fort Pedro, in the same vicinity, but not on the river; and Fort Ambaca on the Lucesa, about long. 17° 30'. At Massangano there is a garrison of a hundred infantry, and one of sixty at each of the other forts, formed of natives, but commanded by Portuguese officers.

The force kept up at Louando, according to Count Saldanha, is always composed of one regiment of the line, a thou-
sand strong, three hundred cavalry, and two hundred artillery. Descriptions of this town may be found in a Voyage to Congo made in the Years 1665 and 1667, by the Portuguese, and Carli, and in Merolla's Voyage to Congo in 1698. It is stated to have been a large town in the 16th volume of Pinkerton's Voyages, and also in Churchill's Collection.

The city, which in Mr. Bowdich's map is placed in lat. 8° 43' S., is built partly on the mainland, and partly on a island, in the bay of the same name, from the shore, and according to Merolla is ten leagues in length. Bowdich says, that it varies from one hundred to three hundred yards in breadth. St. Paul de Louando was formerly celebrated for the magnificence of its churches and other ecclesiastical buildings. Cavazzi speaks of it as being surrounded, instead of bastions, by temples and mon-
estaries. Besides a cathedral, it contained in those days a hospital, and a Jesuit's college of great extent. It was formerly the residence of the bishop of Louando, and Count Saldanha thought, had taken up his residence in one of the Azores. Both Captain Owen, in H. M. S. the Leven, and Captain Vital, in the Barroscoa, touched here in 1825, in the course of their survey of the African coast. Captain Vital, sailing towards the north, arrived at St. Paul, on the afternoon of the 8th of November, when guns were fired at the ship from a large battery hewn in a rocky cliff, and presently a Number of negroes came down to the shore by a ladder, and called to the commander of the vessel, and then they proceeded as far as could be seen towards the town, which, perhaps, is not included in the number just quoted. The principal part of the city stands on an eminence, which juts out to-
wards the island, and on the extremity of which the largest citadel is placed. There are also other batteries besides this. The low-lying part of the town, however, is the most crowded. It is inhabited, for the most part, by the negroes of the country, and consists merely of a crowd of mean looking huts, very ill built, and inhabited by the poor, at St. Paul, in 1600. The entire length of the town is described in Captain Owen's Voyage, as extending for about a mile and three-quarters along the shore. The new harbour is three miles and a half long, and deep and commodious. The market was found to be well supplied with fruit and vegetable, and hullocks and goats were also in great plenty. The country around is described as dusty and parched; but the town is well supplied with excellent water brought from the river Louando, by a long aqueduct, lying on the sea some miles to the north of St. Paul. The old accounts say that plenty of good water is found by digging in the Isle of Louando. This vicinity, according to the account in Captain Owen's Voyage, is in the only part of the west coast of Africa, to the south of the Guinea, where horses will thrive.

The most detailed account that has been given of the geo-

ography of Angola is that furnished in Labat's book, prin-

cipally from bare facts. Many others, however, have lived in the seven-
teen provinces, into which they be described as having being antiently divided, only the following seven belong to what is properly called Angola:—Louando, that in which the capital is situated; Danda, adjacent to the river Louando, as above stated; Danda, or Socot, the other- wise called the Zenza; and altogether inland; Moseche, between the Luaca and the Coana, being the province in which the various fortifications are situated; Elamba, between the Danda and the Benga, divided into the lower province next to the sea, and the higher, called otherwise Lombo, farther inland; Oariil, to the east of this, and Fombe, or Mambacca, comprehending the whole territory of the same name. The last, or fort called Ambaca by Mr. Bowdich is situated. Various additional particulars may also be collected from Mr. Bow-
dich's book. Nearly five hundred miles beyond the most distant Portuguese far is Cassanga, where it is stated that, during the government of Count Saldanha, a respectable merchant of the name of Pa 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 Cassangares are the Cachiungs, and to the east of them are the Dunges, with whom they are always at war, and who are said to maintain a trading connexion with the Portuguese settlement of Mambacca, on the oppo-
site side of the island, on the coast of the island of Louando. The Cassanga and the Coana have both their sources in a great lake, which lies on the eastern limits of Cassanga; and also, that there is in that region a third river larger than any of these, which, however, does not appear to have a source from the coast, and appears to have been actually traced by the people of the country to the distance of fifteen days' journey beyond the Quindonga islands, in long. 20° 30', through the territories of the Mogua-
guelas and Songos, two degrees south of the Quindonga islands. The island of Quindonga 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 Mattam, and is to the east of Upper Ilamba, already mentioned. In the road to the coast, near the town of Gigas, or Jaga, whose atrocities make a great figure in all the old accounts, but that Mr. Bowdich says that Jaga is an epithet which is borne by the Cassangares, and that it de-
notes a race who were originally nodical warriors, in con-
tradistinction to Jova, which means a stationary people. The Gigas mentioned by the old writers certainly resided far to the west of Cassanga. To the north of Mattambe, Galman, and the upper part of the Luando, is the district of Ginge, the ancient capital of which, Cabaas, is reported by the natives to be four days' journey north of the Coana, and three days' journey south of the Louando. It is placed in 18° 30', in 18° 30', and on the same meridian with the Quindonga islands. It is necessary to observe, however, that very little dependence is to be placed upon these notices, the very vague-
ness of which indicates that they have been in great part deriv'd from nothing better than the loosest rumour, while a comparison of the accounts given by different autho-

historical and geographical knowledge. 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 Gigas to ho the people of Mattampe, or Matamba, and to which are been so called from one of their queens, Dingha, or Anne Zingga, or Gomu Ambrina. In the account of Portuguese in the seventeenth century, occupies a large space in Cavazzi's narrative.

The language spoken throughout the whole of Angola Proper is the Bunda, which is spoken by a majority of the Congose, or that spoken as far north as Cape Cath-

B. 2

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nearly the same appears to be spoken as far east and south as Moolooa, in 13° S. lat. and 32° E. long.; and it is probable that the Commodore's difference from Bumbu, 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 18° 45' E. long., the language spoken by the natives found to be easily intelligible to those who understood the Bundo language.

The government, laws, and religion prevailing among the natives of Angola are, in their general features, the same with those of other negroes in the neighborhood. 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 rubber and grease from flesse, as the tree is called. Ancient 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 rains among the labours of the priests and indigenous missionaries are the accounts 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 had visited being Ambris, which may be in 4° 15' S. lat. and 13° 15' E. long., about 20 miles 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 highly hilly, is largely as 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 Danda and the Coanza until you proceed up the country as far as to 30° 30' S. lat., in the north, and is 3000 feet above the coasts of Angola. Cavazzi states, the confines next Congo as defended by high mountains and sandy deserts. There are no considerable mountains, however, in the space between the Danda and the Coanza until you proceed up the country as far as to 30° 30' S. lat., in the north, and is 3000 feet above the coasts of Angola. Cavazzi states, the higher Ilhams, Cavazzi states, are iron-mines, being the same, we suppose, which are mentioned by Mr. Bowdich as having first been wrought in 1776, but as having been abandoned, on the removal of the instrument of trade occasioned by the frequent inundations of the river Lucala. The attempt to work them, however, was resumed, under the direction of Count Saldanha, with more success, a hundred and forty persons being employed at 23° 30' S. lat., 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 what the Cavassos sell to the Portuguese comes from Moolooa, which, as already mentioned, is far to the south of Angola. Petroleum is found in abundance in the province of Danda.

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, which country 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 1844, from which it appears that the imports into Lisbon from Angola were, in 1803, 107,778 reis; in 1804, 111,279 reis; in 1805, 114,782 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, linsey-woolsey, and others of a elaborated kind; 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 imports from Asia) of 466,788,312 reis in 1803, and of 586,976,145 reis in 1844. These two

The physical geography of this portion of Africa, and of the adjacent regions, will be treated of under the head of CONGO.

ANGORA. [See ANCYRA.]

ANGOSTURA, a town in South America, on the banks of the Orinoco, in the Republic of A, 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 narrower than at any other; the rapids or strait, to which the name of its own country, Angelina, is probably due, lies between the sides and parallel to the river, so that 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 as it is said to be 86° on the sea, near Mendoza, at London Heights, and 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. Though at a great distance from the ocean, the town is only about 191 feet above the level of the sea. To the east of it as far as the mouth of the river, a level plain extends; but still more extensive are the plains on the west, which stretch up to the banks of the Orinoco, near Pamplona and Santa Fe de Bogotá. The western plains are known by the name of Llanos (levels). In the rainy season, from April to November, these plains are mostly inundated. Notwithstanding its trifling elevation above the level of the sea, the temperature on the plain is a mild and equal temperature. It seldom happens that Fahrenheit's thermometer rises above 86° in the hottest time of the year; and from the beginning of November to the middle of February, it frequently drops below 65°. The air is, therefore, generally descends only to 65° or 70° at night. This is, in part, to be attributed to the trade-winds, which, according to Depons, blow very regularly from the month of November to the month of May; 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 tends to rain.

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 considered. In this respect it is very advantageous to the country. 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, and it is necessary that the water be from the 850 to 1050 feet deep; lastly, the river being a wind 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 every other part of Colombia. A voyage from Europe to Punta Barima (at
the southern embouchure) is performed sometimes in eight
to twelve minutes. Among the results from thirty to thirty-six
months, 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, the inhabitants of which buy of us.

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 navigated up to the mouth of the Orinoco; hence 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 a range of mountains, but it is sold
and its produce, 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 cacao, 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 the Orinoco to Cabrutas, at the mouth of the river Aparé; then along the latter river to San Vincente,
and hence on the river Rio Santo Domingo as far as Torunos, which is the port of Varinas Nuevas. The little town of
the former name is considered as the origin of the 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 to Angostura, but the commerce of these rivers will be perhaps monopolised
and sold 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 a fine rich grass, and
innumerable herds of cattle, horses, and mules pasturing on them. Great numbers of them were annually exported from
Angostura to Trinidad and the other islands of the West Indies. The hides, also, and jerked meat, from this region, are
sold at a advantage commerce. (Travels of Baron Humboldt and
Depona.)

ANGOULEME, a city of France, on the left bank of the river Charente, and on the road from Paris 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 exten-
sively 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 ten thousand five hundred and twenty persons. The
humblest of the former counts of Angouleme. It now has a royal naval school, a high school, a library, and a

An English traveller, Colonel Kemshead, who visited
Angouleme in 1814, describes it as the 'Castle of France:
the ancient houses on the banks of the Charente, a smooth-
flowing river, form a picturesque mass of buildings. Its
beauty, however, appears to diminish on a nearer approach,
where the houses on both banks become more prosaic.
It is a town of great and, indeed, unknown antiquity. It
was the capital of the Romans, and its ancient designa-
tion may be clearly traced in its present site. In the
more eminent natives of Angouleme were
Balsac, and Montlesmembre; the engineer. Two others have
acquired celebrity by crimes arising from the fierce religious
disputations which agitated France in the sixteenth
century:—Potier and Valaville, a Rhone; and of Guise and of Henry IV., respectively. (Maitre Bru; Balbi;
Dictionnaire Universel de la France.)
The arrondissement of Angoulême contains 114 commu-
nities, and about 100,000 inhabitants.

ANGOT, a province of Abyssinia. [See Amhara,
Alavarz, and the travels of Alvares.]

ANGOULEME, CHARLES DE VALOIS, DUKE OF,
the natural son of Charles IX. of France and Marie de
Monsoreau, 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, grand prior of France, that is, head of the order
of the Hospitallers of St. John of Jerusalem of the Island of
Malta, in that kingdom. This same year, however, having
received by the bequest of Catherine de Medicis the earls
of Auvergne and Lauraguais, 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 Ivry, and at Fontaine
Française. After the termination of the war, however, he was
charged with having been concerned both in the conspira-
y of the Marshal de Biron in 1602, and in that
fomented in 1604 by the Marchioness of Verneuil, Henry's
father-in-law. His name is associated with that of
M. 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
on him, but the punishment was commuted by his royal
father for a year's imprisonment, and in 1616 he was
made Duke of Angouleme, having till then borne the title of Count of Auvergne.
He was also appointed general of the light dragons of
France, and in 1618 was placed in command of the
court of the Emperor Ferdinand II. He afterwards resumed
his military career. He was 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 oc-
curred the last years of Louis XIII. and the commencement
of the reign of Louis XIV. He died on the 2nd of
September, 1650. The following works by the Duke of
Angouleme were published during his life:
Les Horangues
prononcées en l'Assemblee des M, les Princes Protestant,
aux États de Champagne, par le Duc d'Angoulême. Dix
dernieres
règnes de la
royal
polo
et
Duc d'Angoulême. Par

Diogo de Torrès, et traduit par M. C. D. V. D.'A.
(M. Charles de Valois d'Angoulême), quarto, Paris, 1638.
The last is reprinted in the third volume of Ablocourt's
translation of Marmol Carvajal's Description of Africa,
three volumes, quarto, Paris, 1667. The Mémoires très
particuliers du Duc d'Angoulême were published at Paris
in duodecimo, in 1667, by Jacques Buine, along with
some other narratives relating to the same period of French
history. The volumes were of great rarity, and very
expensive. 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 Principles de la République, de l'Ambas
et de M. d'Aubais and M. Menard, in three volumes, quarto, 1759.
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, grandson of Philip Comte de Béthunes, who was
associated with Angoulême in the negotiation, but who
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 Montmo-
tron; and secondly, on the 24th of January, 1611, to
Françoise de Narpome, 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,
ANGOUMOIS, a district in France, which was united with that of Saintonge, in one province or military government, until that mode of division was superseded at the revolution of 1789, and a new arrangement made in 1790; it is bounded, though not exactly, with the department of Charente. It is watered by the river Charente, which rises within its limits, and pursues a very winding course through it; and by several tributaries of that stream, among which are the Tardoire and the Baudiat, and the Touvre. The Tardoire comes from the province of Limousin, and its waters, after heavy rains, unite with those of the Baudiat; but at other times, both these streams, before their junction, are swallowed up and lost in pits (either open or filled with a sand, through which the water filters) which lie in their courses. The water thus accumulated in subterranean reservoirs, is supposed to supply the stream of the Touvre.

The surface of Angoumois is far from level; but its hills, which are of nearly a uniform height, rise to no great elevation in its highest part, and the country is thereby prevailing for a short time; and the vegetable productions arrive at great perfection; but the soil is so variable in its fertility, and so large a portion of it is barren, that the district cannot be designated as productive, and the annual payment of the area is often very injurious to the vines, the cultivation of which is carried to a great extent. The white wines are desirable; and the brandy (designated from the town of Cognac, in this province) is highly esteemed. The principal cereals are wheat, rye, oats, barley, maize; and the most fertile of the arable lands have yielded abundant harvests for ten or twelve years without requiring any manure; some are not even allowed to remain fallow. The fruits are of the finest quality, especially the peaches and pear; walnuts and chestnuts are abundant. The cultivation of the mulberry-tree has been attended to, in order to raise the silk-worm; flax is grown for the sake of the linseed; and to these productions we may add tobacco.

Angoumois is a district of considerable interest to the geologist, and rich in mineral treasures. Stone, proper for building, is found in many places, and mill-stones are dug in abundance. Under the valley of the Charente, branch of the Charente. Iron mines are abundant; there is a mine of antimony at Menet, and extensive quarries of gypsum (platrier), in the neighbourhood of Cognac. See article Gypsum, in the volumes of 'Geographie Physique' of the Encyclopédie méthodique.

The province was anciently governed by counts, but having fallen to the kings of France, was cedcd by John, afterwards the battle of Poitiers, to Edward III. of England. The inhabitants, however, did not instantly submit to English, and put themselves again under the French dominion a few years afterwards, namely, in 1371 or 1372. (Encyclopédie méthodique, Dictionnaire Universel de la France.)

ANGRA, the capital of Terceira, one of the Azores, is on the south coast of the island, 39° 39' N. lat., 27° 16'/ W. long. Angra stands on an inlet, from which it derives its name; angra being a Portuguese word, signifying a large harbor. The town is the seat of the bishop of the governor; it is also an episcopal town, and contains a cathedral, five parish churches, four monasteries and four convents. The town is fortified and defended by a strong fort at the entrance of the harbor. Angra has a fine harbor, with broad and straight streets; from the year 1538, it became a city. It is the residence of French, English, and Dutch consuls, and carries on some trade. The population is probably 15,000 or 16,000.

From September 1839, till the recent events in Portugal, Angra was the residence of the regency which governed in the name of Donna Maria. During this time, its fortifications were strengthened. [See Terceira.]

ANGRA, a branch of the river Tamega, in Abyssinia. ANGUILLA, or Snake Island, so called from its figure, is one of the Amulies, situated in 15° 9' N. lat. and 49° 19' W. long.

This island was first settled by the English, in 1662, and has since continued in their possession. It is so low and flat, that it cannot be seen at a greater distance than half a mile; yet it is inhabited by five families and 1000 souls. The soil is a mixture of sand and pebbles, and the place is deficient 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 has also a little lime, and is connected with it by a bridge which it stands is so shut in by reeds, as to be of little value as a harbour. Anguilla is very near the north side of the island of Saint 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 fathoms water. Several small, low islets lie to the west of Anguilla; the largest of those, Dog Island, has but few inhabitants.

Anguilla is about twenty miles long, and six broad, and contains between 700 and 800 inhabitants. (Purdy's Colombian Navigator; Livingston's Directory of the Antilles.)

ANGULAR SECTIONS. [See Torsion, Traction, Triomometry, (Thomson, in Moivre's.)]

ANGULAR VELOCITY. [See Velocity.]

ANGUS, [See FORFARSHIRE.]

ANHALT is an ancient principality in the north of Germany, bounded on the north by Saxony, on the east by 'Burg an der Halde' (castle on the steep), and by others, from 'Burg von Stein ohne Holt; or castle of stone without wood. It lies between 6° 10' and 6° 6' of N. lat., and 10° 29' and 10° 34' of E. long.; it is enclosed almost on every side by the Prussian territories, viz., by Brandenburg on the north, Prussian Saxony on the east and south, the eardom of Mansfeld on the south-west, and the territories of Brunswick, and the Prussian circle of Gotland, in the west; all these territories are of exceeding extent, and the Prussian circles of Brunswick, and the Prussian circle of Gotland, in the west; all these territories are of exceeding length sixty miles, with a breadth varying from twelve to sixteen, these triple duchy contains an area of 12,000,000 acres, or 48,000 square miles, and 249 other villages. Of the towns, four possess a population exceeding 3000 souls: viz., Dessau about 10,000; Zerbst 8000; Cothen 8500; and Bernburg 9800. The form of government is monarchical, and the sanction of its laws is required to the imposition of taxes, though the fundaments of 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, bordering the sea of the Hartz Mountains, in the direction of Bremburg, was formerly a compact territory, and its rulers derived their origin from Ascanus, grandfather of Japhet, the son of Noah, whose descendants are supposed to have migrated from the marshes of Asasia, Bithynia, and Pontus, and the forests of Germany. Hence the prince of Anhalt to this day designates themselves Counts of Ascania. Their ancestral seat was the stronghold of Anhalt, lying on the Hartz, which is situated on the south side of the ancient town of Ballenstadt, in 940. Its only remains, at the present day, are the crumbling fragments of some of its vaults, and a noble ash, rising from the midst of them, over which float the red and yellow clouds, giving a remarkable and picturesque description to the following effect against its trunk:—Among roots and shaggy foliage, in memory of a noble ancestry and their achievements, prowess, and piety, with mourning, at the evanescence of earthly things,—and with joyfulness, at the contemplation of the constancy of nature, and the love,—posteriorly lifts it up its regards to a higher sphere. In fact, there is no family in Germany which has produced a
greater number of brave and skilful warriors than the House of Anhalt; beginning with Bernhard, who declined the imperial sceptre in 1198, because he deemed himself too corrupt for such a dignity; or from Wolfgang, one of his sons. When the imperial title was attempted to be reinstated in his possessions after he had been expelled from them by his opponents, outraged, ' though old and poor, I would give a thousand florins could I but give the Plague to the whole of my townsfolk,' according to his infamous words. He was christened by Principe Eugane, an account of his dejection of the papacy, who lead the Brandenburg troops to victory in the Low Countries and Italy, created the Prussian infantry, and thus returned the whole to the memory of the service of five field-marshal who distinguished themselves in the Prussian service in the first half of the last century. Upon the death of Joachim, which happened in 1685, (the inheriting of the several branches of the House of Anhalt having been united in his person,) his four sons divided the principality between them; and thence arose the respective sovereigns of Dessau, Bemburg, Zerbst, and Cothen.

The third of these became extinct in 1728, and was shared in equal portions among the three surviving branches. Their creation into duchies is of recent date; the princes of Bemburg having been created duke in 1646, and the princes of Dessau and Cothen having been raised to the same dignity in the following year. The three duchies possess, in conjunction with Obersberg and Saxony, two counties in the minor assembly of the diet of the German Confederation, but each of them a distinct vote in its plenary assemblies; they furnish a contingent of 1024 men to the imperial army. The territory of Cothen is valued at about 15,600, and their public debt at 292,000l. (See Bernburg, Cothen, and Dessau.)

ANHOLT is a small Danish island, with a lighthouse, between the shores of Jutland in Denmark and Holmedal in Sweden, in the Kattegat, 56° 39' N. lat., 11° 36' E. long. It was taken by the English during the last war, and an ineffectual attempt to recapture it was made by the Danes in 1811. Its inhabitants do not exceed 100 in number, and subsist by catching seals and fowling. The name of a small town on the old Yssel, in Westphalia, nine miles north-east of Nimagen, with a handsome palace, the residence of the prince of Salm-Balm. Population 1700. By the treaty of Vienna, it was placed under the sovereignty of Prussia.

ANIETO, TOMASO, called by corruption Massaniello, a young fisherman, and a native of Amalfi, lived at Naples towards the middle of the seventeenth century, under the government of the Duke d'Araco. Viceroy of Philip IV. of Spain. Naples was then suffering from 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 conqueror. The common people were oppressed 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 object, the city was reduced to a state of extreme poverty. Viceroy, being at Naples, who was a man of abilities, and withal popular, to act as mediator between him and the people. Articles were drawn up under Massaniello's direction, by which all imposts 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 Massaniello, distrusted of the viceroy's fidelity, posted a fine charger, proceeded to the Castle Nuovo, followed by an innumerable multitude. The viceroy received Massaniello with every mark of deference, and the conditions were examined and accepted. As Massaniello 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 sign, all the bells tolled and the people fell on their knees, and then, taking hold of his big lips, they all became mute. The viceroy being now convinced of the astonishing power of this man, the negotiation was soon concluded, after which the Duke d'Araco was consoled, and the whole kingdom was restored to Ferdinand himself as Duke of St. George. Massaniello returned in triumph to his humble dwelling, and peace was momentarily restored. But Massaniello's mind gave signs of fatal decay; his sudden and giddy elevation, the multiplicity of questions that

taxed article. She was kept in prison several days, and her husband had to pay in order to obtain her release. Massaniello had, accordingly, as we might expect, conceived a violent hatred against the Spanish government. A crowd of 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 discovered, and they endeavoured to set fire to the place, where, in consequence of the obnoxious tax, but few women were present with the produce of their gardens; the people looked sullen and dissatisfied. A dispute arose between a countryman and an employer who had bought some figs as to which of the two was to bear the expense of the purchase of the two men, or between the common magistrates, setting as pretext 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. Massaniello ran to the spot, crying out 'No taxes, no more taxes!' The cry was caught and repeated by a thousand voices. The eleito tried to speak to the multitude, but Massaniello threw a bunch of figs in his face, the rest fell upon him, and he and his attendants escaped with difficulty. Massaniello then addressed the people around him in a speech of course, hot, fiery eloquence; he described their common grievances and miseries, and pointed out the necessity for immediate redress of them. The populace, having thus been united (to Malaccus) amount to 14,600,000l., and their public debt to 292,000l. (See Bernburg, Cothen, and Dessau.)

Anholt is a small Danish island, with a lighthouse, between the shores of Jutland in Denmark and Holmedal in Sweden, in the Kattegat, 56° 39' N. lat., 11° 36' E. long. It was taken by the English during the last war, and an ineffectual attempt to recapture it was made by the Danes in 1811. Its inhabitants do not exceed 100 in number, and subsist by catching seals and fowling. The name of a small town on the old Yssel, in Westphalia, nine miles north-east of Nimagen, with a handsome palace, the residence of the prince of Salm-Salm. Population 1700. By the treaty of Vienna, it was placed under the sovereignty of Prussia.

Aniello, Tommaso, called by corruption Massaniello, a young fisherman, and a native of Amalfi, lived at Naples towards the middle of the seventeenth century, under the government of the Duke d'Araco. Viceroy of Philip IV. of Spain. Naples was then suffering from 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 conqueror. The common people were oppressed 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 object, the city was reduced to a state of extreme poverty. Viceroy, being at Naples, who was a man of abilities, and withal popular, to act as mediator between him and the people. Articles were drawn up under Massaniello's direction, by which all imposts 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 Massaniello, distrusted of the viceroy's fidelity, posted a fine charger, proceeded to the Castle Nuovo, followed by an innumerable multitude. The viceroy received Massaniello with every mark of deference, and the conditions were examined and accepted. As Massaniello 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 sign, all the bells tolled and the people fell on their knees, and then, taking hold of his big lips, they all became mute. The viceroy being now convinced of the astonishing power of this man, the negotiation was soon concluded, after which the Duke d'Araco was consoled, and the whole kingdom was restored to Ferdinand himself as Duke of St. George. Massaniello returned in triumph to his humble dwelling, and peace was momentarily restored. But Massaniello'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 best of the season, his want of sleep,—all helped to derange his plans. He had already committed to fate the act of bolting 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 people to shoot him on the landing. Masaniello's precautions were put to summary death, but the fears of Masaniello continued, and he ordered every man, even ecclesiastics, to leave their clogs and long robes, and appear in short clothes in the streets. Meantime the chief of the police, with his face from a low window of his house, with a loaded blenderus in his hand, and his door surrounded by guards. He showed himself capricious, absurd, and cruel, though cruelty does not appear to have been his constant characteristic; he began to lose credit with the multitude; the rebel government besides required money; and, as the only expedient, taxes upon estates 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 to destruction sixty palaces, only twenty-four of which, however, were published bills of sale of that death with frightful 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 off the stone of St. Peter's and putting their weight on the coasts of the Tyrrhenian. In the same week the priest, John, and all the clergy, and their wives, left their church, and went to the market-place. The vicar gave his order to the bolts to be got ready for him; and, as the mob had enriched themselves by the sale of the palace of the prince of Calabria, 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. After this he sat down to supper, at which he swallowed an 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; the people still clung to him, and he was still all-powerful: but he behaved so outrageously 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 sea, where the bloody Stephens was peri- lunging mass. 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 them of what he had done for them, to be tore his clothes, bear his bracers, the care of the body being the continual anxiety. He entreated them not to abandon his enemies. The people were affected by his address, but all at once poor Masaniello relapsed into one of his fits of aberration; 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 awhile in an adjoining convent. He was taken into one of the cells, 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 a window in a restless- chly mood upon the tranquil and beautiful scene before him, 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, calling him by name. Armed men appeared at the cell-door. Masaniello turned towards them: 'Here I am—do my people want me?' A discharge of their arquebuses was the wretches' answer; and Masaniello fell, exclaiming: 'Ungrateful treachery! I had been a year in exile, and expected to return to Naples on a pole, and carried to the vicaroy, 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 a time, recovered, chose Gennaro Annone, one of the vil-
forfeited, while, if favourable, he might look for the most splendid rewards. But Mesmer 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 quit France and repaired to Spa. This and other chains of conduct, which will hereafter be taken into account, sufficiently prove that Mesmer, 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 2400 francs for his instruction, and that the actual reward actually amounted to 34,000 francs, nearly equal to 14,000£ sterling. On receiving this sum, Mesmer returned to Paris and recommenced his public treatments. Meantime his disciples, who had paid thus liberally for his instructions, found themselves in doubt whether the former house of M. Desmorin, for the purpose of gratuitously propagating the doctrines 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 Mesmer, seeing no prospect of making any further personal advantage by his discovery, quietly put the money in his purse, quit France, retired to his native place, and gave himself no further trouble about the success or failure of animal magnetism.

Such is the history of the discoverer: of the discovery Mesmer himself gives the following account:—Animal magnetism, he says, and on the strength of it he is entitled to the credit of a mutual influence between the heavenly bodies, the earth, and animated bodies; it is continuous, so as to leave no void; its subtility admits of no comparison; it is capable of acting, though unseen; others, according to the nature of the substance, and the susceptibility of any of the substances, may or may not feel this effect; others, according to the nature of the substances, may or may not be affected. The animal body experiences the effects of this agent; by insinuating itself into the substance of the nerves it affects them immediately, and acts in their duration and vibration. There are observed, particularly in the human 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, animate and inanimate, where applicable: it penetrates, it makes its way through the air and without the aid of any intermediate body; it is increased, reflected by mirrors; communicated, 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 being increased by the exercised influence of the various magnets, immediately, and others mediately. Itperfects the action of medicines; it excites and directs salutary crises in such a manner, that the physician may render himself master of them; by its means he knows to what the severities of the cases, the nature of the disease, the 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 danger of contending with their own diseases, whatever be the age, the temperament, and the sex. In animal magnetism nature presents a universal method of healing and preserving mankind. (Memories sur la Decouverte du Magnétisme Animal. par M. Mesmer, 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 in which these operations were to be performed was 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 pierced with numerous holes, in which were placed polished iron rods of various lengths, bent and capable of being moved: this was called the bouquet or magnetic tub. The patients were placed in Successive order, and when they were supposed to be on the point of dying, the end of which he applied to the part of his body which was supposed to be the seat of his disease: a cord passed around their bodies united the patients to one another, and they took hold of one another's fingers, without 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 bouquet was a reservoir of magnetic virtue; 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 the operations by which the magnetiser increased the effects of the fluid by communication. The magnetizer had previously charged the piano-forte with magnetico fluid; the person playing on it incessantly moved one rod; the sound conducted it to the patients. The pulse of the patient was then taken, to judge whether it was quiet; to give them agreeable sensations, and thus to dispose them to receive the magnetic action. The purpose of the magnetizer's rod was to concentrate to a point the fluid power for it was thus to render it more powerful. The sick persons arranged in great numbers and in several rows around the bouquet, thus receive the magnetism by all these means; by the iron rods which convey to them of the bouquet; by the cords round round 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 magnetizer 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 magnetizer; but above all by the application of his hands and the pressure of his fingers on the hypochondria and the lower parts of the abdomen, which was left sometimes, sometimes for several hours. Meanwhile the patients in their different conditions present a varied picture. Some are calm, tranquil, and experience no symptoms; others feel a general warmth, and have sweats; others again are agitated or tormented with convulsions. These convulsions are remarkable in regard to the number affected with them and the manner of the cure. Briefly, the patients suffer as if they were in a 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, by the tearing and the acute languor, the languor ex- ced or followed by a state of languor and reverie, a kind of depression, and even drowsiness. The smallest unfore- seen noise occasions shuddering; even a change of tone and measure in the air 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 in action is a 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 symptoms which are established: some patients show their exclusive attention to each other, rushing towards one another, speaking with affection and mutually soothing their crises. All are under the power of the magnetizer; it matters not in what state of drowsiness they may be—his voice, a look, a posture brings it on or prevents it.

Such is the account of M. Bailly, who, together with Lavoisier, Franklin, and other distinguished men, were appointed 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 bouquet, the grand reservoir of this wonderful fluid, by means of a needle and electroscope, they observed the slightest of the electric or magnetic force was in the common magnetism or of electricity was afforded; that it is wholly inapplicable by any of the senses or by any mechanical or chemical process; that they tried it upon themselves and among many others without being able to perceive anything; that on blotting those who seemed to be the most suscepti- ble 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 imagined they were not magnetised: nothing was done; that, in like manner, whom brought under a magnetized tree nothing happened if the subjects of the experiment thought they were at a distance from the tree, while the effects were produced when it was imagined they believed they were near the tree, although really at a distance from it; that, consequently, the effects actually produced were produced purely by the imagination; that these effects, though some cures might be wrought, were not with-
out danger, since the convulsions excited were often 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 magnetizing which might readily be turned to violent purposes, and that the immoral practices had actually grown out of them.

Notwithstanding such a report from men so well qualified to form a judgment, animal magnetism continued to flourish in France; and Dr. Ferguson, who was one of the signers of this report had become public, and advertizing to the proneness of mankind to credulity, states that Mesmer was at that time getting more money in the shape of fees than all the magicians in Paris 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 tractor. For this instrument he had obtained a patent, and its virtues he set forth in a work bearing the following title—

\[\text{The Efficacy of Perkins' Patent Metallic Tractors in various Diseases of the Human Body and Animals; exemplified by ten thousand cases of cases of} \]

\[\text{Electricity and Animal Magnetism in Europe and America. With a Preliminary Discourse in Refutation of the Objections made by Interest and Prejudice to the Metallic Practice.}\]

Dr. William Falconer, of Bath, having made tractors of wood so exactly resembling the tractors of iron, that it was almost impossible to distinguish between the one and the other, tried, in concert with Dr. Haygarth, the effects 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, affirming 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 in England; but we have little cause to wonder that their curative power should be inferior to our neighbouring, 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 Ben. 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, 8vo. 1785: The Foreign Review and Continental Miscellany, No. IX. Nov. 1839, art. Animal Magnetism.

ANIMAL PHYSIOLOGY. [See Physiology.]

ANIMALCULES, in zoology, is the name which has been applied to small animals of various classes, which can not such a digest that the use of a tractors of iron, that it was almost impossible to distinguish between the one and the other, tried, in concert with Dr. Haygarth, the effects 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, affirming 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 in England; but we have little cause to wonder that their curative power should be inferior to our neighbouring, 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 Ben. 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, 8vo. 1785: The Foreign Review and Continental Miscellany, No. IX. Nov. 1839, art. Animal Magnetism.

ANIO. [See Taverone.]

ANISE. [See Pimpinella.]

ANJAR, a small district in the province of Cutch, in Bombay, the seat of the government of the province of Cutch, and was again transferred to the Rao of Cutch in 1819, in consideration of an annual sum of 88,000 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 laborious digging; there is no sand or sandy to present obstacles to farming 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 produce of it, and he was induced by this 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 76° 11' E. long.

The town is built on the side of a hill, about ten miles from the Gulf of Cutch. The fortifications are not strong, the walls being only six feet in thickness, and without a moat or ditch, being composed of earth, its foundation being a wall of the old fort. 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 town was then 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 Maine. Southern France, which bordered 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, and the Loire, join 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. The Anjou is one of the most favoured provinces for its climate, being situated within a part 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 Bretonne. Its form is very irregular, especially in the east, where the district of Saumurous runs out to the south-east between Touraine and Poitou. Its capital was Angers, and the Anjou is one of the most distinguished provinces in the history of the Middle Ages, which included in the hibouétrick 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 gaily defended their country and their poniard, of Poitou, and of Normandy. A count of Anjou, also styled Fulke, joined the early crusades, and became King of Jerusalem. His son Geoffrey married (in 1127) Matilda, or Matilda, or Meud, a daughter of Henry I., King of England, to the crown of which he gave as heir, Henry Plantagenet. Thus emerged the first house of Anjou. Soon after the conquest of the province, by the French, it was bequeathed by Louis VIII., in 1226, to his fourth son, Charles of Anjou, who conquered the second house of Anjou, and raised it to a height of grandeur and renown no longer proportioned to the little province from which it derived its title. He espoused the daughter of Raymond of Toulouse, of the Counts of Toulouse, and was heir to a vast and extensive fief, including the greater part of the south of France. He accompanied his brother St. Louis in his crusades to Egypt, when he was taken prisoner with that monarch, but soon afterwards ransomed. His government of Provence was marked by rapacity, over-bearing cruelty, and contempt for the privileges of his subjects. Such, however, was the prince whom the pope selected for the throne of Naples, in opposition to Manfred and Conradin, when the last of the house of Angevin was dead. The pontiff 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 her kindred should be left at the head of so large a province, and thereupon 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 the Angevins. The Angevins were defeated at Benevento, and Anjou was reduced to a vassal state of the Holy See.
of Charles against Manfred. The Angevin prince invaded Italy with an army of 30,000 men, in 1265, 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, and the two armies, in the field, met 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 took ship, came off the coast of Calabria, and joined his followers, who had been dispersed, 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 there no mercy shown in the field, but the neighbouring town of Beneventum was given up with its population to the sword. Charles procured the execution of the sons of Manfred, having prevailed with the nobles of Apulia. 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 adultery and rape were as familiar as apollinations.' Such is the pope's record of the effects of the crusade preached by himself.

Charles of Anjou, as head of the Guelfic party in Italy, was more than sovereign of Naples. Ramifications of the two great parties disputed Tuscany also, and Charles marched that winter, in an effort to diacharge of a new naval war, 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.

When, 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 to the south by the disaffection of the Neapolitans, Charles was not able to offer no effectual resistance. To Conradin, till the invader penetrated through the Abruzzi into the kingdom of Naples. 'Never a country,' says Simondi, 'more fertile for a protracted war of defence by its mountains and its rivers, its towns, its castles, than this of Italy, and the latter decided by battle in the plain.' (See Abruzzo.) So it was now. The armies met at Tagliaccoco, 5000 on the German, and 3000 on the Neapolitan side. Of these 3000, Charles placed 900 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 blash to bring his young competitor to a mock trial, when he was of course convicted of having defied the protection of God and the pope in the person of Anjou, and was, therefore, against 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 set of pronouncing the sentence. The Pope, who had prepared to depose the 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 of Anjou was present with all his court. When Conradin laid 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 Don Peter of Aragon, who bad married the daughter of Manfred, and who, under this claim, became the protector of the House of Anjou.

For the time, however, Charles reigned without opposition, not only over Naples, but over the whole of Italy. An intense struggle was, however, still being carried on amongst 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 supersition, too, seemed to lead him astray; he was ruled by a delusion that he was the saviour of Christ, the son of God, without a leader, and having satisfied his vow, Charles hesitated to make peace on condition that Tunis should be tributary to Sicily. Gain was ever his first object.

In returning, he confiscated all the vessels of his allies, the Genoese, which had been wrecked in a storm, claiming them as waifs, although they had been damaged in the service of transporting his army.

But Charles's power, and his dream of founding an empire in Italy, were overthrown by the bands that had raised him. A pope was elected, (Gregory X.), who had at heart the interest of Christianity, more than those of a party. Instead of crushing the Ghibellines, he sought to conciliate them to the Church, and to the Empire. In the anarchy of Germany, he procured the nomination of an emperor in the person of Rodolph of Hapsburg. This was raising a dangerous rival to Charles, who had hitherto ruled the north of Italy in the character of a prince. But old, bereft of spirit, and conscious of the general hatred borne to him, Charles was unable to make any effectual resistance. After a year or two of vain manoeuvres and complaints, he was obliged to give up the great object of his ambition, and cede to Rodolph the hold which he had usurped over the north of Italy.

A vacancy of the pontificate enabled Charles to rally his party, and recommence his machinations for empire. By surrounding the conclave which met at Viterbo, and getting rid of the cardinals obnoxious to him, he succeeded in procuring the nomination of a pope in his interests. From Martin IV., (so the pontiff was called,) he obtained the nomination of a direct heir to Manfred, named Charles of Altavilla, to the north of Italy, but of Greece. It was by occupying the throne of Constantinople, that Charles hoped to rise superior to Rodolph, and make good eventually his imperial pretensions. For this great project, Peter of Aragon was making similar preparations for attacking Sicily and Naples. Peter gave out that he, too, was proceeding upon a crusade, but the French and papal courts divined his intentions, and gave due warning to that of Naples.

Charles had raised an enemy amongst his own subjects more active and deadly than any kingly rival. This was John of Procia, a Sicilian noble, a partisan of the house of Anjou, he suffered captivity in Italy on that account. This man never rested, even during the years of Charles's greatest triumph and power, from exciting dissension towards him. For this purpose he visited Sicily to form a league amongst the nobles and the people of the island against the French. He undertook to negotiate with Genoa, with Venice, and with the pope himself, a league for that purpose. He journeyed even to Constantinople, represented to the emperor Palaeologus the designs of the Frenchmen, and prevailed with him to present Aragon a subsidy from the Greek. Peter fitted out a powerful fleet. But an accident in the mean time set fire to that train of dissension and rebellion which John of Procia excited.

It was on Easter Monday, in the year 1289, a day consecrated in Catholic countries to a mixture of gaiety and religion, that the citizens of Palermo set out according to custom to bear vespers at the church and village of Monte-reale, not far distant. The French soldiers and authorities unsuspiciously joined the procession, and, according to their custom, did not refrain from taking liberties with the young females whom they met or whom they accosted. One Frenchman, more bold than the rest, under pretence of searching for arms, forbidden to a Sicilian, seized a young girl, and thrust his hand into her bosom. The betrayed of the girl instantly pierced the Frenchman with a sword, the hilt of which had been prepared; it was so light, that it was so dextrously used as to have been merely a sprawl of its weight, without a leader. The Frenchman, suffering this, in order, that the property of the hated strangers might be eradicated from the island.

This massacre, notorious under the name of the Sicilian Purgatory, was of course the signal of revolt. John of Prociad hastened to Peter of Aragon, who then 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 conquering either of its strongholds. The Angevin prince, in despair, abandoned 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 competitor was not the less acute from having received his injuries at the hands of the despised, and by a false and treacherous alliance of warfare, Charles challenged Peter of Aragon to single combat: and Peter, whose object was to gain time, accepted the challenge. Bordeaux was fixed on as the place for its transaction, which was to take place between 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 15th of May, 1253, Charles of Anjou appeared at the head of a hundred knights, whilst the King Philip the II. 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 Edward of England. The king of Aragon, 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 hasten, a decision. The French forces were then for the moment in possession of Provence, to which the pope contributed, as usual, the promise of an indulgence, and the sacred name of a crusade. But whilst thus engaged in recruiting, the fleet which had been purchased at a vast expense, had been defeated off the coast of Toulon by 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 at this time too much weakened whilst engaged in 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 1255. Villani, the Florentine historian, has sketched his character minutely, calling him 'sage, severe, and magnanimous, 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 minims or pride, or courting the admiration of his subjects.' As a statesman he was one of the greatest in the world, and certainly the most admirable of them all, 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 perpetual enmity.

The posterity 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 kings of Sicily and Jerusalem, that their history is 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 to appanage to his son, Louis, who thus conversed 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 1335, was taken prisoner with his father at the battle of Poitiers, and remained long in England. Weared at 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, and with all of which he displayed capacity and cruelty. The title of Anjou seemed contagious in conveying these qualities. Still Charles at his death appointed Louis regent of the kingdom of Sicily, as his power was no longer extensive; instead of consulting the prosperity of France, the regent sought to amass wealth for the purpose of afterwards conquering the kingdom of Naples, to which Jeanne, the mistress of Anjou, was given his brother by adoption. The pope, as usual, seconded the attempt 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. The same time he was essayed to recover 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 defend Anjou against 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 successor, Alphonso of Aragon. He renewed the attempt, aided by the duke of Milan. The armies of this prince brought Louis in triumph to Naples, but whilst he was victorious in Italy, Alphonso was ravaging Provence. Louis, however, still persisted in prosecuting his conquest; he agreed to the terms of Trastimur, by which he yielded the kingdom in 1423.

He was succeeded, not so much in his kingdom as in his claim, 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 at the fall of the title of Anjou lay dormant, whilst the sovereigns of France themselves proscribed their claims to Italian dominion, as he had done in 1490, in vain. The successive princes of Anjou were of diminished importance, and the last of the line of Anjou was Louis XII., the king of France, who died in 1515. The line of Anjou was thus extinguished. The province of Anjou was divided between the dukes of Bourbon and Berry, who were the collateral branches of the family of Anjou, and which were established in the line of the French kings.
He was elected sovereign of the Nether-lands 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 terminate in person his suit with the queen. Nothing could be more odious than his reception. When he stopped to kiss the hand of Elizabeth, she substituted the English custom of offering the mouth. Agreements of the closest alliance were concluded, and in the name of her sweet mother, the queen gave him the hand of her daughter, and paid for it by the march upon his hand in public. In the midst of all this graciousness, however, clouds began to arise. Leicester and other councillors were jealous and averse; the people of Lou-.

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 it. The queen herself was to be surprised at St. Cloud on the 3rd of September, and be put to death. Nothing could be more odious than 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 at the very instant of her successor's assuming the regality, and was arrested in the house of the Marquis of Poissy. 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 confederates and followers.

While the French 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 C.ib, 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 mature schemes of vengeance. He escaped from court in the beginning of the summer of 1584, and placed before the gates of Paris, with the consent of his army, the three largest parts of the city of Tours. Instead ofای 1584, he set about raising a party once more; but the Huguenot chiefs insisted upon favourable terms, which they obtained, in name at least, in 1576. The duke, on his part, obtained advantages equally favourable, and the patent of the Low Counties, which gave him the duchies of Anjou, Touraine, and Berri.

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 deserted. War, in consequence, recommenced, and, strange to say, the duke of Anjou himself appeared in command of a Catholic army.

Thus in 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 them, and when uprisings were made to him by the malcontents of the Low Country, 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 remarked, that Anjou had lost his 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 and brother, now laboured and suffered in support of their family. The chief desire of Coligny had been sought to give him—the sovereignty of Flanders, and the hand of the queen Elizabeth. When the States asked for French aid, every facility and support was given by the king towards the obtaining of it. The whole of the force which the duke of Anjou marched against don 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 rendered arduous. The king of Spain was now more powerful than ever, and he had determined to send his army into France. Catherine of Medicis sent the commission to the duke, who strove with all his might to make the force over which he had rejoined to Elizabeth his envoy, Simior. The French manners and gallantry of this personage quite won the English queen, who threw off much of her habitual prudery, and was beguiled to entertain serious thoughts of marry-
ANKARSTROM (JOHN JAMES), a Swede, born in 1759, of a family then recently ennobled. He was placed in the military service with the only twenty-four years of age, having obtained the honorary or brevet rank of captain in the army; he then retired to his patrimonial estate in the country. He seems to have been early dissatisfied with Gustavus III. on account of the change that king had effected in the constitution of the country. At the Diet of 1772, Gustavus curtailed the power of the senate, or high nobility, who were till then possessed of an almost unlimited authority, and he was in this attempt supported by the nobility and the peasants, who were tired of the irresponsible oligarchy of the senators; but the king having thus wrested the power from the nobles, took it to himself, and ruled almost absolutely. This caused as much dissatisfaction amongst the senators as his measures caused among the high nobility. (See Gustavus III.) Ankarstrom, who did not himself belong to the high nobility, seems to have sympathised more in his political discontent with the popular party, and to have professed open enmity against the king. He was accused of having spoken against the king before an assembly of peasants, and although the charge could not be proved against him, he was confined first in the castle of Vinko, on the island of Gothland, and afterwards transferred to four fortresses; he was, however, at last released. Ankarstrom was present at Stockholm in 1789, when the king, after suppressing the senate and arresting the most refractory members of the nobility, came in person to their Chamber, which he had previously surrounded with his soldiers in order to force them to assent to his innovations. Ankarstrom spoke with great vehemence, even in the king's presence, against the violation of the constitution, and his speech made a considerable impression on the assembly. The execution of colonel Hansko, an officer of the army of Finland, who had opposed the king's orders and refused to act on the offensive against Russia, on the ground that the war had not been sanctioned by the senate, produced a deep impression on young Gustavus 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 sick, and being suspected of a disease among others, the king suspected Horn and Ribbing, communicated to them his purpose, and they encouraged him in his determination. They first tried to seize the king at Gefla, where he had convealed the Diet for 1779, 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 an anonymous 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 ball, leaning on count Ersen's arm, Horn, followed by Ankarstrom, accosted the king, saying, "Good day, fair mask." At these words, which were too internal to be heard, a pistol was discharged from a ball loaded with two balls, and dangerously wounded the king in the thigh. He was not then recognized, and went out of the hall unmolested. After the assembly had dispersed, a pistol was found on one of the guests, 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 was afterwards tried before the ordinary tribunals. He acknowledged the crime, but complained of the torture. 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.

The king had expired a few days after receiving the wound. Ankarstrom went to the scaffold with resignation; he was kept only three years of age, having obtained the honorary or brevet rank of captain in the army; he then retired to his patrimonial estate in the country. He seems to have been early dissatisfied with Gustavus III. on account of the change that king had effected in the constitution of the country. The Diet of 1772, Gustavus curtailed the power of the senate, or high nobility, who were till then possessed of an almost unlimited authority, and he was in this attempt supported by the nobility and the peasants, who were tired of the irresponsible oligarchy of the senators; but the king having thus wrested the power from the nobles, took it to himself, and ruled almost absolutely. This caused as much dissatisfaction amongst the senators as his measures caused among the high nobility. (See Gustavus III.) Ankarstrom, who did not himself belong to the high nobility, seems to have sympathised more in his political discontent with the popular party, and to have professed open enmity against the king. He was accused of having spoken against the king before an assembly of peasants, and although the charge could not be proved against him, he was confined first in the castle of Vinko, on the island of Gothland, and afterwards transferred to four fortresses; he was, however, at last released. Ankarstrom was present at Stockholm in 1789, when the king, after suppressing the senate and arresting the most refractory members of the nobility, came in person to their Chamber, which he had previously surrounded with his soldiers in order to force them to assent to his innovations. Ankarstrom spoke with great vehemence, even in the king's presence, against the violation of the constitution, and his speech made a considerable impression on the assembly. The execution of colonel Hansko, an officer of the army of Finland, who had opposed the king's orders and refused to act on the offensive against Russia, on the ground that the war had not been sanctioned by the senate, produced a deep impression on young Gustavus 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 sick, and being suspected of a disease among others, the king suspected Horn and Ribbing, communicated to them his purpose, and they encouraged him in his determination. They first tried to seize the king at Gefla, where he had convealed the Diet for 1779, 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 an anonymous 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 ball, leaning on count Ersen's arm, Horn, followed by Ankarstrom, accosted the king, saying, "Good day, fair mask." At these words, which were too internal to be heard, a pistol was discharged from a ball loaded with two balls, and dangerously wounded the king in the thigh. He was not then recognized, and went out of the hall unmolested. After the assembly had dispersed, a pistol was found on one of the guests, 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 was afterwards tried before the ordinary tribunals. He acknowledged the crime, but complained of the torture. 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.

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The few rebels in 1736, was the 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 5th of February, (O.S.) 1694. In 1710 she was married to Frederic Augustus, duke of Mecklenburgh, who became the new emperor, Peter II., on the 29th of January, 1730, without issue, it was pretended 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 started.

The duccess 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. Carabiniers joined them, and the heads of the persons who composed this meeting unquestionably was to reduce the government of Russia to a limited monarchy, or rather, perhaps, to an aristocratical form. They did not object to the present management or the b-lliness requisite for so great an undertaking. For the present they deemed it necessary to name a successor to the late emperor, and the duccess Anna was unanimously fixed upon, being, it is believed, indebted 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 duce Anna, had been seen in the Moscow papers as passed over on the pretence 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 advice sent by Jagouzinski, defeated this scheme by sending a courier to the ducesca, who, in spite of the guards placed on the road, contrived to reach Mittau, where she was, just in time to make her acquittance with what 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 follow this counsel, and immediately set out for Moscow.

She arrived in the capital on the 20th of February. For a few days she dissemed her designs. But on the 5th 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, de- clared her wishes known, and ordered the Senate to obtain, 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, acquiesced in this act 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 Fedorowitz, the founder of the reigning house. The banishment of the Dolgoroucki, the dissimilation of the new government, the raising of the Prisoners of War, and 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 last acts of the new reign, after 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 foreign vassals, which Russia, for the want of sources of expense to Russia, were restored to that 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 embroiled in a contest respecting the succession. Poland was supported Stanislaus Leszinski, 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, Austria and Russian joined, by the marriage of the Crimea, the son of the late sovereign, afterwards Augustus III. Before the end of the year Russia had marshed a body of 20,000 troops into Poland; and on the 22d of January, 1734, the treaty of Warsaw, which was sat down before Danzig, which held out for Stanislaus, field-marshal Munch soon after arrived and took the command; under whose conduct, notwithstanding all the efforts of the French to raise the siege, the town was forced to surrender on the 30th of June. Count Lacy was the war was 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 in Europe.

In the course of the same year an expedition was sent to the Crimea against the Tartars inhabiting the steppes 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 Munch; and the principal operations of the first campaign were the capture of Pererek on the 1st of June, after a short attack, and of Azov on the 12th of July, after a much longer resistance. Other places 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 conducted on a larger scale; and Kowkow surrendered 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 unfortu- nate as those of the Russian army were the reverse; and after the war had been continued in these circum- stances for nearly two years longer, in the course of which time the most important event was the capture by marshalmunch of the town of Chockizion, on the 31st of August, 1739, Austria was compelled, on the 18th of September, in the same treaty to include the treaty of Belgrade, by which she gave up Belgrade and Serbia 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 Ockizakow and all other places that had been captured in the fortification 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 September, 1735.
hensions were entertained at first, the attack soon assumed a serious form. When she found herself in this state, she proceeded to arrange the succession; and on the 18th of October her son, then only thirteen years old, by which time@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 stranger to intrigue, to which she was herself accustomed as a means of oppression which were perpetrated in her name by her favourite Biron, as he himself acknowledged, his own name being Biron, a minion whom she had raised from a low condition to be 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 her reign of Anne. On her death-bed, she also appointed him ruler of the empire, should her successor not 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 enjoy his authority, having died at the end of a year, and was succeeded 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 discouraging and putting down as far as she could the drunkenness in which both the upper and lower classes had been accustomed to indulge. Only one nobleman, prince Kourakin, it is said, had her permission to drink as much as he pleased. The empress also, although there was a great deal of deep play at court, never would herself play for money. Her favourite amusements were music and theatrical entertainments. It was in her reign, in 1736, that the first Italian opera was played at Petersburg. In 1739, the famous palace of ice was built by her directions, on occasion of the marriage of prince Gallitzin with a peasant girl, the newly-wedded pair, as a part of the frolic, being compelled to pass the night in one of the rooms, all the furniture of which, including the bed in which they slept, was of the same material with the building itself. A full and excellent account of this reign, and especially of the military events by which it was distinguished, has been given by the baron de Manstein in his Memoirs of Russia from 1727 to 1744. An English translation of this work from the French was published in 1776, under the superintendence of David Hume.

ANNABERG, a town in the Erzgebirge (ore-mountain district) of the kingdom of Saxony, 2000 feet above the level of the sea, situated on the basalt, has considerable manufactures of porcelain, iron, bobbinet, and ribbons, and trades in silver, tin, coal, and marble, which it receives from the neighbouring mines and works. Annaberg has a band of the church, orphan school, and big school. It is about sixty miles south-west of Dresden.

ANNAGOONDEY. [See BISAUGHUR.]

ANNAH, a town on the right bank of the Euphrates, about 34° 15' N. lat., 41° 50' E. long, where the river makes a great bend, here the meander of the river is a line of cultivated islands. The town consists of a long, narrow, winding street, on the bank of the river, and at the base of the hills which here line the Euphrates. This narrow strip is occupied by the town, which contains grammar schools, which overhang the clay buildings. The town contains about sixty mills, some for irrigating the grounds and others for grinding wheat. Annah contains the remains of four ancient castles, one of which is on the largest of the islands, and a second, called Minaret, eighty feet high. There is a manufacture of coarse cloth for Arab cloaks; much wool is prepared, and some cotton. The number of houses is about 1600. On the left, or west side of the river, a broad and deep boat-passage is along this bank as far as the last and largest of the islands, opposite to which the modern town terminates, and the remains of old Annah, or the Anath of Adore, commence, covering the island and extending eastward for two miles farther along the left bank. Nitre is procured at Annah, or near it; and Travniar says, that chalk is dug in many places. Annah has apparently been inhabited of late, and houses have been built in the desert, and serves as a resting-place between Bagdad and Aleppo, and between Boirah and Aleppo.

From Annah to Aleppo is a journey, at the ordinary rate of travelling, in five days. In the same time a party from Annah to Bagdad, across the desert of Mesopotamia, 54 days. (Itinerary of Taucitus Barcanipes, in Hudson's Minor Greek Geog.; Captain Chevsey's Report on the Euphrates; also J. de Brey.)

ANNALS, in Latin Annales, is derived from 'annus,' a year. Cicero, in his second book, On an Orator (De Oratore, chap. xii.) informs us, that from the commencement of the Roman state down to the time of Publius Mucius, it was customary for the Pontifex Maximi, or high priest, annually to commit to writing the transactions of the past year, and to exhibit the account publicly on a tablet (ins ulbo) at his house, where it might be read by the people. Mucius was Pontifex Maximus in the beginning of the seventh century from the foundation of Rome. These are the registers, Cicero adds, which we now call the Annales Maxim, the great annals. It is probable that these annals are the same which are frequently referred to by Livy under the name of the compositions, or accounts, or annals, or annals of that particular year. Cicero, both in the passage just quoted, and in another in his first book On Laws, (De Legibus,) speaks of them as being extremely brief, and for the most part annals. They are, however, often 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 Pontiff's Commentaries were lost at the burning of the city after its capture by the Gauls. It is evident, however, that they were not in Liy'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 scarcely 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 much disputed among the critics what was the true distinction between annals and history. Cicero, in the passage in his work De Oratore, 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 Maxim; 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 of which there is as yet no example in the Latin annals. It belongs, he says, to the class of oracular composition (opus oratoarum maximse.)

This question has been considerably perplexed by the division which is commonly made of the historical works of Livy, Lucianus, theirs of the ordinary annalists, or annalists, and the historians, into two classes, according to the etymology of the word history, from the Greek eirapha, properly to inquire in person.

It must be evident that this is quite an unfounded notion. Without saying anything of the multitude of annals and histories which are known in history, it is enough to say that history is that business which will be more conveniently done under the word itself, we may venture to assume, that it does not mean merely memoirs of events by contemporaries. And it is equally clear that there is nothing in the term annalists or annalists which should be used to annalists or annalists of both past ages. We doubt that 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 to both that of annals only, and that of histories. It is equally to be understood that wherever 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 own 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. 65, he remarks on the making and conclusion of a particular narrative which he had commenced, to be simply the necessary upon which he had laid himself by the form of composition he had adopted of relating events strictly in the order of time, and to have finished all that were very distinct, and 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 he had to do, to give a history of annals, 'to keep everything to its year. Had he been writing a history (and in the instance quoted above) he inculcated that, if not the ability, for once to make more or less designated histories. It may be, for instance, that he himself is as much an historian in what are called 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 advanced (except in the face of the passages opposed by Anius Cellius), 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 at full length the sentiments and opinions of individuals, except they were signalizely characteristic 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. xili. 31) he 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 been commonly adopted. An account of events digested into so many successive years is usually entitled a history; but annals, like the Barons, and the Annals of Scotland, by Sir David Dalrymple (Lord Hailes), are well-known examples. In such works so completely is the succession of years considered 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 some formality whether there be many events or hardly any to be related as happening in it. In this respect annals differ from a catalogue of events with their dates, as, for instance, the Parthian Chronicle. The object of the states his reason for including the things in which 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, which is further divided into seasons and months. All his political reflections are, for the most part, placed in the mouths of the various commanders on each side.

In the Rhenische Museum für Philologie, etc., ii. Jahrg. 1857, p. 293, 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 endeavours to ascertain the influence of history as known by Anius Cellius, by which name it is illustrated in a manner perhaps more fanciful and ingenious than convincing. There is a translation of it in the Sixth Number (for May, 1833) of the Cambridge Philological Museum.

It scarcely need be noticed that the term annals is popularly used in a very loose sense for a record of events in whatever form it may be written—as when Gray speaks of 'The short and simple annals of the poor.'

In the Romish Church a mass said for any person every day during a whole year was antiquity called an annal; and sometimes the same service was repeated on a particular day of every year. (See Du Cange, Glossarium ad Scriptores Medii & Infimae Latinitatis.)

ANNAMABO. [See ANNAM.]

ANNAMBOE. 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. Meredith's account of Annamboe (154° 5' N. lat. and 3° 21' 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 next rank to the governor of Cape Coast Castle. On the north of Annamboe, in the Romonic (the Country extending from Cape Palmas to the River Congo, (8°. 1823.), the population of the town then amounted only to 3000 or 4000 persons, most of whom, he says, had become opulent by the gold and slavery trade. At 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 of functionaries whose business it is to manage all the transactions 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 Annals of the Gold Coast (p. 412) speaks of the place as having been formerly much more populous. In 1807, the inhabitants, who considered themselves as belonging by their position to the nation of the Fantees, took part with them against the Ashantees; in consequence of which both the town and fort were attacked by a vast body of the latter. About 10,000 of the inhabitants of Annamboe, according to Mr. Meredith, being two-thirds of the whole, were slain on this occasion; and about 2000 more of them took refuge in the fort. The fort was held by a garrison of only about thirty men, and with difficulty withstood the assault of the immense host that encompassed it. A ledge of rocks extends in front of this town a few yards from the water, which makes, Captain Adams says, a good breakwater.

ANNAMOOKA, island of. [See ROTTERDAM.]

ANNAN. [See COCHIN CHINA.]

ANNAN, a town in Scotland, in the former strewary of Annandale, and is situated 30 miles S. of Dumfries, 79 miles S. of Edinburgh, 15° 4' E. by S. of Dumfries, and 20° 8' 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 Frith. Over this river there was formerly a bridge of six arches, now replaced by a more modern one of three; the river is navigable for vessels of 230 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 made it less convenient for coach and man. There are, however, 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 wool, silk, and leather, but not to any great extent. The trade of the place is chiefly carried on with 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, and colonial produce, and general merchandise from Liverpool and Whitehaven. There is a freestone quarry to enable vessels to take in or discharge their lading. There is a salmon fishery in

* See Appendix to Dr. Stanger's Agricultural Survey of Dumfriesshire (1819), from which these particulars are taken.
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 Annapolis extends three miles along the coast, and eight miles inland, and has a population of 5033. 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 Presidency of Annapolis and St. John's, and the rectory in the deanery of Annapolis (E.N.E. Annandale, in the county of Annapolis, in the province of Nova Scotia). (Sinclair’s “Statistical Account of Scotland, Sec.”)

ANNA’S POLIS, a town in Maryland, on the south-west bank of the Severn, near its outlet into Chesapeake Bay, 38° 57’ N. lat., 70° 28’ W. long., and twenty-five miles E.N.E. from Washington. Annapolis, though only an inconsiderable place with a population of about 2200, has been the seat of government for Maryland ever since 1699. 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 equating trade. (Report on the Commerce and Navigation of the United States, 2d Congress, 2d Session.)

ANNA’S POLIS, 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 1689. Twice more it was fitted out against the English. 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 changed to 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 1760, 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 65° 37’ W. long., is built on a peninsula formed where the two main arms of the bay, and Allen’s Gut, join 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 town is a port, 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 mouth of the bay. There are no other vessels, except boats and small vessels through the greater part of its course. The population of the county, at the census taken in 1827, was 14,661. (Bouchette’s “British Dominions in North America, Letters from Nova Scotia; M’Gregor’s “British America.”)

ANNA’S TIES, 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 first fruits, or annates, was introduced into the church 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 regulation was there stated, and the image of each benefice thereat. There is a flourishing academy lately established and endowed by the heritors and the burgh council. Annapolis is thought to have been a Roman station. It was held in feoff, with the whole territory of Annandale, by the ancestor of the family who had the stately castle, of which the ruins may still be seen. Upon the succession of the Buceos to the throne, Annan became a royal burgh, and it now returns a member in conjunction with Dunfermline, Kirkcudbright, and Lochmaben. (Sinclair’s “Statistical Account of Scotland, Sec.”) ANNAS 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, who became the wife of the young Louis XIII. of France 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. a grandfona that when one queen is deceased the queens command that when kings reign, women eventually decide the course of events. The great Henry IV. of France had for his daughter 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 magnanimous, regal, cardinal Richelieu, who responded 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. Anne was supported by the English, and a queen regnant, was compelled to yield, as long as she lived, to the great minister. Had Anne been a woman of greater talents or more pleasing character, she might have better stood. Richelieu’s ascendency, 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 with 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 upon Anne the ignominy of having her communications with each other censured, and her vigils of officiers 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 rally around her the host of malcontents, with Gaston, the king’s brother, they were all jealous of the minister’s ascendency, and fearful of his schemes, which menaced the remaining independence of the aristocracy. It does not appear that Anne was without some interest in the navigation of ships or the sea, but she could have avoided being. But her name was awkwardly implicated, and the artful cardinal made of this a specious tale for the king’s ear. He represented Anne as associated with her royal father, and entreating 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-board, there to listen to this grave charge from...
the royal month. In such a situation, Anne's dignity of character came to her aid. She scorned to reply directly to the rash charge, but, "as well as a woman, and as 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 circumstantial account of the duke of Buckingham 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 Buckingham, and confesses that the suit of the English duke pleased the queen's own inclination, to such a degree that she could not resist it. 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 remain, and knelt on one knee and offered himself to be received into her bed 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 parted not for her bed for twenty-three years after their marriage), Anne was not insensible to the chivalric attachment of a noble and a statesman, and might perhaps have given some handle to malicious insinuation. At all events, she remained without influence, alienated from the king's affection and political counsel, the king took to himself the management of affairs, and left Anne, as mother of the infant monarch, the undisputed reins of power.

There was then a change of policy similar to that which had occurred in 1640, when the House of Commons had seceded 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 Richelieu's memory, as much perhaps as from family affections. She shared this less abusively, indeed, than Mary, who, having the good fortunes 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 ended with his disinterestedness 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 unmanageable, or having been obliged to yield. 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 less fraught with danger. It alienated from her at once the party of the noblesse, which, crushed by Richelieu, had made common cause with Anne in her disgrace, and now raised its head to claim vengeance and revenge. Amongst these were even the queen's peculiar friends, the duke of Beaufort, who was a kind of favourite, and the duchess of Chevreuse, the bosom companion of Anne. Mazarin's advice compelled his mistress to resist the claims of these, her false companions; and 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 have triumphed over the noblesse alone; 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 rest of the judges, 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 common cause with the citizens, and thus a powerful combination was 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 people 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 fly the court, and, by the history of her marriage, to leave the king, 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. The people had their will. The court, however, 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 Proneurs too, as the insurrectionists were playfully called, were not very earnest in their rebellion. There was no enthusiasm, no fanaticism. The resistance was rather the effect of momentary impatience 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 starve them. Seeing this, the magnificents 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 general, 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 at least the events of her regency, contributed far more to it, than all the subsequent 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 woman of fortune, 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 love of ceremonial, and 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.
reign of William she appears to have lived in much discomfort, neglected by her sister, and treated with coldness by 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 the succession of 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 sisters. [See Stew.

The exiled king James II. died on the 16th November, 1701; and Louis XIV. of France having recognised the claims of James’s son to the English throne, William III. commanded the return of his ambassador from France, and dismissed the French troops from England. The balance of power between France and England had arisen in the recognition by Louis XIV. of the claim of his grandson, Philip of Anjou, to the crown of Spain. The Partition Treaties between France, England, and Holland, in 1698 and 1700, had otherwise regulated the succession of Spain: the first treaty declaring Joseph Ferdinand, electoral prince of Bavaria, presumptive heir; and the second, upon the death of Joseph Ferdinand, declaring the archduke Charles presumptive heir. The will of Charles II. of Spain, who died November 1, 1700, by giving the crown to Philip of Anjou, had materially disturbed the balance of power in Europe established by the Peace of Utrecht in 1679; and the recognition by France of the English succession was a formidable disturbance to the balance between France and England, and other European powers, in the determination to resist an arrangement which seemed to bestow such a formidable preponderance upon the French monarchy. [See Hauto, Alliance of.]

Under these circumstances, Anne ascended the throne, upon the death of William III., on the 8th March, 1702. The hostility between the Whig and Tory faction at home, which went on increasing in violence to the end of the reign of Anne, was, in its commencement greatly mitigated by the united opinion of the country as to the justice and policy of the foreign and domestic policy of the latter part of Anne’s reign. Within two months after Anne had succeeded to the throne, and war was declared by England, the Empire, and Holland, against these powers. The general progress of this memorable war will be detailed under the head Succession, War of.

The extraordinary attempts in the Low Countries and Bavaria, by which the military glory of England was raised higher than at any period since the days of Edward III., will be described in the life of Marlborough; the success of the compatriots of the great commander in their various operations in Spain gained them the enmity of the hero of Petersborough will be found in the notice of that singular commander; and the naval exploits of this war, of which the most signal examples were the capture of Gibraltar, and the battle of Minorca, will be found in our account of annelices; and in the biographies of the English admirals, Leake, Rooke, Shovel, and Stanhope.

The legislative union of Scotland and England, completed on the 27th July, 1706, was one of the most important events in the reign of Anne, of which the progress and consequences will be detailed in their proper place, Scotland, Union of.

During the brilliant course of Marlborough’s conquests, the spirit of political intrigue which was perhaps never more fully developed than in the latter years of the reign of Anne, was stifled by the enthusiasm of the people. But as the war of the succession proceeded with few indications of its being ended, the great events of the war were followed by the forces gradually lost his popularity, from the belief that his own avarice and ambition were the principal causes of the war, and that the war was the result of the Treaty of Utrecht, which contained into steel, and the malleability of structure which they undergo is not thoroughly understood; it is, however, certain that some malleable metals which crystallize on cooling, are brittle in their crystalline state, and that this structure is altered, and they are rendered tough by heating and cooling, according to the case with zinc, which is incapable of extension under the hammer, except in a slight degree, without cracking; but when it has been passed through the rollers, at a moderate interval of time, it becomes almost as flexible and as tough as copper. This change must be derived from some alteration of structure, and fresh arrangement of the particles, which must be considered as owing to a process, if not identical, yet analogous, bearing a strong analogy to it. [See Brass and Steel.]

ANNECY, an episcopal city of Savoy, on the north bank of the Lake of Annecy, stands at the extremity of a beautiful

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plain surrounded by delightful eminences and lofty calca-}
rous mountains, and at an elevation of 1456 E. feet (Saus-
sure) above the level of the sea. It is 22 miles N.N.E. of}
Chambéry. Annecy is the principal one (Suisse des
two cantons of Haute-Savoie and of Geneva, with 5000}
and 6000 inhabi-
tants, with establishments for cotton-spinning, calico-print-
ing, and a glass-house. Some iron-mines are worked in the}
neighbourhood.

The Annecy of Annecy 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 156 E. feet.}
This lake discharges itself by several canals, said to be}
Roman work, all of which are of use only in the present
time, for they lead to the town of Annecy over the
trap, named the Thiou, which empties itself into the
Fier, a tributary of the Rhone.

ANNELIDA (Cuvier), an extensive division or class of}
animals, established by modern naturalists partly at the}
expense of the annelids (vermes). It was Baron Cuvier who first proposed to distinguish
the annelids 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 earth-worms. Their external covering, or skin, is
soft and pliable. The ring in which is the heart, the arteries,
and the veins, is soft, and in general more or less of a cylindrical form.
The annelids are for the most part oviparous, but the
teaches and earth-worms deposit what are termed capsules,
or cocoons. These cocoons are hatched by means of young
larvae which are enclosed in them, and in that respect
are not very different from some animals which undergo a
process of transformation.

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
their tube in the interior of stones, or in shells, which they perfor-
ate, or in madrepores. Some species again form calcareous
cases, or cement around them various foreign substances,
particularly sand. The sedentary species are timid, and
when taken from their retreats can neither escape nor de-
defend themselves. The tube of some, which generally
are the larger, have a external and internal lining, and
are very brittle and 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 MM.
Audouin and Milne 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, or orders, each differing in
structure and in manners—the Errantia, the Tubicola, the
Tericola, and the Suctoria.

The Errantia (Nereidae, Savigny, Doris,汛leaders, Cuvier)
are the largest, and are devoted for want of food to
swimming, and are really sedentary. They have in general
a head distinct from the body, with antennae and eyes.
Their mouth is furnished with a protractile tube, more or
less distinct, and in general with jaws. Their tentacles 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 body, 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, or jaws. They are generally found 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.
They are all carnivorous, and are found in having nei-
ther feet nor bristles, and by being furnished at each ex-
tremity of the body with a prehensile cavity or sucker. They
have no distinct head, but may almost always be observed
to be black, and are chiefly parasitical, and live at the expense of other animals.

ANNIBAL. [See Hannibal.]

ANNIUS of Viterbo, a well-known Dominican monk,
who lived in the fifteenth century. His real name was
Antonio Panvinio. 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 1432, and died in 1492. 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
Rerum in Italia gestarum XVII., cum Comment.
taris Fr. Joannis Anni Viterbenensis, which has been reprinted.
This collection professes to contain a number of historians of high antiquity, Berosus, Manetho,
Myrsius the Lesbian, Fabius Pictor, Marcus Cato, and
many others, whose works were unknown to him, but are
only 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 him-
self or caused them to be forged, with the view of giving
preference to the opinions of his own age, 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-
ople. He was the author of one entitled De Futuris
Christianorum Triumphis in Turcos et Saracenos ad Nystum IV., et Omnes Principes Christianos,
being the substance of a set of sermons preached by him at
Genoa on the Apocalypse. (Vulg. Universelle; see also
Bayle and Moret.)

ANNIVERSARY, the yearly return of any remarkable
day, called, in old English, by the expensive term year-day.
Anniversary days are festivals celebrated by the Romans
in honour of certain gods and heroes, and were observed
as a sort of holidays, and a time of rejoicing. The Anniver-
sary days were generally celebrated with feasts and rejoicings;
and 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 societies
are still held in the hands of one of the other, and are
frequently very nimble, and can defend themselves well
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The regular winds are from the S.W.: less rain falls
here than in the other islands of the bight; the rainy sea-
son 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, fowl, cacao-nuts, bananas, lemons, Seville
oranges, &c. Fowl are scarce. There is plenty of water
on the island, but the heavy surf on the shores 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 the only safe roadstead for shipping
the island. The natives are quite harmless. Their
houses, which are small, are rudely constructed of rough
headboards, grass, mud, and the foot-stalks of the cacao-nut tree.
This island was discovered by the Portuguese in 1473, but
is now governed by a native of the island. Nova Zembla, is
independent of the Portuguese, but appears to have no great
authority.

Annobon lies in ° 27'S. lat., and about ° 9 E. long.;
but we are not able to state its longitude with precision.
Lopez is the nearest part of Africa to Annobon. (From

ANNONAY, a town in France, near the northern
boundary of the department of Ardeche, and the junction
of two rivers, the Aisne (or Dèmon) and the Canche, whose
united streams flow into the Rhone, from the right bank of
which Annony is only five or six miles distant. The town
itself, which is neither large nor handsome, stands on the
borders of the town of two streams above-mentioned, by
which it is separated from its suburbs. It is celebrated for
its paper, which is considered the best in France; and it also
has manufactories of clothes, silk, cotton, wax, and leather.
It is a fine, healthy place; in the depopulation, and its population
has risen with great rapidity until it has surpassed that of
any other place in France. In the Encyclopédie métho-
dique, (published in 1783,) it is called "petite ville," (a small
city,) in the Dictionnaire Universel des Sciences, Arts, et In-
ventions, is given at 8690; but the latest authorities (M. Brun and Balbi)
raise it to 8000. It is about thirty-
four square miles in a straight line north of Paris, capital of
the department.

A.N. was the birth-place of Monge the eironaut, and
of the Count Boissy d'Angélique; to both of whom mon-
uments have been erected by their townsman.

**ANNUAL REGISTER.** The earliest English publi-
cation which has any claim to be considered as an Annual
Register is Edward Chamberlayne's Anglica 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
England; which was begun in 1711 by Dr. Carter, a Protestant
refugee, and the author of the well-known French and Eng-
ish Dictionary. This publication was continued till the
year 1739. Although this work appeared also in annual
volumes, it was really published in only numbers at
1717-1791. The Historical Register, a quarterly
publication, which in like manner was republished in vol-
umes 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 contained 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 "matters of
fact, without making any descent thereon either of com-
mandation 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 continued till 1750 by O. Moore, at a high price,
while it was published quarterly, was one shrill
of each part.

The first Annual Register, properly so called, which ap-
peared in this country, was The History, Politics, and
State of the Year 1749, printed for R. and J. Doeley, in
Pall-Mall. In the Preface the authors are enumerated the several points of novelty in respect of
which the work is conceived to have an advantage over its predecessors; and of these the first mentioned is that it is an annual, and not merely a yearly 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 his-
torial narrative; and that, by its miscellaneous department
and its notices of new books, it unites the plans of the maga-
azines and reviews. The history in this volume consists of
seventy-six pages divided into thirteen chapters, the first
seven of which begin in 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-
cluding an account of the sufferings of the persons confined in
the prisons; and, lastly, an account of remarkable books published in 1748, among
which are Jortin's *Sermostrum* 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
opportunities; and the price of the book, which was fixed at 100.
But the Author, Mr. Prior, who had given engraved fac-similes of two receipts signed by
him for two sums of 500, paid to him by Dodoley for the Annual
Register of 1761, the first dated on the 28th of March in
that year, and the second on the 30th of March in the year
following. This volume was republished in the prefect, 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 cer-
tainly 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,
civil government, and literature. The first of these is, a Full
List of all Books, in a Description of their authors, pub-
motions, marriages, births, deaths, and patents; but some
of these heads have been since discontinued. The dif-
ficulty of bringing out the work within six months of the close
of each year caused the early felling. In volume
three the Chronicle has, for the first time, been extracted from the
History, according to the plan which is still fol-
lowed, having, as is stated in the preface, been put to press
before the History was ready, in order to expedite the pub-
lication. The work has however gradually grown in
size, and at length, instead of some months, it was nearly as many
years after the event had taken place till their history ap-
peared. The publication was in this state about the year
1780. A new Register, in a form more suitable for
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 1832, is the 74th of the period.
Our new Register, the 18th, is a collection 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
1782; and has been several times reprinted; and in 1826 a second index appeared, containing
new additions, 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 proceeding year. It was projected and originally edited by Dr. Kippis; after
whose death, in 1795, it was conducted by the Reverend Thomas Morgan, LL.D., the coadjutor of Dr. Alkin in the
preparation of his *Biographical Dictionary.* Wait, in his
*Biographia 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 Gre-
ory's life of that gentleman. The New Annual Register
was continued till 1799; it never attained the reputation of its predecessors; and
the Edinburgh Annual Register was commenced in
1698, and was continued at least till 1835. We believe it
is no longer published. The last volume, which was
written by Sir Walter Scott and Mr. Southey; and it was
throughout conducted with great ability.

Other works of this description are the *Annual Anticite
Register, or Register of the Joumal and proceedings of
the first Bank of England,* first edited by the late Dr. John Rippon; the *Historical,
Political, and Literary Register for 1769,* published in
1770; and the *Imperial and County Annual Register for
1819,* in 2 vols. 8vo. 1811. The two last mentioned seem to
have been published for the first time by Mr. Jortin.

A French work, in imitation of the English Annual Regi-
sters, was commenced at Paris in 1818, under the title of

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ANNUAL

Annuaire Historique Annual; and there is also the American Annual Register, published at New York.

ANNUALS. By this name gardeners designate all plants which are harvested for sale in the course of the same season, and perish in the course of the same season; if two or more seasons are generally requisite for this purpose, they then call plants biennials—but in fact they are both of the same annual kind. Annuals, if sown in the autumn, become biennials; and the larger, early flowering kinds will grow 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 are.

Plants may be said to consist of two kinds, those which perish after once producing their fruit, and those which continue the same in the same manner from year to year. And first of these classes belong not only annual and biennial herbs, but also many palms, the agave, and several other monocotyledonous trees.

The usual method of multiplying annuals is by their seed. It is, however, possible to propagate 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 fugitive beauties of such plants as balsams and the like can be preserved. The young leaves may be removed when in the last stage of decay by their young branches being cut off and made to put forth roots; and the various races of cabbages, the qualities of which can scarcely be preserved by the precarious plan of seed-sowing, will be preserved for a year or two. (See Gardener’s Magazine, vol. ix. p. 228.)

Gardener 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 border; 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 requisite 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 scorched up by a continuance of dry weather; both these accidents may be prevented by inverting 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 if they are afterwards to be planted in the open air, but with a forethought that they may come to the open ground without a considerable check, as the great heat of the seed-pan at once to the open ground, but should always undergo the intermediate operation of being transferred into small pots. Very great care should be taken not to lose them during this operation; and they should be exposed as much as possible to air after they have once rooted in their pots; unless this is attended to, they become weak and what is called drawn up—or what might be called starved—for this well-known appearance arises from the plants not having been able to consume the necessary quantity of carbonic acid gas, which is, as is well known, the matter on which they feed. Plants can only feed in free air and bright sunshine; if therefore they are prevented from enjoying the light and air in which they should have been allowed to remain, the pious supply of stimulating manure will supply the place of light and air; on the contrary, it will but augment the mischief that results from their deficiency.

ANNUITY (In Law) consists in the payment of a certain sum of money, yearly calculated, and charged upon the person or personal estate of the individual from whom it is due; for if it is charged upon his real estate, it is not an annuity but a rent. [See RENT.] A sum of money payable in advance constitutes an annuity, the terms of payment must recur regularly at certain stated periods, but it is not necessary that these periods should be at the interval of a year; an annuity may be made payable quarterly, monthly, weekly, or whenever the case, or at any other aliquot portion of a year; and it may even be made payable once in two, three, twenty, or any other number of years.

Under the Roman law, annuities were chiefly such as were created by will, constituting a charge upon the heir in favour of the legatee. (See Digest, lib. xxiii. tit. 1. Domat’s Civil Law, 2d Part, book iv., tit. 2, sec. 1.) In the middle ages they were frequently given to professional men as a salary of remuneration for their services. They have been very much resorted to as a means of borrowing money. When the person who borrows undertakes, instead of interest, to pay an annuity, he is styled the grantor; the person who lends, being by the agreement entitled to receive the money, is called the grantee. The law of annuities seems to have been introduced on the Continent with the revival of commerce, at a time when the advantages of borrowing were already felt, but the taking of interest was still strictly forbidden. In the fifteenth century the payment of this kind was decided by the popes to be lawful, and were recognized as such in France, even though every species of interest upon money borrowed was deemed usurious. (Don. Civil Laws, 1st Part, book iv. ch. 4.) For, particular states of Italy early availed themselves of this mode of raising money, and their example has since been followed in the national debts of other countries. [See National Debt, Funds, Stocks.]

An annuity may be created either for a term of years, for the life or lives of any persons named, or in perpetuity; and in the latter case, though, as in all others, the annuity as to its security is personal only, yet it may be so granted as to be payable as real property; and hence an annuity is reckoned among the species of incorporeal hereditaments.

A perpetual annuity, granted in consideration of a sum of money advanced, differs from interest in this, that the grantee has no right to demand it back if the grantor shall own the property or yet resume his interest. He cannot demand the principal; he can only have the interest or annual return, and content to receive the annuity which he has purchased, as long as it shall please the other party to continue it:—but the annuity is in its nature redeemable at the option of the grantor; who is thus at liberty to discharge himself from any further payments by returning the money which he has borrowed. It may, however, be agreed between the parties (as it generally has been in the creation of our own national debt, which consists chiefly of annuities of this century) that the redemption shall not take place for a certain number of years. The number of years within which, according to the present law of France, an annuity of this sort (una rente constitutive en perpétuité) may be made irredeemable, is limited to ten. (See Code Civil, Art. 1109, &c.)

An annuity for life, or years, is not redeemable in the same manner; but it may be agreed by the parties to the contract that it shall be redeemable on certain terms;—or, it may afterwards be redeemed by consent of both parties; and where the justice of the case requires it, (where there has been fraud, for instance, or the bargain is unreasonable,) a court of equity will decree a redemption. When such an annuity is granted in consideration of money advanced, the sum is 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 original sum is recovered. Annuities, therefore, are being 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 9 Geo. III., c. 94, or 1 Geo. V., c. 89,) that an 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 afterwards casually cancelled, or is retained on pretence of answering future future, and is not really paid, or is not pressed to be paid in money, it is in fact paid in goods,—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 appeal to the court, show the case, and have the document 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 are thus considered in a general legal sense, and, in case of a deficiency in the estate of the testator, it will abate proportionally with the other legacies. The payment of an annuity may be charged either upon some particular fund (in which case if the person fails the annuity ceases) 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, the annuity may be proved 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 hereby both the bankrupt and his surey 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 Appurtenance]: from this rule, however, are excepted such annuities as are granted for the maintenance of the grantor,—and the parties in all cases, if they choose it, by an express agreement, provide that the grantee shall have a rateable 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, tit. 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 to be paid yearly at a certain given period 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 to an individual, yearly, during his life. In that 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 copyholds, (which see), in which an estate is held during a certain life, or lives, but in which there is a power of renewing any life when it drops, that is, substituting another life in place of the former, on payment of a fine—reversions, or the interest which the next proprietor has in any estate, &c., after the death of the present and life-annuitant (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 per cent. (4 per cent.) we find 2775 opposite to 3 in the first column, by which is meant that the present value of an annuity of 100l. to last 3 years is 2775l., or 2775l. for 3 years. The present value of an annuity of 100l. under the same circumstances is, therefore, 2775l., or 2777l. 10s. This is the value of a lease for 3 years corresponding to a yearly rent of 100l. The least sum which receives this, and puts it out at 4 per cent, will, at the end of one year, have 286l. 12s. From this he subtracts 100l. for the rent which has become due, and puts out the remainder 186l. 12s. again at 4 per cent. At the end of a year this has increased to 196l. 1s. 10d., from which 100l. is again subtracted for rent. The remainder, 96l. 2s. 10d., again put out at interest, becomes at the end of the year 99l. 19s. 9d., within three pence of the last year's rent. This little difference arises from the improper of the Table, which extends to three decimal places only.

Table I.—Present Value of an Annuity of One Pound.

<table>
<thead>
<tr>
<th>No. of Years</th>
<th>1 p.</th>
<th>2 p.</th>
<th>3 p.</th>
<th>4 p.</th>
<th>5 p.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>2</td>
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<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

To find the present value of an annuity of 1l. per annum continued for 10 years, interest being at 5 per cent, look in the column headed 5 p. c. and there, opposite to 10 in the first column, will be found the value 7782l., or 7714s. 6d. This would be commonly said to be 7735 years' 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 II. and III.—For reducing Decimals of a Pound to Shillings and Pence, and the converse.

<table>
<thead>
<tr>
<th>Dec.</th>
<th>3 s. 4 d.</th>
<th>5 s. 6 d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

For example, what is 2l. 6s. 8d. in shillings and pence?

Table II. 2l. 6s. 8d. = £0 10 0

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

Table III. £0 10 0 = 17s. 10d.
To use Table I, where the number of years is not in the table, but is intermediate between two of those in the table, such mean number of years is taken for the purpose of finding 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 tables which we have room to give are sufficient for more than a first guess, so to speak, at the value required in such a case, and that it 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 professional advice, or consulting larger tables. As an example of the case mentioned, suppose we ask for the value of an annuity of \( \$12 \) continued for 12 years, interest being at 4 per cent. We find in Table I., column 4 per cent.

For 12 years

\[ 11:118 \]

Difference\[ 3:007 \]

Since 5 years adds 3:007 to the value of the annuity, every year will add about one-fifth part of this, or \( \frac{601}{5} \), and 2 years will add about 1:020. This, added to 8:111, gives 9:313.

The real value is more near to 9:385, and the error of our table is 0:071 of 9:313, or about the 133rd part of the whole.

The higher we go in the table, the less proportion of the whole will this error be.

The last line in Table I. gives the value of the annuity of \( \$12 \) per cent. used for ever. for example, at 5 per cent., the value of \( \$12 \) for ever, or, as it is called, a perpetuity of \( \$12 \), is 201. This is the sum which at 5 per cent. yields \( \$12 \) a year in interest only, without diminution of the principal. We see that the longer the term of years differs from present value from the same continued for ever: for example, 12 continued for 70 years at 4 per cent. is worth 23:3951, while the perpetuity at the same rate is worth only 201. Hence the present value of an annuity which is not to begin to paid till 70 years have elapsed, but is afterwards to be continued for ever, is \( \frac{105}{4} \) at 4 per cent.; which sum improved during the 70 years, would yield the 201 necessary to pay the annuity for all years succeeding.

**Table IV. Amount of Annuity of One Pound.**

<table>
<thead>
<tr>
<th>Years</th>
<th>Semi-Annuals</th>
<th>Annuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1:000</td>
<td>1:000</td>
</tr>
<tr>
<td>2</td>
<td>3:030</td>
<td>3:035</td>
</tr>
<tr>
<td>3</td>
<td>6:091</td>
<td>6:105</td>
</tr>
<tr>
<td>4</td>
<td>1:184</td>
<td>1:189</td>
</tr>
<tr>
<td>5</td>
<td>5:309</td>
<td>5:321</td>
</tr>
<tr>
<td>6</td>
<td>25:697</td>
<td>25:706</td>
</tr>
<tr>
<td>7</td>
<td>137:385</td>
<td>137:392</td>
</tr>
<tr>
<td>8</td>
<td>411:681</td>
<td>411:689</td>
</tr>
<tr>
<td>9</td>
<td>1052:931</td>
<td>1052:938</td>
</tr>
<tr>
<td>10</td>
<td>1732:931</td>
<td>1732:938</td>
</tr>
<tr>
<td>11</td>
<td>2370:931</td>
<td>2370:938</td>
</tr>
<tr>
<td>12</td>
<td>2908:931</td>
<td>2908:938</td>
</tr>
<tr>
<td>13</td>
<td>3391:931</td>
<td>3391:938</td>
</tr>
<tr>
<td>14</td>
<td>3880:931</td>
<td>3880:938</td>
</tr>
<tr>
<td>15</td>
<td>4283:931</td>
<td>4283:938</td>
</tr>
<tr>
<td>16</td>
<td>4671:931</td>
<td>4671:938</td>
</tr>
<tr>
<td>17</td>
<td>4973:931</td>
<td>4973:938</td>
</tr>
<tr>
<td>18</td>
<td>5100:931</td>
<td>5100:938</td>
</tr>
<tr>
<td>19</td>
<td>5100:931</td>
<td>5100:938</td>
</tr>
<tr>
<td>20</td>
<td>5000:931</td>
<td>5000:938</td>
</tr>
</tbody>
</table>

In this Table we see what would be possessed by the receiver of an year's annuity at any interest so soon as he received it. For example, an annuity of \( \frac{1}{2} \) per cent., at 5 per cent., amounts to 120:81, which includes 401, received altogether at the end of the different years, and 80:81, the compound interest arising from the first year's annuity, which has been 25 years at interest, the second year's annuity which has been 24 years at interest, and so on down to the last year's annuity, which has only just been received. When the annuity is payable half-yearly, or quarterly, its present value is somewhat greater than that given in the preceding Table.

For annuity of a certain period of time, the above tables of mortality, to which the annuity is limited, are the true measure. If we could calculate the value of the entire life, and the number of years the person is likely to live, it would be of great use to insurance offices in estimating the expectation of life. But then, the annuities will be liable to the same risks, which is the nearer the life is prolonged, the greater the number of years it covers, the more liable it will be to the fluctuations of the life tables.

**Table V. Present Value or Purchase-money of a Life Annuity.**

<table>
<thead>
<tr>
<th>Age</th>
<th>Semi-Annuals</th>
<th>Annuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>13:10</td>
<td>13:10</td>
</tr>
<tr>
<td>1</td>
<td>20:17</td>
<td>20:17</td>
</tr>
<tr>
<td>2</td>
<td>27:14</td>
<td>27:14</td>
</tr>
<tr>
<td>3</td>
<td>33:15</td>
<td>33:15</td>
</tr>
<tr>
<td>4</td>
<td>38:16</td>
<td>38:16</td>
</tr>
<tr>
<td>5</td>
<td>43:16</td>
<td>43:16</td>
</tr>
<tr>
<td>6</td>
<td>47:17</td>
<td>47:17</td>
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<tr>
<td>7</td>
<td>50:18</td>
<td>50:18</td>
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<tr>
<td>8</td>
<td>52:18</td>
<td>52:18</td>
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<tr>
<td>9</td>
<td>54:18</td>
<td>54:18</td>
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<tr>
<td>10</td>
<td>56:18</td>
<td>56:18</td>
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<tr>
<td>11</td>
<td>57:18</td>
<td>57:18</td>
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<tr>
<td>12</td>
<td>58:18</td>
<td>58:18</td>
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<tr>
<td>13</td>
<td>59:18</td>
<td>59:18</td>
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<tr>
<td>14</td>
<td>60:18</td>
<td>60:18</td>
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<tr>
<td>15</td>
<td>61:18</td>
<td>61:18</td>
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<tr>
<td>16</td>
<td>62:18</td>
<td>62:18</td>
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<tr>
<td>17</td>
<td>63:18</td>
<td>63:18</td>
</tr>
<tr>
<td>18</td>
<td>64:18</td>
<td>64:18</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 corrected to 11-6-8-9 in the actual 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 third table is that constructed by Mr. Fin- laison, from the observation of the mortality in the govern- ment 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 work of Mr. Finlaison, Professor of the Corresponding Society; of Mr. Milne, in his Tables on Annuities and Interest; and to Mr. Finlaison’s Report to the House of Commons on Life Annuities; to all which we refer the reader. The tables are of course very much abbreviated.

To use the Table V., suppose the value of an annuity of 100l. a year, on a life aged 35, 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 35, under the Northampton Tables 14-8, under the Carlisle 16-8, and under the Government Tables 15-7 or 16-9, according as the life is male or female. These are the number of pounds which ought to buy an annuity of 1l., according to these several authorities, and taking each of them 100 times, we have:

\[
\begin{align*}
\text{Northampton Table} & : 1400l. \\
\text{Carlisle Table} & : 1600l. \\
\text{Government Table (male)} & : 1570l. \\
\text{Government Table (female)} & : 1605l.
\end{align*}
\]

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 two of those given in the table, the process must be followed which has been already explained in treating of annuities of different ages.

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

\[
\text{Table VI. — Present Value or Purchase-money of an Annuity of 1l. on two Joint Lives.}
\]

\[
\begin{align*}
\text{Carlisle} & : 4 \text{ p. c.} \\
\text{Northampton} & : 4 \text{ p. c.}
\end{align*}
\]

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 value 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 56, in which the difference of age is 30 years. In Table V., opposite to 25, the younger, and under 30, the difference, we find 9-3; and 8-8 in the Northampton. For the value of an annuity of 100l., the first tables give, therefore, 100l., and the second 109l. The value of an annuity on the longest of the 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 annuities should be returned to the office so long as both were alive, that is, during the lives of the other.

The age and Table being as before, and the life on whose survivorship the annuity depends being that aged 25, we have:

\[
\begin{align*}
\text{Table VI. — Joint annuity, 55 & 25} & : 10^3 \text{ l.} \\
\text{Difference} & : 7^3
\end{align*}
\]

whence the value of the required annuity of 1l. is 7^3 l. 16:3.

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:

\[
\text{Table VII. — Probable amount of 1l. laid yearly, and improved to the end of Life.}
\]

That is to say, according to the Northampton Tables, if a person were, at the age of 26, (that is, a year after 25), to begin laying by 100l. a year at interest, he might expect the amount of the end of his life to be 792l. for each pound laid by yearly; or 7920l. 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 7920l. each. As we have already observed, the mortality of the Northampton Table is greater.
n that few to error, Europe, specie* broad with is passes long but the said an ANOA, There average ring, employ is is the inner product the thought in Payments, 2. payments; certainty efectly annexed, subject to the rule*.


ANNULBT, in architecture. This term is applied to the small semicircular rings or bands which enrich the lower part of the moulting of the Doric capital, just where it falls into the shaft, or into the outside, or the thickness of the column. 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 external to it, as its circumference, or 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 the product by $\pi$, taking as many decimals as may be thought necessary. For common purposes it will be sufficiently exact to divide 200 times the product of the sum and difference twice successively by 9. If still greater correctness will be required, such divisions are to be taken. The result will be the number of square feet, or inches, &c., in the surface of 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 $\frac{3}{8} \pi$. For common purposes, it will be sufficient to annex three cubies to the product of the sum and the square of the difference to divide by $3249$. The result will be the number of cubic feet or inches, &c., in the ring.

ANO, a species of ruminating animal, so very imperfectly known, that zoologists are undecided whether to consider it as an antelope or a species of buffalo. This uncertainty has long prevailed, and it has been noticed for many years, only a few fragments of skulls and horns have been hitherto brought to Europe, and these too imperfect to acquaint us with the zoological characters of the animal. Judging, however, from these

Material, the annus 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 resides in large herds among the rocky mountains of the island of Celebes. He considers it as a small species of wild buffalo, and adds, that it is captured only with great difficulty, and is so fierce in confinement, that some of these animals, belonging to Governor Loxon, in one night ripped up the bellies of fourteen sages which were kept in the same paddock with them.

The next author who mentions the annus from original documents or personal observation, is Colonel Hamilton Smith, in the fourth volume of Griffith's translation of the Megarides, in which he describes the head and horns, and considers the animal as a species of antelope. Colonel Smith's fragment was brought from Celebes by the late Dr. Clarke Abel, who obtained it on his return from China in the suite of Lord Amherst; but since that period various other heads have been brought to Europe, some of which are deposited in the British Museum, and in the collection of the London Zoological Society. The
in the extreme vessels, from the section 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 of the kinds of pain of great 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 formation of the use of anodynes must be limited, the which they appear to be productive of benefit in two ways: first, by rendering the nerves of the parts less sensible; and, secondly, by diminishing the violence with which the large vessels propel the blood, when the anodynes are given in a large dose: hence they are also denominated hypnotics; and from causing insensibility, they are also denominated narcoticks. 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目录 is not less certainly induces disease, and brings himself to an untimely end, than he who indulges in ardent 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, Hyoscymum, or Hombane, Solanum Dulcamara, or Woody Night-shade, Atropa Belladonna, or Deadly Night-shade, Hydrocyanic, or Prussic acid, and Carbolic acid gas applied in the yest poultice, 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 phalanx of the toes, which is flattened, and terminated with a flat 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 the geckoes and the geckoes, but it does not appear to 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 separated than those of the geckoes, and the claws, 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 maxillary and palatine scales, and the tongue is fleshy, short, round, undivided at the point, and not protractile, 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 plies 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 palatine, are small, sharp, and projecting, the skin of the throat, 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. The opposite edge of the circle forms, in front, and form complete circular hoops round the body.

The anolids 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 bright, and sometimes the most indubitable and graceful proportions, and in the great activity of their movements, displaying all the restlessness and celerity of the common lizard, or in endless successions of other 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 tired dog. They are extremely timid and harmless feed 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, comprehending those which have this crest, consists of a number of species definitely characterised by M. Cuvier, but formerly confounded under the denominations of Lucerta principalis and Lucerta bicamulata. The principal are,

1. The Anolis vilerii, of Baron Cuvier, of a beautiful dark soby blue colour, and perhaps the largest of the whole genus, the body measuring a foot in length, and the tail being about half as long again. The crest extends along the top of the tail for about half its length, from the root to the end, and is bordered by from twelve to fifteen rays; the loose skin beneath the throat extends from the chin even to the belly, and when not distended forms a longitudinal fold along the whole under surface of the animal; and the foot, from the observation of Baron Cuvier, would appear, at least occasionally, to consist of berries and other vegetable substances. It inhabits the Antilles, and the West Indies generally, preferring the woods to the open country, and lodging in decayed trees or small crevices in the ground, where the female lays her dozen eggs. It is incessantly in motion, and when pleased frequently emits a low but acutë chirp; though harmless and extremely timid, it possesses a considerable share of curiosity, and allows itself to be readily caught in little rush squares, which children in the West Indies amuse themselves by placing in their haunts, alluring it from its concealment by imitating its voice.

2. The Anolis bicamulata, of Bartram, little more than half the size of the former species, but with the same general form and habits, and with a similar crest upon the first half of the tail. The general colour is a greenish blue, clear on the top of the head and neck, but mixed with dark brown on the body, tail, and extremities, and marked with numerous small black spots on the head and sides, and two large ones on the shoulders, from which it derives its specific name. It is found in North America, from Pennsylvania to the shores of the Gulf of Mexico, and in the Antilles. The second subdivision of the genus anolis consists of species without a carinated crest on the tail, but in no other respect differing from those already described. Of these the principal is the united.

3. The Anolis equestris of Mr. Merrem, of which the tail, more flattened on the sides than in the following species, still retains a slight indication of the crest which distinguishes those of the former division. The body of this species mea-
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 ashy 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 fleshy 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, 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 Lacepede.

5. The *Anolis 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 between the shoulders and hips. It inhabits different parts of South America.

6. The *Anolis guttullus* 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, prime 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 108,000 years, in round numbers. The anomalistic 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, 13 minutes, 45 seconds.

**ANOMALY** (in Astronomy), a term derived from the Greek *anomalos* (anomalous), 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. This 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, $A P M$ the ellipse described by the planet, $A Q M$ the circumscribed circle, $P$ the place of the planet, and $Q F N$ a perpendicular to the axis $A M$. 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 $A P M$, with the average motion of the real planet, so as, without varying its motion, to make the angle $A S Z$ 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 $A S P$ is called the true anomaly, $A S Z$ is called the mean anomaly, and $A C Q$ 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 satelites 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.
cultivated in the West Indies and South America. Finally, the bark of some separates readily into fibres which make excellent cordage: a large tree, called in Brazil, pingaiba, and by botanists Annona muricata, 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 abalum, 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 carpels 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 carpels which grow together into one fleshy mass, as in the raspberry; 7. a view of the same fruit cut in half.

Of the edible fruit that is cultivated in the West Indies, the most remarkable are the sweet sop, sour sop, and cherimoya; 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 greyish 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, luscious 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

ANOPLETHERIUM (from a privative, Æros, and Æj, that is, a beast without offensive arms or tusks), is a 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 paleotherium, another extinct genus of the same order, like these 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 the 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 duplet their eternal 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 Osteological Fossil, 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 anoplotheria differ essentially from all other pachydermata, 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, and with none but the most insignificant of the mammiferous animals. The canines, moreover, are perfectly similar in form and appearance to the incisors, and might easily be mistaken for lateral teeth of this description, did not their situation in the jaw and the manner in which they are supplied with nourishment. The four posterior molars resemble those of the rhinoceros and paleotheria, that is to say, they are quadrangular in the upper jaw, and marked in the lower, with a double or triple crescent of enamel, which penetrates their substance and shows itself on the crowns in the form of salient ridges.

This formation of the organs of mastication, intimately connected as these organs necessarily are with the food and aliment of the animal, most unequivocally shows us that these animals fed upon vegetable substances, and that, in all probability, they differed but little in this respect from the tapirs and rhinoceroses at present existing. Other details of their structure, about to be noticed, will confirm these analogies, and afford us a still clearer insight into their habits and economy.

The second important character of the anopletheria which must have exercised a very decided influence upon their habits arises from the configuration of the extremities. These, as in ruminating animals, were terminated by two toes, enveloped in small hoofs, sometimes without accessory or false hoofs behind, as in the camels and lamas, sometimes with the lateral toes of the parion, as in the pecaries, but the bones of the metacarpus and metatarsus respectively corresponding to these two toes were not united into a single canon, as they invariably are among the ruminants, and this is in reality the principal difference between the extremities of the latter animals and those of the anopletheria. It is to be observed, however, that this character is not peculiar to the ruminants; the pecaries, or indigenous hogs of South America, have likewise the metatarsal and metacarpal bones soldered into a single piece, exactly resembling the canon bone of the sheep or deer, and in this respect, are intermediate between the orders of the ruminants and pachydermata. The stomasches of the pecaries likewise partake of the complication characteristic of the former group, from which, on the other hand, the camels, in all other respects true ruminants, differ widely both by the form of their feet, and the number and arrangement of their incisor teeth. These animals are, in fact, among the ruminants, but their pecaries are among the pachydermata, and it is to their extremities, particularly, that the construction of the corresponding parts of the anopletheria most nearly approaches.

The structure of the carpus and tarsus are precisely the same in both genera; the scaphoid and cuboid bones, which are soldered together into a single piece in all the other ruminants, being separate in the camels and lamas, as they invariably are in the anopletheria and other pachydermata. These analogies prove that the anopletheria, which its teeth have already shown to have been essentially a pachydermatous quadruped, approached in many of its characteristics to the ruminantia of the existing creation, partaking, on the one hand, of the character of the camels and lamas, and on the other of those of the rhinoceroses and pecaries. In the less prominent details of organization, however, the different species of anopletheria present peculiarities which have induced Baron Cuvier to distribute them in three subgenera. In the prolongation of the nasal bones only, the pecaries and the anopletheria were not furnished with trunks like the elephants, tapirs, and paleotheria; and their head altogether, judging from the form of the skull, appears to be intermediate between that of the horse and that of the camel. The first subdivision comprehends those species which M. Cuvier calls

**Anopletheria proper**: they are distinguished by having all, or nearly all, their teeth, except the incisors and canines, and the second premolar, with the exception of the lower, by a longitudinal direction, without slender tubercles; and by a third, or supernumerary hoofs on the fore-feet. This division comprehends two species, differing from each other principally in point of size, the one (A. commune) being about the size of a horse, and the other (A. jayros) about that of the hog. These animals were low on the limbs, probably like the tapirs, but their long and powerful tail, equalizing the body itself in length, made them still more essentially aquatic animals. The great size of their members, the depressed and heavy proportions of their bodies, and their long tails compressed horizontally at the base, must have given them much of the external form of the other, but that they resorted to the lakes and marshes of the antediluvian 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.

![Anopletherium commune](image)

The subgenus *dicobones*, contains three species, all established from the observation of detached bones, and of the actual forms of which it is consequently impossible to give an exact idea. They differed from the species contained in the two former subdivisions, principally by having a small additional or false hoof on the fore-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 dicobones were all of small stature; the largest of the three known species (A. jayros), did not exceed the size of a bear; the other two (A. murenum and A. obblynum), about that of the guinea-pig, were in all probability the smallest of hoofed quadrupeds. M. Cuvier supposed them to have been the bears and rabbits of the antediluvian world, but their whole structure seems to approximate them more correctly to the musk of the present time, and they probably differed little from these animals either in form or habits.

![Anopletherium gracile](image)
ANQUETIL DU PERRON (Abraham Hyacinthe) was born at Paris on the 7th December, 1731. He received his early education in that capital, where he soon displayed a predilection for 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 ancients, and especially for the Old Testament, 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. Accepted as a member of the French Academy, Anquetil, like the majority of the members of the Famae Academica, appeared important and cured his eyes, this circumstance first turned his attention and inquiries towards India and the Persian. A French army was just at that time fitted out for India. Anquetil resolved to avail himself of this opportunity to visit the East, and himself travelled to Zanzibar, which he even crossed to Malabar, and continued his way by land, and again on foot. At Surat he became acquainted with some destitute, or Parsi priests from Guzerat, whose assistance enabled him to make arrangements for the publication of the Zend Avaesta, 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 4th of May, 1762, and returned to Paris. He was again summoned to the Académie des Sciences, and prepared him a translation of the Zend Avaesta, or the sacred writings of the Parsees, attributed by them to Zoroaster. This work was received with a considerate and undeserved success. It was attacked with undeserved severity by Mr. (afterwards Sir William) Jones, in his Letter to M. de M. de M. de d. He returned to Paris, and, upon the 26th of May, received an order to proceed to the East. He was received at the court of Surat, and, having been induced to remove to Malabar, he proceeded to the Malabar coast, and continued his journey on foot. At Surat he became acquainted with some destitute, or Parsi priests from Guzerat, whose assistance enabled him to make arrangements for the publication of the Zend Avaesta, which he published after his return home.

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the seventh town in the Bavarian dominions. The holy
fraternity of St. Gumbert, who showed something bet-ter
than a month's residence in such a town. The
building-place, may be looked up here, were the
founders of Ansbach. Under its native vicissitudes, it gradually
grew into a busy, thriving spot; but, at the present day, it
pertains in no small degree of the character of a remote
quarter. As its arrival as a redoubtable bishop, has been
christened 'Abend.'

The last Margrave, whenever he could persuade himself to abandon the
more seductive charms which England, France, and Italy presented, was accu-
tomously supported by the bishops of Canterbury and Rheims, whose
place at his neighboring seat, Trierdorf, 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
breed of horses and cattle. The prosperity of Ansbach was dis-
tinguished by the marriage of his son, a prince charming,
available at his neighboring seat, Triesdorf, which was better
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ANSELM, archbishop of Canterbury in the reigns of
William Rufus and Henry I., commonly called St. Anselm,
was by birth an Italian, a native of Aosta, a town of
the empire of Ansbach, which was attached to the
Duchy of Bavaria, in 1060, at the age of twenty-seven, at Boc
in Normandy, where Lanfranc, afterwards archbishop of Can-
terbury, was born. Three years after, when Lanfranc was
promoted to the abbacy of Caen, Anselm was appointed
prior of Bee, and when Hertlin the abbot of that monastery
died, Anselm became abbot of the house. Anselm came to
England about A.D. 1032, by the invitation of Hugh Lupus,
Earl of Chester, who requested his aid in the
commission of his predecessors. 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 1089, as to touch the king's
conscience with remorse. Anselm, having first stipulated for
the restitution of the possessions of the see as they stood in
his predecessor's time, was consecrated with great solemn-
ity, December the 4th, 1093. In the following year, when
William Rufus was endeavouring to win Normandy from his
brother Robert, a stinted offer, as the king thought it,
of 5000 was the first cause of the royal displeasure towards
Anselm; followed by further difficulties under whose
leadership to go to Rome and 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 Govert, or
rather being desirous that Anselm should receive the pall
from him. It was at Rouen, that castle, where charges were made against Anselm, the
majority of the bishops sided with the king, and denounced
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-
land, which it was at last agreed should be carried to Can-
terbury, and placed upon the altar of the cathedral, whence
Anselm was requested to receive it as if it had been put into his hands
by St. Peter himself. In short, the king pretended to be
reconciled. However, sooner, 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 no 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
crossed the channel, he set out upon the archbishoprick,
and made every effort to intercept him. 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 council
of 1097, which was held at Foligno. He returned to
the court of England for his various and frequent outrages
upon religion. The king, however, by presents and promises
finally bribed the court of Rome to desert Anselm, who re-

tired to Rome, where (with the interval of an attendance at a
synod at Rome, where an interval of 1091), reigned in the
absence 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 as a powerful support, the king undertook to
accommodate Anselm by another prelate. The archbishop was received in Eng-
land with extraordinary respect both by the king and people,
but refusing to be re-invested by the king, and to do the same
honours to his successor as his predecessor, the
pleasure of the court; open rupture, however, was deferred till
the return of the agents of both parties, who had been sent to
Rome. In the interim Anselm summoned a synod to meet at
Lambeth, in which it was determined that the king should
not and did not disclaim the archbishoprick of York, that,
Scotland, although she was generally reported to be a nun;
he also rendered signal service to King Henry against his
brother, the Duke of Normandy, who had landed at Ports-
mouth; and gave his aid in preventing some of the nobles
of Henry's court from joining in revolt. The agents to
Rome now returned. One of them refusing to dispense with
Urban's canons, and the king refusing to yield his preroga-
tives, the dispute was kept up, still Anselm's tradition of Aesclepius 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 by birth an Italian, a native of Aosta, a town of
the empire of Ansbach, which was attached to the
Duchy of Bavaria, in 1060, at the age of twenty-seven, at Boc
in Normandy, where Lanfranc, afterwards archbishop of Can-
terbury, was born. Three years after, when Lanfranc was
promoted to the abbacy of Caen, Anselm was appointed
prior of Bee, and when Hertlin the abbot of that monastery
died, Anselm became abbot of the house. Anselm came to
England about A.D. 1032, by the invitation of Hugh Lupus,
Earl of Chester, who requested his aid in the
commission of his predecessors. 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 1089, as to touch the king's
conscience with remorse. Anselm, having first stipulated for
the restitution of the possessions of the see as they stood in
his predecessor's time, was consecrated with great solemn-
ity, December the 4th, 1093. In the following year, when
William Rufus was endeavouring to win Normandy from his
brother Robert, a stinted offer, as the king thought it,
of 5000 was the first cause of the royal displeasure towards
Anselm; followed by further difficulties under whose
leadership to go to Rome and 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 Govert, or
rather being desirous that Anselm should receive the pall
from him. It was at Rouen, that castle, where charges were made against Anselm, the
majority of the bishops sided with the king, and denounced
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-
land, which it was at last agreed should be carried to Can-
terbury, and placed upon the altar of the cathedral, whence
Anselm was requested to receive it as if it had been put into his hands
by St. Peter himself. In short, the king pretended to be
reconciled. However, sooner, 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 no 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
crossed the channel, he set out upon the archbishoprick,
and made every effort to intercept him. The archbishop got safe to Rome, and was honourably received
by the pope, whom he afterwards accompanied to Capua.
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finally bribed the court of Rome to desert Anselm, who re-

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 supposititious.

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 1102 and 1108. 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, disfigured 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 Probusius; 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, who wrote as a naturalist, species (of the genus of Linnæus), has been followed in this by Baron Cuvier, Vieillot, Lesson, Dumeril, and Fleming, while Laitham 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 wider; but as thick as it is broad, in some species bulged at the base near the forehead, straight, rounded at the point, denticated with conical and pointed lamellae; the upper mandible is convex and ungulicated at the tip; the lower mandible is flat and rather narrow. The wings are of moderate length, and on some species furnished with tuftes. The legs are considerably longer, and more in the middle of the body than in Anas, and hence gives walk like that of ducks. There is no enlargement at the base of the wing-pins.

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

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 sea-faring 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 1729, he was made master and commander of the Weasel 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 1740, 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 culpable 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 1741, after experiencing most tremendous storms. From that dangerous part of the voyage, the squadron was dismissed. He arrived, with only his own ship the Centurion, at Juan Fernandez, 33° 40' S. lat., 79° W. long., June 10, after suffering for near three months from the most terrific storms, and from the utmost extremity of the scurry, in 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 the squadron, consisting of the frigate, Man-of-war, sloop, and a vessel, called in the phraseology of the times a pinn, laden with provisions. His men were now reduced to the number of three hundred and thirty-five. With this small force he left Juan Fernandez, and kept the Spanish coast for eight months in continual alarm, made prize of several small vessels, and burned the town of Pulta. The original design of the expedition being frustrated, he conceived the project of intercepting the Manilla or Acapulco galley, a Spanish ship laden with bullion and other valuables to a vast amount, which sailed annually between Acapulco and Mexico, and Manilla, one of the Philippine islands. With this view he hovered off the west coast of America till May 742, when he sailed for the South 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 which had thinned the ship. He again set his course and landed the Commodore, 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 shown during this period. The Centurion was driven from her moorings by a gale, and the commodore 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 laborious employments of that character; and the greatness of his anxiety would have remained unknown, but for his transports of joy on the unbounded return of the Centurion.

The health of the crews being in some degree recuired. 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-sheathed, and a few foremen were left in the island, for the men were reduced to 200. Upon his arrival in Macao, the commodore was desirous 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 26. In the moment of victory the fire broke out near the powder-room of the Centurion, the extinction of which was hazardous, as 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 then 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 carried by this expedition, and the character of most British admirals. The commodore's ship 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 fact it in wait for the Manilla ship was not that the Manilla ship had the chapter of accidents, so eventful in maritime occurrences, terminated unfavourably in spite of all his vigilance, he might have been superannuated in his return to England, and have died in obscurity. But his talents as an officer were rendered indelible, his name was again 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 Hants, and the same year he 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 and gentry, fell in with two combined French fleets, 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 one escaping, together with four armed East Indiamen, and one galley. In October, representing 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 Soberton, 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 in Ordinary, but not published. From then until 1758 he served the English station, and in July, 1753, commanding the 17th of February, vice Lord de Tonti, he was taken and imprisoned by the French. At this time he 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 and gentry, fell in with two combined French fleets, 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 one escaping, together with four armed East Indiamen, and one galley. In October, representing 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.'

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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 markets, both on salmon and lobsters. Several vessels belong to these towns; and some coarse linens are made in the different families. The Anstruther are included in the St. Andrews district of burghs, which district returns one member to parliament.

Opposite to the Anstruther is the Isle of May, a mile long and three-quarters of a mile broad, which is considered an excellent place for improving the fisheries of sheep kept there, though only for one session; there is a lighthouse on it. The island abounds with well-known species of insects, which has 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 of "Insects in the Library of Entomology," 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 eggs; but in the case of 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 here to remark 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 only possess wings during the pairing season; and of a sort of aferant, which are not to be confused with the neuters, workers, or nurse-ants, and which, so far as we know, have never been observed to have wings in any stage of their existence.

An ant hill may be 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 nearly always in very small numbers, at least from the 15th of September to the 1st of December, and therefore, it is not to be expected that, without a guard of workers to prevent their leaving the boundaries, and if one straggles away unawares, it is for the most part dragged back by the vigilant sentinels, three or four of whom may, in such cases, be seen hastening along a single deserrer 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 more in order to prevent the departure of ants, a very numerous either to be guarded or fed. There seems, indeed, to be a uniform disposition in the winged ones to desert their native colony; and as they never return after pairing, it would seem that they are not impelled in any degree to force to acquiesce in it when the winged ones become too numerous, and that the same inclination is to be observed, whether the colony be large or small, and whether it is richly adorned with stones or not. There are some whose whole body was so remarkably clear to allow of my very distinctly observing the wings. On fixing attention more closely upon the latter, I observed the egg open, and the grub appear in its place. Having compared these with those of the same species from 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 elagating 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, glued to any fixed place, but are thrown 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 place to 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 the day and night.—a circumstance first observed by Dr. King in the reign of King Charles III. 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 influence of the sun 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 need to be brought up to the proper temperature, and 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 treated with respect to temperature, but greater care is now taken to preserve them from the sun's 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 disengaged from the stomach, as is done in a similar way by wasps, hornets, and bees, in giving their young the milk of the female. It consequently requires no little industry on the part of a solitary female to procure for herself sufficient food to supply nutriment for a brood of perhaps a dozen or twenty grubs, which is capable of being done by one only.

When the grubs are full grown, they spin for themselves cocoons of a membranous texture, and of a brownish-white colour, not unlike barleyscorn 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 counterpoise the popular notion, is shown by the Rev. Dr. Harris, Messrs. Kirby and Spence, and others, to have its foundation in the sacred text. The cocoons are found in England, among the stems and the grubs with regard to exposure to heat; and the anxiety of the nurse-ants to shelter them from the direct rays of the sun is taken advantage of on the Continent to collect the cocoons, during their singular absence, for a sufficient 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 during summer by the business. In 1822 we visited an old woman at Dottendorf, 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 which the cocoons were deposited, taking ants and all home to her cottage. She cut in all the box-stems of the

In the case of moths, ichneumons, and other insects which
gain 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 Germain von der Huber—"Several males and females," says the latter, "lay their eggs in the cavities 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 persistent efforts, succeeded. When the hole was sufficiently open, and the pupa broke, they formed in it a vast number of apertures. To expel the work, some raised up a little slip cut out in the length of the cocoon, whilst others drew the insect gently from the body, and then removed the still 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-like pellicle which embraced every part of the body, drew the extensive tentacles 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 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 placing the eggs, the grubs, and the cocoons in due degrees of temperature; that they have to feed, shelter, and disgorge the young from the stomach, and have to disengage the insect at its period of change from the envelope of the cocoon. They have also to perform the task of forming streets, 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, it 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 singular ant (P. sanguinaria, Lateriile), reported to have been seen near London, but which is certainly very rare, it is supposed. We found 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 ob

The point which we wish to call attention to here is that the whole of the apartments which we laid open, amounting as it was to three or more, there were probably as many more to which we did not penetrate. The main entrance was by 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 exterior, and we saw only the old or the colony long established, and the rubbish littered about the grass by the weather.

In other instances of mining, such as in the case of the turf-ant (P. Compositum), the clay taken from the interior is built up on the outside, using the berbage for buttresses to support the walls thus formed. In the case of the sangunary ant, however, we observed nothing of this kind, and do not think they ever employ any exterior masonry.

Masonry.—The most curious of our English ants which employ masonry is the yellow ant (P. Faira), 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 autumn. says Dr. J. R. Johnson, in a 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 was found to be kept up 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 separation; but what was my surprise, on visiting my little friends after a two days heavy
Neither are the excavations of the latter so regular in the form of the cells; and the delicately thin partitions do not occur. We have seen several colonies of the yellow ant (F. sanguinea, Latreille) established in trees, though their usual habits lead them to prefer a hedge-bank, the dry ridge of a ploughed field, or even a sand-hill; and in the latter, we

have, on various occasions, observed that they had, in the midst of its sandy surface, a small, narrow circular excavation, which was always the same, in manner, as the nest of the yellow ant. The excavations were, however, quite shallow; but the individuals of this species, which are usually seen in these deposits in the rocks, or in the trees, the oak seeming to be preferred by all others; the honeycomb-like work does not seem to stop the vegetation, the trees continuing to put forth leaves and shoots as before it was excavated 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 was it untouched with dry rot, and the wood was hard and tough.

Foot of 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 extinction of the various species of aphids called honey-dew. It is on this account that, when these insects are abundantly fed, they are always observed to meet with ants carefully attending their motions and gready drinking the honey-dew, which becomes so injurious to plants when it increases in quantity as so to obstruct the pores of the leaves.

It is stated by Huber and some other entomologists, that during the summer months, the ants are found in their cells, or, at all events, take advantage of individuals of the grass aphid (Aphis Graminum) in the vicinity of their hives to obtain honey-dew. We strongly suspect there must be some fallacy in this statement; for among numerous 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 approached their nest. It is certain they were active in Germany already mentioned, we have seen that they had become torpid as early as October, when the weather was still fine and far from being cold. We are therefore of opinion that the statement will be found as void of accurate foundation as that which represents ants as stowing up corn for the winter.

Migrations.—We have already seen, under the head of pairing, one principle in operation for spreading around a continent and even the world, the migration of the ants. Thisbcd may be considered the main principle of migration; but besides this, the whole of a populous ant-hill which has been established for several years will, for some cause beyond our means of tracing, though most probably caused by some of the movements of the winds or storms which prevail, be driven from its place, and to a new station. Among the yellow ants, the emmet, and the wood-ants or pismires, this is by no means common; but it is an every-day occurrence among the red ant, the sub-coloured ants, the turf ants, and others; and these colonies never become very populous, and are consequently both more easily moved and more easily provided with lodging.

Immensa swarms of ants, to use the words of Dr. Roget, 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 extent where they settled. M. Diedrich describes, in the Mem. de l'Acad. de Berlin Assemblerie des Formes, a black ant which appeared in Germany, and formed high columns in the air, rising to a vast height, and agitated with a curious intestine motion, somewhat resembling the aurora borealis. A similar flight of the white ant, Acro-

lutus, a clergyman of Breslau, which resembled columns of smoke, and which fell on the churches and the tops of the houses, where the ants could be gathered by handfuls. In the German species A. Dacne, there are occasional accounts of a large swarm which crossed over the town of Posen, and was directing its course towards the Danube. The whole town was strewed with ants, so that it was impossible to walk without trampling on thirty or forty at every step. Indeed, in 1806, the Revue de Physique for 1790, relates the appearance of a similar phenomenon at Montpellier. The shoals moved about in

Carpentry.—The coping which we have already described as placed over the subterranean abode of the sanguinary ant, and which is still more remarkable in the colonies of certain species which can never be termed a carpentry, for the small sticks and straws of which it is composed are not cut into fitting lengths, but collected in the vicinity of the hill and laid on it after the manner of the thistg. The term carpcery, however, will apply most justly to those species which form excavations in the interior of trees, of which the following is an instance observed in 1832. We have brought into our garden in the beginning of June, a number of a willow tree which had been curiously worked out by the species usually called the emet (F. fuliginosa, Latreille). The tree, indeed, from which it had been taken, appeared to have been destroyed in a great measure from the extensive excavations of these little carpenters. Yet the portion of the tree alluded to seemed to be singularly strong, when the great number of the cells and their peculiar structure was taken into consideration. The walls of these cells were literally as thin as wax paper, though not quite so smooth and even, and they were seldom quite parallel, but arranged, some perpendicularly, and others slanting in various directions, worked out, it would appear, upon no previous design, but beginning at any given point, and on some lines of extent by the ants determined, in order to form adjacent for the nest with which they chisel away the wood with their jaws, so as to come so near the next cell without actually cutting into it, cannot well be accounted for on any of the common principles of human mechanism. It cannot be the result of vision, from the worker-out looking along the level of the plane, as one of our carpenters would do, and thence working so as not to cut through it; for the wall has, in most instances, though not all, in no free slip along which such a level could be taken by the eye. Hearing might assist them, however, supposing workers to be engaged in chiselling on each side of the partition, but it would appear to be more from touch, or rather that sensation of it denominated tact, which enables them to feel, as it were, the walls of the tunnels, in which they have nearly penetrated the wall, and which consequently warns them to stop.

It is not a little remarkable, that all the wood which is worked out by these ants is tinged of a black colour, giving all their straws and leaves somewhat the appearance of having suffered from fire or of being smoked. M. Huber the younger did not succeed in ascertaining the cause of this tint. We should, perhaps, refer it 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 cells seems an original part of the same chemical principle, and this is rendered more probable that the excavations made by other species, such as the dusty ant, (F. fuliginosa, Latreille,) 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 these colonies, examination has shown that they were found to belong to the Formica nigra of Linneus."

Wars and Expeditions to capture Slaves.—In the same way as the bees and the wasps of different hives manifest an increased hostility when they meet, ants also of the same or of different species, when brought together, will sometimes, during their foraging excursions. Besides the individual skirmishes which these occasionally arise, pitched battles are sometimes fought between the whole or nearly the whole of the members of some colonies. We have never 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 fighting sinuously with each other for the possession of a few inches on what were supposed to be the boundaries of their several territories; their bite is so sharp, and the acid which they infuse is so deleterious, that many are thus disabled or killed outright. 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 extraordinary that it should be briefly recapitulated. We have hitherto been credulous enough, if not on the whole, well-known veracity of Huber; but in the autumn of 1832 we had an opportunity of verifying them both in the Black Forest, and in America. In this respect to certain species which the term the Amazon ant, (F. quadrifrons, Latrille), 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, (F. invadens) not for the purpose merely of satisfying 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 ascribed 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 warriors are always conquerors,—are carried off to the Amazonian citadel, and being hatched, are, the poor slaves are most probably not aware 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 capers.

The Amazons have not hitherto been found in Britain, and we were unsuccessful in our attempt to bring over from the Black Forest, or any other part of Europe, the warlike ants, which we placed in a box for the purpose. We succeeded indeed in bringing safe home two nests of the sanguinary ants already alluded to under Miners, together with a number of their slaves, but they all died within two months, having been injured by the air and change of climate. With respect to the ant-eaters, they 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 from which they derive their names, both being observed in as much as they literally signify 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 greatest 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 bristled 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 predations entirely to the numerous species of large ants which inhabit his native regions, and furnishing him at times with an abundant and easily procured and nourishing. The Great Ant-bear, (M. jubata, Linn.) called gournourot or gouyo by the Guaranees, tamandua by the Portuguese, tamandatu by the Cayenne, tamandu by the English and Spaniards, is a large animal which means
sures, when full grown, four feet and a half from the extre-
mity of the snout to the origin of the tail. The tail itself is
three feet three inches in length, reckoning to the extre-
mity of the hair, or measured only along the stump, two feet four
inches; the length of the base, that part included between the half from the snout to the
base of the ear, and ten inches and a half to the ante-
rior 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 until it forms the inferior
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
pig, and is so firmly attached to the skin, that it forms an
assurance of long, withered grass. That of the head is short
and close, but, over all the rest of the animal, it is long and
shaggy, particularly on the top of the neck and along the
back, where it forms the innermost part of the mane, and on the tail,
where it is a foot in length, and hangs down on each side,
sweeping the ground when the ant-bear walks.

The prevailing colour on the head, face, and cheeks of the
ant-bear is a mixture of grey and brown; that on the upper
parts of the snout and tail is deep brown, shaded and
tinted with olive-white. 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 hips, 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 stoloth and solitary;
the greater part of his life is consumed in sleeping, with whom
standing which, he is never fat, and rarely even in good
condition. He lies about to sleep, concealed under the bush;
his long snout in the fur of the breast, heeds 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 more powerful
rays of the sun. The female bears but 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 unprolific constitution,
steadily 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
nipples, 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 the 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 exsicc 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
swarms of insects which issue forth, alarms by his attack.
whose movements are so rapid that it is impossible to
trace the operation. A powerful 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 heaps of these
insects, 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
flaked in very small. Like all animals which live upon in-
ssects, they are capable of sustaining a total deprivation of
mastication for an whole day.

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 swamp 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,
his step slow, and he gives no indication of moving in a
hurry. He is always so gentle, so unassuming, that the
smelled the ground at every step, whilst his long shaggy
tail, drooping behind him, sweeps the ground on either side,
and readily indicates his path to the hunter; though, when
hard pressed, he increases his pace to a kind of slow gallop,
his movements resemble those of a horse, but his greatest velocity
neither agitates the ant-bear, nor is it comparable to 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

[Great Ant-eater, M. jubatus.]

Perfectly plantigrade, it necessarily stands lower on the hind
legs than before, as may be observed in the common bear,
the badger, and other species which partake of the planti-
grade formation of the extremities. The ear is short and
round, being an inch and a quarter broad at the base, and
only an inch in length; the eye is remarkably small, deeply
sunk in the head, and with a naked eyelid: the head and
snout, as already observed, are prolonged to a remarkable
degree; they are in form almost cylindrical, and end in a
small truncated muzzle, having the nostrils and mouth
placed at its extreme end: the latter is so small that its
whole width scarcely exceeds an inch, and the jaws are of
equal length. The tongue is almost cylindrical, fleshy,
extremely flexible, and capable of being protruded to the
distance of sixteen or eighteen inches. The toes of the an-
terior extremities, four in number, are of unequal length,
the innermost being the smallest and weakest of all; the
second measures two inches and a half in length, and is
provided with a powerful crooked claw nearly two inches
long, sharp pointed, and trenchant on its under surface;
the third, which is the largest of all, has a similar claw two
inches and a half in length; and the fourth, or exterior
toe, is provided with a smaller and weaker claw, like that of
the innermost. All these claws, when in a state of repose,
are kept bent inwards, and only extended, or rather half-
extended, (for the animal cannot open the fingers farther,) when used for defence, or for breaking through the hard ex-
ternal crust of the ant-hills. For these purposes, however,
itself awkward conformation gives it an aptitude altogethers peculiar, and such is the known power of the
ant-bear, that nothing upon which he has an opportunity
of fastening has any chance of escaping from the tenacity of his
hold, as even in death, the structure of his legs and claws pre-
vents them from being unclosed. The slowness of his motions,
however, gives him but little chance against the activity of his
most formidable enemies. Notwithstanding the exaggerated
accounts which Buffon has recorded of the ant-bear suc-
sessfully opposing the attacks even of the jaguar, we are
assured by don Felix d’Azara, that he has not the slightest
chance against this powerful animal, and that a very slight
blow on the snout is sufficient to despatch him. The hind
feet have five toes of nearly equal length, and all armed
with short weak claws, quite useless as instruments of de-
ference, and more resembling the claws of ordinary quadrupeds.
as he is not compelled to proceed beyond a moderate gallop; but if pressed too hard, or urged to extremity, he turns ob- stinate, sits up on his hind quarters like a bear, and defends himself with his powerful claws. Like that animal, his 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 musculature 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 activity. 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 excel- lent observer and credible writer, from whose Natural His- tory 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 himself 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 ex- tinguished 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 stand up against the jaguar, which, by a single bite or blow of his paw, could kill the ant-beer before he was prepared for resistance; for even in so extreme a case, his 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 de- fensive. The flesh of the ant-bear 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 ant-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, meas ur in feet, from the shortness of its legs, it is much inferior in height. The head of the tamandua is not so dis- proportionately 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 crown an inch lower; the length of the ear an inch and a quarter, its greatest breadth one 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 number of the four legs before 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 habits and 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 in the manner of the umbrella of some uniform size in every part. The colours of this species, however, are by no means so uniform and invariable as those of the species already de- scribed; on the contrary, they differ more in the tamandua, according to the individual, in the same way and the same uniform warmth. According to the individual, in the same way

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 armed, 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—

The tamandua, when young, is covered with a uniform straw colour over the whole body, with a transverse triangular band passing obliquely over each shoulder, and encoun- tering that from the opposite side, on the median line of the breast. This band of yellowish colour is much broader than the foot, and is not produced by any difference of colour, but merely by a difference of shade, arising from the hair having an oppos- ite inclination, or direction, from that on the rest of the body.

The second variety is, like the former, of a uniform straw colour, but has a good deal of black about and particu- larly in front of the eye. This variety is found in Paraguay, and is described by Azara, who suspects its colours, as well as those of the preceding, to arise from the maturity of 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.

4. The fourth variety is of the same silvery-white as the last, with similar dirty brown bands on the shoulders, and, besides, the crown, flanks, and belly of the same ob- scure colour.

5. 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

6. The sixth and last variety is entirely black, with a little light brown upon the tail. This variety was described by 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 deploiled of their honey than their congener's 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, 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. The young are at first exceedingly deformed and ugly, and of a uniform straw-colour.

This animal is called caguare by the Guaranis, on ac- count 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 the strong disagreeable odour of the tarsus of this animal; which, according to the most careful examination of which, the 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 fourmider, and little ant-bear.

It is difficult to imagine how M. do Buffon could have
As produced, that one food present quarter. acidum,' the particularly the say, notwithstanding his perfect knowledge of this circumstance, M. Desmarest, in general a very acute observer, commits himself the very identical mistake which he criticizes and condemns in Buffon: giving, for a real ant-eater, a plate in the Atlas zu Krusewitz' Voyage, which, through not the very first order of engravings, yet very tolerably represents a coat in the act of killing and devouring a serpent. This latter circumstance alone is sufficient to show that the animal represented cannot be an ant-eater, even if the engraving itself left the question doubtful, which it does not. It is only surprising that so scutate a zoologist as M. Desmarest could ever have committed the error, though, perhaps, not so much so that all subsequent writers should have copied his mistake, without taking the trouble to inquire into the matter.

3. The little Ant-eater (M. didactylus. Lin.) is easily distinguished from the other two species, not only 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 but six inches, that of the head not quite two inches, and of the tail seven inches and a quarter. This organ is consequently rather larger 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 muscle is not so long, in proportion, as in the other two species: the tongue is also shorter, and has a flatter form; the mouth opens farther back in the jaws, and has a much larger gape, 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 color 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 Guyana and Brazil, beyond which it appears not to extend further towards the south, since Asara is not unacquainted with it, but imagine, from a description given by Daubenton and Desmarest, 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 Bonsack, 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 fourmilliers, which were not larger than a squirrel; one was of a bright red color, with a black mane, which fell upon its back; the other was a silvery grey and darker on the back; the hair of each was very soft and silky, a little crisp; the head was small and round, the nose long, gradually bending downwards to a point; it had no teeth, but the stomach was large; it was covered with very small, round, and black; the legs rather short: the fore-feet had only two claws on each, the exterior being much larger and stronger than the interior, which exactly filled the curve or hollow of the large one; it had four claws of a moderate size; 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 Rasing-Aanding, as theVan Demanians say, and I was told that it will quickly have been 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 to the forest for more of ants, and, during the interim, I put 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 fore-paws, which resemble those of a spider, and differ very much from those of 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 teeth several of the nymphs from the nest, and began devoured those of 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 known that species of animal take any nourishment.

The ants which I tried it with were the large white formicidae, 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: wherefore I can give no further description of them, than that they curled together, and fastened by their prehensile tails to one of the perches of the cage. When touched they erected themselves on their hind-legs, and struck with the fore-paws 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 attempted to run away, but were always ready for defence, when attacked. As soon as evening came, they awoke, and were active in the cage, the three or four hours of activity, though they never jumped, nor did I ever hear their voice.'

This valuable account, the only one, as far as we are aware, ever drawn from actual and continued observation of an animal living animal, leaves us an idea of the natural 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, a thing which, we believe, has not been attempted hitherto, 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 serious 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 mammals. By the report of Asara also, it is probable that the tamandua lives upon the same food, and may consequently be introduced in the same manner.

ANTACIDS, from the Greek word, 'anti,' against, and the Latin word 'acidum,' or acid, signify means used to correct acidity in the stomach. Though 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 become acid, and therefore, to prove a disagreeable sensation. It is 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, in wines, or hard beer; and in certain vegetables, as sorrel, which contains oxalic acid. The most frequent source of acidity, is that first mentioned, the secretion of
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acids by the vessels of the stomach. It is, therefore, dependent, opposed to, and other names caried on, or the system generally. This is further proved by considering what kind of persons are most subject to it. These are individuals either natural to a feeble and weak constitution, or who have weakened the stomach and system generally by fatiguing labor. It is, however, r.t., too much animal food, and wine, unaccompanied by exercise and other counteracting measures. Hence we see these persons, or their children, and even their children's children, subject to gout, gravel, and stone in the bladder. As it has been ascertained (see the works of Mr. Murray Forbes, A Treatise on gravel and Gout, 1786; Wilson Philip, Marceit, Blane, Prout, and Mjenjoe) that these constitutional, or inherent, causes have their origin in the tendency of the stomach to the formation of acid, and inquiry into the causes of this, and the circumstances under which it takes place, is of great importance, as a means of preventing or counteracting them.

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, formed around the joints in gout, and calciflous, or stone, kidneys in the bladder.

The signs or symptoms of acid being in excess, are not in general limited to the stomach, but shew themselves in several parts of the body. There is heartburn (cardialgia), often brought on by some other, and sometimes by the use of a fluid so extremely acid, as to cause effervescence when it falls on a marble stone; the bowels are sometimes confined, sometimes too loose; the urine generally scanty, and high-coloured, from which, on standing, 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 gloomy views of his health or circumstances; in short, decidedly hypochondriacal.

The composition of the blood proper to 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 the urine denotes that the excess of acid mostly finds an outlet by that channel, the preparations of potash and soda are to be preferred; where the bowels are much confined, magnesia, or its preparations, may be administered. The stomach is, for both, a very much 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, lodged in the large intestine; this is a disease not unfrequent in such persons. On the other hand, the bowels being in a base state, prepared chalk may be given with advantage, or lime-water, 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 mediocines by the effects of an excess of acid may be in some degree counteracted; but the most efficient means of preventing its formation, consists in a strict attention to diet and regimen. Great moderation must be observed in meat, quality as well as quantity, and soft diet and drinks. 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-fermented beer, or eyster, 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.

In the case of weak individuals, and most persons, such as flannel next the skin, which can keep up a free action of the skin, form a most important part of the prophylactic treatment.

This term is used by architects to designate the form of walls, or chimneys, or any other work, having their upper corner turned outward in lines that form what are called lateral walls in 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 cause (for the word is used alike in the singular and in the plural) has 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 Theoric or Corinthian style or order, they are much more numerous; the mouldings at the base of the antae are in proportion deeper, are in a greater number of parts, and have extantive ornament: besides the carving or painting of the mouldings of the cap, and the frequent and continued use of mercury, of powerful purgatives in sickly frames. Injuries of the back, or the previous existence of a very acid state of the system, will occasionally

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give rise to an alkaline state of the system, which, when considerable, shows itself by great general debility, pale countenance, disengaged state of the stomach and bowels, and excessive secretion of urine of a pale colour, which, on standing, makes the appearance of gelatinous mucous fluid; and perhaps, on the return of such a state, the causes must, as far as possible, be removed. This is best done by diet, regimen, and appropriate medicines. The diet should be nourishing, mostly and chiefly composed of fresh vegetables; and where it is used, light French or Rhenish should be preferred; hard water should be carefully avoided; saline purgatives, as Rochelle salts, or Seidlitz powders, and indeed all combinations of a vegetable acid with an alkali, as such, as the combination saline draught, must be abstained from. The irritability of the system is best lessened by opium and tonic medicines. These last furnish an excellent vehicle for the administration of medicines which are the most fitting medicines—either muriatic, nitric, or the citric, which is most grateful to children. The phosphate of iron is also a very useful medicine. Purgatives of an active kind should seldom be given; but where the stomach and bowels of children are much disordered,召集 and rhubarb taken frequently for some time are of much service, especially when the phospate of iron is employed at the same time. Pure, invigorating air, and moderate exercises, are very beneficial, with relaxation from too great mental exertion, where this habit has been already formed.

ANTALO. [See Abyssinia, p. 54.]

ANTAR, an African warrior, best known to Europeans as the hero of a romance, translated into English, in 1819, by the Reverend Samuel Wesley; a Frib the negro slave. Born, therefore, to his mother's condition, and for a long time disgraced as an Arab, and ill-used by his father, he yet raised himself to high consideration by his extraordinary strength, courage, and poetical talent. He lived at the close of the fifth and beginning of the sixth century.

The present Antar is conjectured to have been put together in its present form, from the original legendary tales, about the time of the famous Caliph Harun al Raschid; and it is still one of the favourite sources from which the professional story-tellers of Egypt, Syria, and Arabia draw their materials. The hero is an eastern Roland, routing whole armies for the love of his mistress. This poem is curious, as presenting an early picture of the manners of the Bedouin Arabs; but there is too much sameness in it to render it, in its English form, very interesting to the reader. [Introduction to the Translation of Antar.] [See Arabian Literature.]

ANTARCTIC CIRCLE. [See Arctic Circle.]

ANTARCTIC OCEAN, a term properly applied to the ocean between the Antarctic circle and the South Pole. The word is sometimes used to express generally the cold oceanic regions round the South Pole, without strict regard to the limits of the true Antarctic circle; but all attempts at discovery have been made in these high southern latitudes, [see Cook,] and particularly of late years. The farthest point yet attained is in 74° 1' S. lat. 36° W. long., which was accomplished by Captain Weddell in 1823. The most recent discoveries of land in the Antarctic Ocean were made by Mr. John Biscoe in 1831 and 1832. On February 27, 1831, in 65° 57' S. lat. 47° 26' E. long. Captain Biscoe discovered land of considerable extent, closely bound with fields of ice, but was not able to approach it within twenty or thirty miles. At the time of the discovery the temperature of the air was 22°, and that of the water 30°: the Aurora Australis was very vivid. This unapproachable land was called Endeavour Island, from the name of the ship. On February 21, 1832, Captain Biscoe landed on what is now called Graham's Land, which the discoverer supposes to be of considerable extent: the highest mountain in view, called Mount Biscoe, in place of 46° 45' S. lat. 50° 51' W. long. In front of this high continuous land is a range of small islands, now called Biscoe's Range. No living animals, except a few birds, were found on any of these islands, though there were many birds seen a few miles off the coast. For further information respecting the climate, &c., and the few pieces of land yet discovered in this part of the ocean, see the articles New South Shetlands, Sandwich Land, &c., and Polar Seas. For an account of Biscoe's voyage, see The Journal of the London Geographical Society, vol. iii., from which these facts are taken.

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 June.

ANTEC/DENT, 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 2:4:8:16, 2 is the antecedent; 8 and 16 are consequents.

2. a : b = c : d, it is equally true that a = b : c : d.

ANTECEDENTIA. When a heavenly body moves contrary to the order of the signs of the zodiac—from Gemini to Taurus, from Taurus to Aries, &c.—it is said to move in antecedentia. When it moves according to the order of the signs, it is said to move in consequentia.

ANTEFIXA, or ANTEFIXE, for this term is more frequently used in the plural, for both singular and plural, with other works having fixed upon them 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 make them ornamental. The bricks and tiles were applied in the shape of the cornice of St. Pancras in London exhibit antefixe ranged along over the cornices, but without the parts of which they are fitting accompaniments. The fronts of the Travellers' Clubs house to Pall-Mall and Carlton-Gardens, also in St. Pancras, show antefixe more judiciously composed with the roof, with which they form an ornament to, and help to enrich, the elevation.

ANTENLOPE, (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 suborbital 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 its limits, within 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 assigned within it; it is truly a complex genus, of which zoologists commonly assign to the genus antilope are not found either in box, onis, or capra, and so in far may be fairly considered as differential, and peculiar to the former genus. As in these respects it applies itself only 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 forced to content themselves with a general description of its most important characters and 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, by far the most of the above period of its formation, 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, and in the extent of the various species, and their assemblage in the various species of the same genus. Each species sometimes form a single group, sometimes they are what is commonly called lyrated, or bend first backwards and then point forwards, in such a manner as, when opposed to another, to assume the figure of an ancient tripod, the arches or bases of which, whether they were frequently made of the horns of the dorcas or common gazelle, as appears from the engravings of antique gems still preserved; sometimes they are twisted into a spiral form, and sometimes the horn itself is straight and surrounded by one or two turns of a prominent spiral wreath.
In many of the smaller species the bony core, or process of the os frontale 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. Geoffroy 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 character of the bony process is but an auxiliary one, 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. Geoffroy St. Hilaire, so far as to embrace the habits and economy of the animals, as so much as to be an artificial 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 the 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 to the whole genus, is invariably constant in the species which possess it.

The possession of lachrymal sinuses, or, as they are very generally called, 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 who communicate to the naturalist their observations, trills, 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 poisonous plants which grow in the desert, 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 quadrupeds can so accurately be relied upon, prove, that which White, in his Natural History of Selborne, and Colonel Smith in the fourth volume of Griffith's edition of the Regnum Animal, even assure us that they have observed their fair giving way and forwards through the subcervical sinuses of the fallow-deer and sauners (Cervus hippelaphus) whilst the animals drank with the nose completely plunged into the water; yet, notwithstanding the direct authority and glowing substance of the 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 parts, that no internal communication exists between the nose and the eye, or at least that it is by no means a free one, and that the organ subserves for the admission of a hollow, oily, viscous substance of the colour and consistence of ear-wax, but which hardens and turns black upon exposure to the air. The precise functions of these organs are entirely unknown: that 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, and their functions 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 other characters we may assume to present us, that many of the antelopes which are most commonly brought to Europe and preserved in menageries, such as the common Indian antelope and the gazelle, make continual use of this organ when any strange substance is presented to their nostrils, particularly if it is of a disagreeable, and appears to derive great pleasure from protruding the lachrymal sinus and rubbing its interior surface against the odorous body. This, and similar observations render it by no means improbable that the larger species, or indeed any other tapines, that it once or other, take cognizance of the qualities of matter, and thus be subservient to the intellectual faculties of the animal; but if so, it must be confessed that we are at present entirely ignorant of the precise mode in which it acts.

It has been already hinted that the antelopes are not only ruminants which possess suborbital sinuses; in fact, these organs are more universally found in the deer kind than in the present genus; but, on the other hand, as these are the only animals belonging to the hollow-horned family which exhibit this character, it thus becomes sufficiently appropriate, and, as far as it goes, serves readily to distinguish the antelopes from the goats and sheep, with which they are more liable to be confounded. In this respect, as well as in the absence of horns in the females of many species, they link a species, the cervine or solid-horned family: so nearly indeed do some species of antelopes approach to the deer kind in general, and so perfectly similar are they in all their most prominent and essential characters, that in the absence of a horns, it is impossible to distinguish the hornless females of one genus from those of the other. In these cases it is only by such trifling appearances as the form of the tail and ears and the quality of the hair, that we are enabled to form a tolerable guess as to the genus of the individual; and even these criteria are frequently fallacious, a strong and convincing proof of the close affinity which subsists between these two genera, and of the propriety with which Professor Pallas, on the original formation of the genus Antelope, considered these animals as forming the connecting link between the deer and the goats, with the latter of which they had been up to his time connected.

Besides the suborbital sinuses, a few species of antelopes possess a different gland, which runs lengthwise between it and the mouth, in a direction for the most part parallel to the plane of the chief or nose and secretes a dark oily substance, which in the horen of the gazelle, and has no internal opening like the lachrymal sinus, nor are its uses better known than those of that organ. It is likewise much less general, being confined to a very small number of species, and as appears from the observations of M. F. Cuvier and Colonel Smith, sometimes accompanies the lachrymal sinus, and at other times is found alone without any appearance of the latter. The former fact, if it can be relied upon, proves that it is not a modification of the sinuses and not a mere modification of the lachrymal sinus; and, consequently, it may be fairly presumed that its function, whatever it may be, is likewise different. Another character, but much more generally found to distinguish the antelopes than even the suborbital sinus itself, is derived from the inguinal pores, which are sacks or deep folds of the skin, situated in the groin, opening inwards, and secreting the fluid of the glands already mentioned. Very few species, indeed, have these pores, but still they are not universal, nor can we form even a probable conjecture regarding their uses. A single species, the one-horned antelope, has a pit or gland in the skin nearly half an inch in depth, opening externally by a small aperture immediately behind each ear, but not provided with a gland, nor appearing to secrete any matter. Baron Cuvier supposes, with great probability, that it was this organ which was alluded to by the ancient Greeks and Romans, so often alluded to by Aelian, Pliny, and other classical authors, that goats breathed through their ears, an opinion repeated by Gesner, Aldrovandus, and other writers of the middle age, and which finds a parallel among modern naturalists in the idea before referred to, that deer and antelopes breathe through their suborbital sinuses.

In the form of the upper lip, an important character among animals which seek their food on the ground, and in which the lips and tongue constitute the only organs of touch and prehension, the antelopes are as variable and inconstant as all the other characters: at present it can be said that it forms a broad naked 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 modification of both these characters: as appears from the two species of smaller antelopes, described with either two or four teats, forming a small udder: they usually bring forth but one at a birth, in a few instances two, and the period of gestation differs according to the species. Few observations, however, have been recorded upon this subject. In this genus, or 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 mammals in general, differ from one another
in colour, but when this does happen, as in the instances of the nylochus 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 antelopes 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, composed of the outer hairs and completely enveloped in skin, or so closely interwoven 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, smooth, and the outside of them is generally with the hair growing in five longitudinal lines, with four naked black spaces between, and forming the appearance which, in describing these animals, is usually dominonated striated. The tails are generally short, round and tufted at the extremity, and in some species are furnished with little tufts of long black hair, called scap 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 herds, either permanently, or at particular seasons of the year, but only for the purpose of migrating in search of more abundant and grateful pasturage; 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 directions about their feeding grounds to see of them, which the white griffin or repasser which their vision and sense of smell are so acute, that it is only by using the greatest caution and circumpection that the hunter can bring them within range of the gun. The most timid of these animals, and 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. The word dorcas, (from the Greek name of the gazelle, or common Barbary antelope, is derived from the verb ἑπορασκεῖν, to see. The common English word antelope, which zoologists have adopted as the generic name of the whole order, is a corrupt form of the Greek word antilopos, and is generally supposed to have been used by Eustathius to designate an animal of this genus, and literally signifying bright eyes; and, according to the learned Boehart, ἰάμυθι, the name of the disciple raised to the apostleship at Jerusalem, is derived from ἰα— μνη, 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 Agathias, and others, dorcas, dorcaulis, and dorcical, names of different antelopes, were common names of those animals which were associated with the remarkable beauty of their eyes; and Prosper Alpinus, and more recent travellers, inform us, that 'Aine el ossait,' You have the eyes of an antelope, is the greatest compliment which the French 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 Ascool to that of the wild gazelle; the Gadites are also said to have been as swift as mountain gazelles—for the proper signification of this Hebrew word τασῆ, improperly translated oes in our English version of the Scriptures: and many other instances might be adduced, both from sacred and profane writers. Through-out all parts of the East the fleetness and timidity of the antelopes are proverbial, and furnish the Persians and Arab poets with images of gentleness, beauty, grace, and affection. The swiftest horses and horses are left far behind in the pursuit of these animals, and it is only by stratagem that they can be brought within the range of the gun. The people of the desert may be of the hawk, the oryx known, but still the beast, to say nothing of being chased by the oryx, which 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 part immediately around the wound must be cut clean through, otherwise the poison would be of no use, and would continue to poison the beast, which would otherwise penetrate through it, and render it unfit for food.

Africa may be considered as the head-quarters of the antelopes. Of this numerous genus, consisting 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 latter continent. Of the two inhabit it in the new world: the Rocky Mountain-goat, described by Colonel Smith under the name of antilopu lanigeru, 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 to do with their form character, but they 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 sandy deserts, and are known as 'white antelopes,' because of their white or very yellowish hair; others are found 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 sandy plains, the steppes of Central Asia and basroos of Southern Europe. The latter are distinguished by the grass, though parched, is still sufficient for their subsistence; some again inhabit the steep rocky mountains, and leap from cliff to cliff with the ease and security of a wild goat, whilst others are found only in the highest and almost impenetrable forests of tropical countries.

The great extent of the genus antilopu 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 neither 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 case. We shall therefore be so far guided by the example of Baron Cuvier, as to dispense with the names imposed upon the different species, and consider the subdivisions as merely alphabetical divisions of the genus, for the purpose of distinguishing the various subdivisions by appropriate numbers, which have been connected together by the respective names of genera, without misjudging the judgment by false associations, or directing it to mistaken affinities and relations which have no existence, the too common consequences of an indiscriminate 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 contingency those species which most nearly approximate to each other in their external form 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 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. M. Lichtenstein, De Blainville, and other writers; considering the external form and respect, but is much more complicated, and their divisions are sometimes vague and indefinitely characterized. We shall endeavour to unite the advantages of both systems, and adopting the characters which are most constant and influential in each, and rejecting all one of a secondary or variable nature.

I. The first of these subgenera or subdivisions of the genus antelope, which has been designated antilope by the French naturalists, and to which, says Colonel Smith, comprises one or perhaps more species, remarkable
for being the only hollow-horned ruminants in which these organs are provided with a snag or branchy point, like 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 them out as the natural connecting link 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, like 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 other animals is situated about half-way up from the root of the horn, is short and compressed, points forwards and a little outwards, 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 udle; the lips are hairy as at-
tempered like those of the goat: there are neither subauricular 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. One of the most remarkable characters of this group, 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 giraffe; a peculiarity which, so strongly as to the giraffe, 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 camels and lamas, with the ordinary ruminants, at least among camels, as 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; a latterly 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 the genus, but we have the authority of Dr. Richardson, whose experience entitles his opinion to great weight, for considering the antilopæa palmata of that author, a species founded upon the inspection of a pair of horns in the Museum of the College of New Jersey, being 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 Mexico and California contain more, the two species described by Hernandez long since being recorded by the Spaniard under the generic name of Mazams; and it is at least certain that one of the species so denominated by the Spanish author very closely resembles the A. furcifer of our writer; on the other hand, there is a single species, A. pronjrbuck, described by Hernandez himself that the ancient Mexicans comprehended all the deer kind under this term, and the various descriptions which he gives afterwards clearly refer to solid-horned ruminants. The prong-horned 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 cabrese by the Canadian voyageurs, and the goat by the fur-traders, the size of the stag or pronghorn, the size of the antlers, 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 lie perpendicularly from the skull, immediately above the orbits; 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 stag, of the width of an inch, in the pronged or 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 the horns are smooth, and pressed close together, 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 altogether different from that of other animals. It is tubular or hollow within like the feather of a bird, but so brittle and devoid of elasticity that it snaps with the smallest effort, and, when pressed between the finger and thumb, orises like a reed and never regains its original form. It stands directly out at right angles to the body, 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 nape of the neck, shoulders, back, and hips, it is of a uniform fawn 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 fawn-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 45th of north 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 bills 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 extremely curious, and the Indians, and, as we are informed by Dr. Fedman, 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 distances 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 sinusses, inguinal pores, or horns in the female sex, and has hairy lips like the group already de-
scribed; 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 charactizes those of the prongbuck. This division likewise consists, at present, but of a single species, lately discovered by Mr. Hodgson, the British Museum, at Kankhun, in Nepal, and described in the Proceedings of the Zoological Society. It is

2. The Chiru, (A. Hodgsonii, Abel), believed to be the unicorn of the Bhoteias, and supposed by Colonel Smith to be the animal which Zilpin describes as the Under the name of khen (see also Mr. Hild. 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 not long; the nose 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 point gradually forwards, thus assuming a lyrate form, but less strongly marked than in the common gazelle; they are surrounded, to within six inches of the points, with four to twenty annuli, forming prominent knobs in front, but more obscure or lost towards the 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 downwards, the outer angles of the nostrils, as well 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 the ordinary 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 upper and inferior surface 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 from the inhabitants of Tibet, but never 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. It is extremely shy and difficult to approach, posting sentinel in all directions where the herd feed 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 so immeasurably savage, and such a sight is always accompanied 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, which extends throughout the whole of the Himalayas, and serves as the guidance 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 subterminal 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 inguinal 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 are confounded with the open steppes and plains, and 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 thousands of individuals for the purpose of migration. The best-known species of this division, and indeed of the whole genus, is

3. The Sasin, or Common Antelope, (A. cervecusrap.), remarks on the form and beauty of its horns, which resemble a spiral of two or more turns, are composed of horn, and resemble 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; the horns, 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 subterminal sinuses 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 fore and hind parts 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 sasins are so swift that it is useless to slip greyhounds after them, as, unless taken by surprise, which their extreme precaution seldom allows, it is impossible to overtake them, and experience has convinced the Indian sportmen 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 soon 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 fakirs and dervishes 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 voices and religious character prevent them from using.

4. The Saiga (A. colus, H. Smith) is the only species of real antelope which inhabits any part of Europe; the clasmoi, though also considered as belonging to this genus, is really an intermediate species, partaking equally of the characteristics of both. The Saiga is of smaller size than the Saiga is about equal to that of the fallow deer, the length being four feet; but the form of the body more nearly resembles that of the sheep, being round and heavy, with a large bulging greyish fawn to white, and the whole proportions of the animal were of unusual 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, produces a most remarkable effect, compelling the imitator to go backwards whilst feeding. The nostrils are large and open, the ears of a moderate size, the tail from three to four inches in length, and the bony sinuses much smaller than in the Indian antelope. The 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 yellow or golden ring of hair around 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, lacquers, and brushes. They never leave their proper haunts, which is intermediate between that of the spiral-horned and lyrated groups, being distinctly twisted upon their axis, though without exhibiting the complete spiral threads which characterise the horns of the Indian antelope.

5. The Saiga is a dual antelope, as in the book vii. p. 312. (A. casaub.) under the name of colus (eolos); the Polish name of the animal, sulak, appears to bear some resemblance to the name in Strabo. The Tartars call it akhak and the Turcomans aghak. The Saiga is to be found in the vicinity of the Caspian Sea, near which the word is 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 unite in large flocks and form a considerable group. The males have each an immense beard, which forms a crowd, form single files, and follow closely in the footsteps of their leader; they rarely emit any voice; when taken are easily tamed, and indeed appear to have rather a predilection for the domestic state, often mixing with flocks of sheep and goats. In winter they are very scarce, and summer they form small families which live apart from one another, but, in the beginning of winter, unite into large flocks, always under the guidance of an experienced old leader. They never leave their proper haunts, which is intermediate between that of the spiral-horned and lyrated groups, being distinctly twisted upon their axis, though without exhibiting the complete spiral threads which characterise the horns of the Indian antelope.

6. The Pallas (A. melampus, Lichtenstein) is a magnificent species of South Africa, discovered by Professor Lichtenstein during his travels in that country, and since found in the Boeotian country on the elevated plains of Thessalia, by Trutell, Somerville, and Burchell. It is upwards of four feet and a half in length from the nose to the origin of the tail, and three feet high at the shoulder; the horns have an irregular lyrate tendency, bending backwards near the base, and very much outwards, then with a large circular sweep inwards, and finally pointing forward again, approaching within three inches of one another at the tips, after being nearly a foot distant in the middle; six inches long, and very much compressed, for two-thirds of their length with irregular rings, often splitting into two, and forming prominent knobs on the front of the horn, but very slightly chilidred at the sides. The horns of this species have given rise to this presumed antipathy to an element which they seldom encounter, as well as to the marked antipathy to woolly localities likewise attributed to them, trees and rivers being equally unknown in the indigenous habitats of these animals.

7. The Dzeben (A. gutturosus, Pallas), the boong yang, whang yang, or yellow goat of the Chinese, is about the same size as the Saiga, but has milder features. They are about four feet and a half in length, and two feet six inches high at the shoulder; the body is also large and corpulent, and the legs shorter than is common to the antelopes in general; the horns are black, lyrated, and marked to within a short distance of their points with prominent transverse rings; the suborbital sinuses are small; the larynx large and salient, forming, particularly in the old buck, a prominent lump on the throat; upon the prepuce of the same sex there is likewise situated a bag about the size of a hen's egg, which contains a waxy substance similar to that produced in the anal sacs of the animal, but of a quite different colour; the tail is short, and the knees furnished with small bunches of hair, but scarcely sufficiently long and distinct to merit the name of brushes; the summer coat is greyish-white, and in winter almost entirely white, being tinged but slightly with a greyish-yellow shade on the back and sides. The females resemble the males in colour, but are rather of smaller size, and without horns; they want the sack on the abdomen and have two teats. The dzeben inhabit the dry arid deserts of Central Asia, Thibet, China, and southern Siberia; particularly the great desert of Gobi, and prefer the most sandy and stony plains, feeding upon such scantly herbs as these localities supply, and avoiding water, to which they appear to entertain a marked aversion. They are remarkably swift, take prodigious leaps, and, when frightened, will occasionally pass through 200 paces in less than a second. In winter they form small family groups which live apart from one another, but, in the beginning of winter, unite into large flocks, always under the guidance of an experienced old leader. They never leave their proper haunts, which is intermediate between that of the spiral-horned and lyrated groups, being distinctly twisted upon their axis, though without exhibiting the complete spiral threads which characterise the horns of the Indian antelope.
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 outwards and forwards, provided on the inner anterior margin with a prominent sharp ridge, which runs from the base to within a quarter of an inch on the points, and annulated for about two-thirds of their length from the roots. The females and young 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 colours 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 backs of the ears, the neck, shoulders, flanks, ramp, and outsides of the thighs, are of a clear grey colour, like that of the American grey squirls, 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 un mixed 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 suddenly below the eyes, and taper to a small and attenuated snout; the legs are long in proportion to the weight of the body, and so small that they scarcely equal the little finger in thickness.

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 Ahni 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 under the specific name of Antilope Salitiana, in compliment to the distinguished traveller who procured them. More recently complete specimens have been brought to Europe by Rüppel, and Hemprich and Ehrenberg, and the species has been well described and beautifully figured both by these travellers and in the Darstellung neuer Oder wenig bekannter Säugethiere of Professor Lichtenstein. Little is known regarding the habits of this species. It is said to live in pairs in mountainous districts; and Pearce assures us that many of them are killed by the natives of 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 introduced into the present treatise on the authority of Colonel Hamilton Smith, the only na-
fourth, and the inferior or common horns are about three inches long, smooth, black, pointed, erect, and moderately divergent, bending very slightly forwards, and with the least indication of annuli. The spurious or additional pair of horns is placed obliquely, their tips to form a curve to 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 horn, separated from the horns of the head by an interval of inches and a half long, the ears 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 silver white, more or less mixed with sandy-coloured hairs; the tips of the ears are bordered with black. The horns are replaced in 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, called chikas by the Hindoos, and choukas by the Nepales, is common in all the wooded parts of India, particularly in Bengal, Bihar and Orissa; it is monogamous, and lives in pairs, in the forests and thick jungle...
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 apponix 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 usually 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 slatey 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 lechrymal sinuses; and the outer 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 Antilope picta which has been given to this animal.

The Nygghaussen resides 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 Nygghauzen 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 carcase, 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 Nygghauzen 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 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 Ou cheering. (A. scoparia, Schreber,) called blast-book, or pale buck, by the Dutch colonists at the Cape, according to Professor Lichtenstein, is a much smaller antelope than the Nygghauzen, 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 the specific name of scoparia. 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 short and rounded at the base with a slight curve. The tail is surmounted by a prominence, which in some specimens is 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 than others; the white of 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 hair, one hair of a jet black, 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 tuft of white and 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 kind and of the antelopes 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 pass unheeded by the village cattle over the plain, or 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. In the adult male, the ourebi is easily 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 Ruhr el Ahid, or White Nile, close to which Rüppel procured its specimens.

13. The Steenbok (A. tragulus, Lichtenstein) is one of the most graceful and elegant of the antelope tribe. Its legs are longer and smaller in proportion to its 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 appreciable among the long hair of the croup and buttocks. The whole of the musk, from the muzzle to the base of the ears, 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 and a half long, and the latter four inches. The height at the shoulder is one foot seven inches, and at the croup one foot nine inches. The colouring of this species is altogether peculiar, and alone sufficient to distinguish it from its other common productions. It consists of three distinct shades on the upper parts of the body, but this seems to be glassed, or, as it were, overlaid on the shoulders, back, sides, and hips with a light dun or silvery brown hue, arising from the hair in these situations being covered with a fine and glistening glaze. 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 as that of the horns; it is, therefore, postulated, 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 the skin of each of them is usually perceptibly bending forwards. The ears are extremely large for the size of the animal, being nearly half as long again as the horns, and broad in proportion. But perhaps the most remarkable feature of the species, is that which most distinctly distinguishes it from all the other ruminants with which it is as likely to be confounded, though it has hitherto escaped the notice of observers, is the absence of spurious hoofs, both on the fore and hind feet, a characteristic which is as yet never described among the present species, and which, as far as we are aware, no other ruminating animal of the hollow-fomed family possesses.

The steenbok resides in pairs on the stony plains and mountain valleys of South Africa, not, however, frequently very elevated or rocky localities, as its colonial name of steenbok, or stone-buck, 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, as well as of the gorges of the moderate hills and mountains; and it is probably the site of the species 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 chains, without stopping a pace. 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 rare, it is by no means abundant 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 birds of prey. Colonel Smith has described the young of the steenbok as "be- the in the name of A. ru- fasena;" and the A. pullida, or A. pedisotragus, of Afzelius, 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. melanota, 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 nearly five feet, and the height at the shoulders is one foot five inches and a half, and at the croup one foot seven and a quarter; the horns are two inches and a half long, and the ears five inches. The head, as in the steenbok, ornamented with horns and horns, the eyes beautiful; the 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 fur is of a deep crimson red colour, 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 forming altogether a character not easily mistaken; 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 upper parts 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. They live in the poorest woods, where they never unite into troops or flocks, and conceal itself in clumps of underwood, whence it is not easily driven, lying close by a hare in her form, and seldom moving till almost trodden on. It is common in most parts of the colony at the Cape, and being one of the most beautiful of all the species, is easily captured; its venison is much esteemed, though, like the generality of antelopes, destitute of fat.

15. The Klippringer, (A. ocreotragus, Forster,) called kaisis by the Hottentots, and klip by the Boers, inhabits the most barren and inaccessible mountains of the Cape, and appears to supply in South Africa the place of the chamois and ibex. The entire length of this animal, from the muzzle to the root of the tail, is three feet two inches, its height at the shoulder is about twenty inches, and its weight is about more at the croup; the horns are three inches and a half long, the ears four and a quarter, and the tail three. The head is short and small, compressed on the sides, and suddenly and remarkably contracted immediately in front of the eyes; the horns are small, round, naked, black muzzle; the lachrymal sinuses open by a moderately-sized circular aperture; the horns of the male are perfectly straight and smooth throughout the greater part of their length, having three or four small and distinct annuli on the upper part; the horns of the females are large, open, and rounded at the points; the eyes large and dark, and the tail appearing externally only by a brush of hair which clothes it. There are neither ingual pores nor knee-brushes, but in place of the latter the knees of some specimens exhibit a naked callous patch, probably occasioned by rubbing against the rocks. The general colour of the animal on all the upper parts of the body is a lively and pleasing mixture of yellow and green, resulting from each hair being individually surrounded by alternate rings of these two colours: the under parts of the body are light sandy-red, tinged with yellow; the interior of the ears is filled with long white hair, a narrow black border surrounding the edges of the ears, and a white line on the cheek. The skin is of a yellowish brown colour. The hair of the body is long, padded, and stands perpendicularly out from the hide; that of the head and extremities is shorter, and lies in the usual direction; in the extremity of the latter is a short, thick, and somewhat bristly hair. The texture of the hair which covers all the upper surface of the body and neck is altogether peculiar, being similar to that of the prongbuck already described. It is round and hollow internally, and so fragile that it is at the slightest touch, crushing like straw when pressed between the fingers, and so deficient in elasticity that it never regains its original form. The tail is covered with a small hush of hair of the same description, but so short as to be scarcely perceptible among the longer of the hips. There is a more robust horn than in most other species of antelope, and the hoofs, instead of being pointed and flat beneath, are perfectly round and cylindrical, being worn only at the tips, upon which alone the animal trodeth. This peculiarity of structure in the hoof, and the rigid form of the patern joints, which are perfectly stiff, and in a straight line with the canons, account for the amazing agility which the klippringer displays in bounding among the most dangerous rocks and precipices.

The peculiar habitat of this species makes it impossible to hunt it with dogs, but it is easily shot as it exposes itself upon the naked rocks, and great numbers are destroyed by eagles and other birds of prey which inhabit the same localities. In consequence of this, the animal is by no means common, and is becoming every day more scarce in situations where it most abounded formerly; the excellence of its venison, and the value of its hair, which is held in great estimation for stuffing saddles and mattresses, hold out a powerful inducement to its destruction.

16. A. acuticornus, De Blainville. This species is only known from a mutilated skeleton in the Museum of the College of Surgeons in London. The horns are round, vertical, very sharp-pointed, and perfectly smooth, without the least appearance of annuli at the base, nearly parallel throughout their whole length, and moderately curved forward; they are three inches long, and little more than an inch incumbrance at the base. The sciput is narrow, square, and much elevated. These characters show the fragment in question to have belonged to a young animal. Colonel Smith adds, that it was brought to him by an inhabitant of the district, who supposed it to be the species which Mr. Johnston alludes to in his Sketches of Indian Field Sports under the name of small deer, and which that author says is an inhabitant of the dehMov. and he has described, and figures the horn of this species. The horns are four inches and a half in length, an inch in circumference at the base, smooth, black, and sharp-pointed.
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 antelope is distinguished from all those which precede it by the total absence of incyphal sphenes, 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 inquinal 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 fawow ground. They live in pairs or small families.

18. The Koodoo (A. strepsiceros, 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 canted 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 sloouching, 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-brown, with a narrow white ribbon along the spine, and eight or ten similar bands descending from the neck 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 sparse 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. Desmarteau 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 really domesticated, and show no inclination to the Caffraria.

The females produce one young at a time.

19. The Bontebok (A. nyctalophes, Sparrman) is a much smaller animal than the koodoo, measuring about four feet from the ground; the root of the horns is six inches high at the shoulders. 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-spreading spiral curves so noticeable in the koodoo. Two sharp, prominent wreaths, one on the outer and the 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 aepia brown above, and white beneath, the head and cheeks being light and sandy-red, and the extremities fulvous; that of the latter reddish-brown above and white beneath. Two pure white bands cross the thighs at the level of the knee, the one at the juncture 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 on the cheeks and thighs, to the number of thirty 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 beneath, and the postern 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 white hair running down their lower surface even to the very hoof. All these marks are exceedingly 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 list 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-boat, 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 forest, or to browse in gardens and corn-fields. Its voice resembles the barking of a dog, and its deceitful tone sometimes leads the benighted traveller into the most remote and lonely depths of the forest in the vain search after some common baboon, when it is all the while by him. 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 curled 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 induced by rubbing against the underwood, as it forces its passage through the thick cover. The species is too common in the Cape Colony, and in such parts of the Cape Coloni Ant that it takes the difficult forest to afford it a secure asylum; its flesh makes good venison, that of the breast being particularly esteemed.

20. The Gnu (A. scripta, Pallas) has the same general characters as the boshbok, and the horns of the male are likewise sinewy and cumbrous, being perfectly culated, 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 originates from the feet 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 crown two feet eight; the horns are eight inches long, the ears five, and the tail six. It has four, sometimes three, strong, conical horns, and twisted spirally upon their axes; two rows 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 head and face are a dark fawn, with darker spots on the fore-head and face, white spots in front and beneath each eye, and another on the cheeks, at some distance beneath the opening of the ear; the sides of the upper lip and the whole space under the chin are likewise white. The neck is unmarked fawn, and a little lighter beneath, with a white mark on the breast: the body likewise is deep fawn-colour, with a dorsal line of white and black hair intermixed, and rather longer than those on the rest of the body. From this dorsal line for ten narrow transverse ribs of pure white, which pass obliquely down over the ribs and hips, and are crossed on the sides and flanks by one or sometimes two longitudinal bands of the same colour, running from the shoulder to the hips and on each side, in a direction parallel to the dorsal line. All these markings are common in the species and equally common to both sexes; they are at regular distances from one another, and, as Buffon has 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 boshok, 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 gulf inhabits the west coast of Africa, from Sierra Leone to the banks of the Senegal, from the latter of which localities it was first brought to Europe by the celebrated Adanson. It breeds its young in the open plains and to extensive herds, which reside entirely in the forest, on the open plains, particularly in the vicinity of Podor and Goree, where these animals are very numerous. Gub is their name in the Jallof language. The colours are sometimes subject to a slight variation as far 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 more longitudinal line on the sides 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 curvature 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 laryhal sinuses and knee-brushes. This family is, like the last, exclusively Africai, the species resident in pairs or small families in 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 dried-up river-courses. The qualities of these animals include agility, being well adapted to their habitats. The hair is of a woolly texture, fine, 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 characterises the generality of the antelope genus.

21. The Koba, (A. koba), called Grande Vache brune, or large brown cow, by the French of Senegal, is in size equal to the European antelope, and is upwards of eight feet in height 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, a small portion of which is afterwards covered with the hair, which along 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 originally brought from Senegal by Adanson by a person named de Moustier, and were exhibited in the twelfth volume of the Histoire Naturelle; 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 former at the Surrey Zoological Gardens. The hair, without being exactly coarse, grows long and tufted over 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 hock, and is without a terminal tuft. The general colour of the body is a dark vinous red on the upper parts and silvery grey beneath, the former being tinged with dark brown along the spine and on the rump, from an intermixture of black hairs. The face and legs are also dark brown, almost approaching to black, the lips, 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 nyi-gau, 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 Kou, (A. kob, Erxleben), called Petite Vache brune, 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 Adanson from Senegal. These are pretty large, black, with a single concave curve directed forwards, 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 laryhal sinuses, 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 Rharzoa, (A. electa, Ritter), or reedback, so called from its habit of frequently the reed 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 sleek at the points, and curved forwards with a bold 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 baid 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 reithok is not found in the immediate vicinity of the Cape, but farther in the interior of the country it is by no means uncommon, living in pairs or small families, and, as already observed, frequenting the reeds and rushy banks of mountain-streams which flow only during the winter season, and are dried up by the summer heats. Sometimes also it is found in woods along the banks of rivers, but always in the neighbourhood of water, and a variety, if not a distinct species, is even said to inhabit the plains. This is of a very deep reddish fawn-colour, and has been described as Asclepius and Hamilton Smith as a distinct species under the denomination of A. fulvo-rufula. Excepting in the redder shade of its colour, however, and the name of Ruebo Rheebok, or red reebok, by which it is said to be distinguished among the Dutch colonists at the Cape, it does not appear to differ materially from the common variety, and the slight shades of variation which it does possess, are most probably the effects of its difference of habitat and other accidental circumstances. The same may be said of the A. Isabelina, or cream-coloured antelope of these authors, which does not appear to present any characters sufficiently marked or peculiar to be considered as indicative of a specific distinction.

24. The NAGOR, (A. reduncus, Pallas,) known only from the description of Adamson and the figure of Buffon, is a species so nearly resembling the reebok 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; tall 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. Adamson's specimen was a young individual. The colour of the horn is a fawn, pale or red; without any white about the breast or belly, and the hair was long, rough, and undulating, and did not lie smooth or close to the body, characters which all tend to approximate the animal to the reebok, and more particularly to the variety which is said to inhabit the plains. It is found in the neighbourhood of Goree on the west coast of Africa.

25. The Rheebok (A. capreolus, Lichtenstein) is nearly five feet in length, and two feet and 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 gradu-
The Cambing Outang, A. Sumatrana.

27. The Cambing Outang, (A. Sumatrana, Desmarest) first noticed by Mr. Marsden in his History of Sumatra, is about 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, slightly 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 cambing outang, or wild goat, so called by the Malays, inhabits the hilly forests of Sumatra, and is described by Mr. Marsden 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-tufted Antelope (A. quadricornis, H. G. Smith) is known only by the description made by Colonel Smith of a specimen exhibited at ExeterChange. The individual, from which Colonel Smith’s description was taken, was brought from Senegal.

The four tauris saw, (A. quadricornis, 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 crown; 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 marked with a number of small transverse strips, 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 half of the length as broad, and composed of numerous organs, and the great islands of the Indian Archipelago, and live in pairs among the underwood.

The species inhabits the west coast of Africa, about Sierra Leone, and the sources of the Niger and Quia Rivers. It frequents the thickets and underwood, 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 neighbouring meadows. It is at this time by day that it pursues its prey, and makes them situate on the margin of the woods, and shoot it as it comes out to graze. It is a slow, heavy runter, as might be anticipated from the size and corpulent make of its body, but it affords its proper mark to the hunter, and is much sought after on that account. It has long maxillary glands, but no appearance of lachrymal sinuses.

30. The Duikerbok (A. mergensi, Blainville) is of a more active make, and very swift of foot, and possesses 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 hairs, nor brushes, nor 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 longitudinal line, and provided 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 the case in old specimens, being perhaps rubbed off or obliterated by friction against the branches and underwood among which the animal resides. They are between four and five inches long, nearly parallel, and point almost directly towards. 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 central point, 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; but besides this black tuft, the whole forehead is covered in 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 rather long hair, brown in a light brown colour, with a very faint shade of yellow above, and sahy greyish brown beneath. The face and nose, 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 duikerbok, 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 animal in Cafres, and in parts of the Cape colony, which abound in forest and underwood, and the nature of which it seldom ventures, unless occasionally at night to steal into a neighbouring garden. It is found alone or in pairs, 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 movements 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 productive, and such the female was long since imperfectly described by Grimm, and which has been admitted into systematic catalogues under the name of A. Grevumia. The A. pitax of Colonel Smith likewise appears to be identical with a variety of the duikerbok, the characters upon which the separation is made being by no means constant, and some of them even of doubtful authenticity.

31. Burchell's Antelope (A. Burchellii, Smith) is a species which, from the description of Colonel Smith, though closely resembling the Duikerbok, 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-headed Antelope (A. platucus, H. Smith) is another species of rather doubtful authenticity, described by a Colonel Smith from a specimen in the Museum of the Missionary Society, said to have been brought from South Africa.

XII. The thirteenth section or group into which we divide the genus is best 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 decided influence upon the habits and economy of these animals, not only as it affects the relation which subsists between the sexes by rendering them in a great measure independent of one another, but likewise in modifying the general manners of the species. To some of those of the present group are further distinguished by having complete naked muzzles, maxillary glands without lachrymal sinuses, inguinal pores, no knee-brushes, and four teats in the females. From the group last described they differ principally by the females being provided with horns, and having four instead of two teats, and by their small size; the present section being composed of the smallest of all horned quadrupeds, except, perhaps, the madoqua, 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 present known, their habitat is exclusively confined to Africa. They are a group of animals which a species of confusion reigns throughout the species descritpions 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 the nature of the horns has so confused 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 Grimme, (A. Grimmei, Desmares.) The Grisemme of M. A. F. Cuvier and Desmares, 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, as we have already observed, appears to be the duikerbok. The original 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 of 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 only existing description of which was brought down 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. perspicuus, H. Smith.) very interesting to be described by M. Desmares, is about a foot high at the shoulders: 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, erect, black, slightly inclined backwards and towards one another at the point, and very slightly curved; there being 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, ash-grey, inclining 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-bok, Blaauwbokje, 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 even 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. cornuus of Colonel Smith and the A. pygmae of M. Desmares, who confounds it with the guevi of Senegal.

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

36. The Gnu, (A. pygmaeus, H. Smith.), said to be the smallest, and certainly the least known, of the whole antelope genus, was first mentioned by Adamson, as an inhabitant of Senegal, and the name has since been arbitrarily applied to different zoologists to two or three distinct, though ill-determined species. It is the royal antelope of Pernatt; 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 carefull 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 Kafir, on the northern banks of the Gambie, and to be not much larger than a good Norway rat. It is upon this animal that Buffon appears to have founded his Chevreulote de Guinee, and Linnaeus his Munchus pygmeus.
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 neighbouring species, that it has been found very difficult to distinguish it by characters at once sufficiently marked and constant. The group, however, is characteristically characterised 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, first 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 aristate like that of the goat; in the possession of distinct suborbital sinuses without any appearance of the maxillary glands which characterise 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 saline 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 towards 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 cornes 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 fuscous, of different shades according to the age of the individual; all the under parts, and this colour is separated from the fuscous of the sides by a broad dark-brown longitudinal band on the flanks; the knees are furnished with brushes of dark hair, and the ears are filled internally with long white hair arranged in three longitudinal strips.

The gazelle is found in Egypt, Barbary, and some say also in Asia Minor; but it is very questionable whether the animal of the Levant 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 Teli, or cultivated country, and the Sahara, or desert; when pursued, flies to some distance, then stops to gaze a moment at the hunters, and again 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, and presenting 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 and Bedouines of the desert. When taken young, they are easily domesticated, and form a useful species. This animal is frequently cut out upon the monuments of Egypt and Nubia.

38. The Kove I (A. musellus, Pallas) is still more imperiously distinguished from the gazelle, as it appears to readily a different species, characterised principally by the compression of its horns, their being provided in the adult male with a greater number of annuli, and bonding forwards with a more bold and sudden curve. Their 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 those who maintain their specific difference, though it must be admitted that they require a careful examination and comparison. This species is found in Senegal, where, according to the report of Adanson, kevel its name among the natives. It resides in extensive flocks on the open stony plains, and is said to be in all respects similar to the gazelle in its manners and habits.

39. The Antelopes (A. subgutturosa, Gudenusstis) is likewise a species which requires to be re-examined, and carefully compared with the gazelle and dorcas, but there is no 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 discussion of opinion upon the subject. The ahu inhabits all the central parts of Asia, Persia, Dauria, the country around lake Baikal, and from the eastern limits of Great Bactria 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 abisinum Ponticum. The flesh is much esteemed, and of an agreeable taste.

40. The Kalskepec, (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 the size and kind of horns. This species seems to be the antilope cora of Colonel Smith. The kalskepec, or black tail, so called by the Maharrats, on account of the deep black colour of that organ, and distinguished by the considerable size of its horns, 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 species in not being very numerous, there being rarely more than three or four found together in the same company, and not unfrequently a solitary individual.

41. The Artificial Antelope, (A. Arabica, Hemprich and Ehrenberg), so called by the Arabs on account of its light, elegant, and graceful form. The sexual characters 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 dœrae.

This species inhabits Arabia, and was found on the stony hills along the eastern shore of the Red Sea, by the travelers Hemprich 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.

42. A. Sammeringhi, (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 outward 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 or 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 pretty long, grey brown, 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 an 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.

This antelope frequents hills of moderate ascent and elevation in the eastern provinces of Abyssinia, and is said to live in pairs, and not to unite into large flocks like the gazelle and kevel.

43. The Springbok, (A. aurota, Forster,) called likewise Fronboek, or Showy goat, by the Dutch of South Africa, and Tsebe 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 graceful in its proportions, or whose movements are executed with more natural ease and grace, than the springbok, or, as the English colonists now universally denominate it, spring-buck, a point of difference more than the dœrae. 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 lyrated 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 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 brown colour; the ears long, small, and cylindrical, standing out 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, which, 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 about the tail-blinds, on either side of 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 quaint and lovely whiteness; they form 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 top of the croup, being raised up like an expanse of 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 broad circular mark of the purest white, 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 rises, 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 drought. The springbuck are apparently destitute of sense of smell. They 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 of fifty, and sometimes even hundreds, 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 men and dogs which are sent out to pursue them. The manner of the 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.
antelope antilopes, 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 arid desert, and though a desert without its 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 croup, and anon flying over the desert with the speed of a whirlwind. It is only when they are protected 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 be

storms. in the top of the evergreen oak, butting at every stranger that approaches it, and warding off stones or other objects thrown at its horns.

44. The Blessbok, (A. pygarga, 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, the upper part of the body being a little longer than the head and neck. 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 round, measuring from eleven to 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-brown colour on the back and white within, with the usual longitudinal stria. The colours of the head and body are most singularly disposed; the whole animal appears as if it had been artificially painted with feathers of separate masses. The head and neck are of a brilliant brownish-bay, 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 blazebok or blazebuck, by which this species is known among the Cape colonists. The back is of a brownish-bay, thickly overlaid, or, as it were, glazed or jappanned with dull purplish-white, and there is a very broad purplish-brown band and line. The forelegs and croup, 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 hips and thighs, and to some extent over the rest of the same side, forming a white disk around the tail, and giving origin to the specific name of pygarga, which has been rather arbitrarily bestowed upon this animal, the real pygarga of the antelopes being certainly a different species and an inhabitant of northern Africa. The tail is long and switched, 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 five inches more, and appears as if the whole animal were without brushes, but M. Desmarest, and indeed the generality of naturalists who have described it, are mistaken in supposing this species to be without lachrymal gland.

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 Zeweland, east of Cape Town, but it has long ceased to abound. The numbers which old traveller 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 what is most remarkable is that the fur is so soft as to be blown away by the wind, as in the grown animal, is of a very deep brownish-black colour, slightly mixed with scattered grey hairs. This singular mark of nonage, which could not have been well anteduced, has been so clearly described by the indefatigable observer Mr. Woods, who, in the 16th No. of the Zoological Journal, has described the young blessbok as a distinct species, under the name of A. personata. The mistake is pointed out in Smuts's Dissertatio 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 damas, and is distinguished from the last section only by the character of the horns, which are larger, thicker, and have much bolder curvatures, 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 chamosis is 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.

45. The Mhorr (A. mhorr, 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 very 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 the upper part of the body, of the neck, 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. A line of black, when 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 to the whole length. 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 blending 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.
below the opening of the suborbital sinuses with a small dark spot representing the black band which passes in the species of the last division from the anterior canthus of the eye to the corner of the mouth: the whole line of the nose and chassam are likewise dark brown, mixed with grey in old specimens, and the back of the ears is fawn-coloured, tipped with black.

Two males of this beautiful species were sent from Mogador to the Zoological Society, and lived for some time in the gardens of the Regent's Park. The species is not found in the empire of Morocco, but individuals are occasionally brought from the opposite confines of the Desert; the animal is much sought after by the Arabs on account of producing the bezaro stones so highly valued in eastern medicine. These stones are commonly called in Marocco, Bald-el-Mhorr, mhor's eggs.

46. The Nanqueh (A. dama, Pall.). This species was originally described and figured by Buffon from materials brought by Adamson from Senegal; since that time the animal has not been seen by any naturalist, and as the description of Buffon is imperfect, some reasonable doubt may be entertained whether it be not in reality the young of the mhorr.

47. The Addra (A. ruficollis, H. Smith) is a beautiful species of eastern Africa, discovered on the barren wastes of Nubia by Rüppel, and in Sennar and Dongola by Hemp-neh and Ehrenberg. The whole length of this species is five feet four inches, its height at the shoulder three feet; the length of the head is eight inches, that of the horns twelve inches and a half, and that of the tail nine inches. The horns are precisely similar to those of the mhorr already described, as are likewise the general form and proportions of the body. This species is grizzled, and resides on theabbocks between Nubia, Dongola, and Kor- dofán.

XIV. The fourteenth group of antelopes is distinguished by having small horns perfectly smooth and black, springing immediately above the orbits, almost perpendicular to the plane of the face, and straight for the first two-thirds of their length, then bent abruptly backwards so as to form a perfect hook, very sharp at the points, and common to both sexes. The lips are hairy and attenuated; there is no lachrymal sinus nor maxillary gland, but a small fold or opening of the skin of the occiput nearly at the root of each horn, to which, however, appears not to be provided with a secreting gland like those organs, is a character peculiar to the present group, and, as already observed, may have given rise to the opinion of the ancients, that goats breathed through their ears. The form of the horns and the possession of inguinal pores are the only characters which the species included in this group possesses in common with the antelope tribes; all its other characters approximate it to the goats, as well as its habits and mode of life, and it appears in fact to form the natural link which connects these two genera. The knees are without brushes, and the females provided with two tests. There is but a single species,

48. The Chamois, (A. rupicapra, Pall.), the only animal of western Europe that partakes in any degree of the characters of the antelopes. The horns of this species 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 body is about three feet three inches, that of the 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 deep brown, a little lighter in winter, and in the summer, being its 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 from 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 individuals, particularly during the severe colds of winter, the cheeks, chin, and throat turn white, and the breast and belly are at all 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 horns that are more abrupt. The males are usually a light brown, 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 a uniform deep yellowish brown. They are covered with the lower jaw and the back a more solid white, and the same dark bands through the eyes as in the adult, only not extending so far back on the head. The chamois, like the ibex, inhabits the loftiest chains of the mountains, often in steep ravines, and at a time when the restlessness and agility of the common goat. It is extremely impatient of heat, and during summer it is only to be found on the tops of the highest mountains, or in deep glens where the snow remains throughout the year. It descends 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 all the vigour, restlessness and alarm that it obtains through the object of its terror, leaping upon the highest rocks at hand in order to command a more extensive prospect, and uttering a suppressed whistle or hissing sound, being all the time in a state of continual agitation; but, if the least suspicion in sight that 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 mode of killing 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-time, and towards this point a party of dragoons advances tamesely, and the animals, of course scenting those who come down the wind, retire in an opposite direction and are intercepted by another party. The foot of the chamois consists of mountain herbs, flowers, and the tender shoots of trees and shrubs; it seldom drinks. Nothing may be more admirable than the agility with which it ascends and descends rocks apparently perpendicular. It does not descend at single bounds, but by a series of bounds, setting itself obliquely or diagonally forwards, striking the face of the rock three or four times with its feet for the purpose of renewing its force, or directing it more steadily to the side, as it ascends, and in this manner it sets a perpendicular rock of twenty or thirty feet in height, without the smallest projection upon which it could rest its feet. This animal is extremely partial to salt, and many stones are met with in the Alps hollowed by the continual licking of the chamois. In an account of the animal which is abounding. The species is found in all the high mountain chains of Europe and western Asia. In the Pyrenees, the Alps, the Carpathian and Grecian mountains, the chains of Caucasus and Taurus, and perhaps elsewhere.

XV. We have now arrived at a group which departs considerably in form and proportions from the symmetry and grace of the antelope tribe in general, assuming something of the weighty, solid mass and massive proportions of the
horses, which it likewise begins to approach in its zoological characters. The horns are common to both sexes, long, erect, and annulated, straight, or with a single curve backward; one or both extend across the whole forehead into a half-ovate spiral of two or three turns; the head is terminated by a broad, somewhat flattened muzzle, considerably more developed than in the sheep or goat, but not so completely as in the or stag; the short, thick ears are also provided with a white, annulated, rather slender, ear-tufts; neither are there any knee-brushes 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 steppicerus, which, says he, the Arabs call addax, or oryx, for the accusative addacem is the word used in the passage referred to, and it may be derived from either of these forms in the nominative. From the type 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 Caius to his friend Gesner, and inserted in the great work of that early naturalist: the recent travellers, Rüppel and Hemprich, and Rüppel and Steudel, have latterly described this species, and what is singular enough, under the antient African name ascribed to it by Pliny, the Arabs still denominating it akasch, akas, or addax, with the addition of the syllable abu (father), which they bestow upon many other animals, as abu Hammie (father John) for the ibis, &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 form and proportions, the heavy head, thick neck and legs, and short tail. The horns are round, rather slender in proportion to their length, twisted outwards 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 proportionally 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 eye; a patch of black curly hair surrounds the root of the horns, and there is a scanty 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 of a pure white. The roods are not remarkable broad, 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 Anti-Hans (A. laurentii, Pallas) is, 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 elaphus from Cuvier, who first described it, and named it after the noble animal 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 of a moderate curvature throughout their whole course, 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 at the points. The ears are long, one and a half feet, 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 skin, except upon the ridge of the back, where it is 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 milk white.

This species is frequently represented on the monuments of Egypt and Nubia, and particularly in the inner chamber 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 Algozal (A. gazella, Pallas,) described and figured first by Prosper Alpeus, 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 algozal 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 Gemsbok (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 about thirteen or fourteen inches. The horns are long, very straight, very little divergent, and situated in the plane of the forehead; they are obscurely annulated for half their length, black, and blunt in the male, but very sharp-pointed in the female. The ears are large and pointed, and the tail pretty uniformly covered with long blue hair, fuming
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 karroo 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-brushes; 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 teats. 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.

53. The Blauwbrok (A. leucophaea, Pallas) was formerly an occasional visitor in the district of Zwellendam, but has not been seen within the boundaries of the colony for the last thirty years. It is six feet in length, and three feet seven inches high at the shoulder; the head is nine inches long from the muzzle to the base of the horns; these are two feet two inches, measured along the curves; the length of the ears is eight inches, and that of the tail, with its terminating tuft, one foot. The horns are round, uniformly curved backwards, and marked with from twenty to thirty 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 or blueish-black appearance which its name of Blauwbrok, or Bluebuck, by which it has long been known among the Dutch at the Cape of Good Hope.

The blauwbrok lives in pairs or small families of five or six individuals on the open plains of South Africa, north of the Gariep or Orange River. In summer and the rutting season in particular is said to attack indiscriminately every animal that comes in its way.

54. The Takhaizee, (A. barbarus, H. Smith,) beautifully figured by Mr. Daniel in the African Journal, is a species which appears to differ from the blauwbrok only by its long flowing mane, copious beard, and superior size. This animal inhabits the country in the vicinity of Lataloko, and is called Takhaitze by the Booshuanas. It is said to be wild and ferocious that the natives are afraid to attack it openly with the hassegaai 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 takhaizee signifies a fierce or wicked beast, and expresses the terror and curiosity with which the natives of this powerful animal inspire the Booshuanas, who seldom venture to approach it openly.

55. The Equine Antelope (A. equina, Geoffroy) is a large species, its body measures five 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 blauwbrok; they are, however, much of the same general form. This species, of which the native name has not been recorded, inhabits the savannas and localities of the last two, living like them in pairs or small families on the elevated plains and low wooded hills of South Africa. It is plentiful about the sources of the Gariep, and was found by Mr. Burchell in the vicinity of Latakoo.

56. (A. Ellipsoipyrna, 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 five 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 tuft, one foot nine inches. 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. They are surrounded with twenty-four prominent annuli, formed by large knobs in front and deeply striated between, but nearly obliterated behind: the last six inches smooth, and the points blunt. Next to the character of the horns, this species is most readily to be distinguished by a ribon of prominent points, which passes over the crown and each lip, 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 surrounding parts. It is to this mark, which is peculiarly characteristic of the species, that the name of Ellipsoipyrna refers; the native name of the animal is unknown.

The specimen from which this description was taken was brought to this country 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 Damara, a nation who inhabit the country beyond the Great Namougaland, and about twenty-five days' journey north of the Orange River. They described it as fierce and dangerous to approach.

XVII. The seventeenth section or subdivision of antelopes has all the characters of the group last described, except the horns, which are either entire in themselves, or else surrounded by a prominent spiral wreath near the greater part of their length. They are common to both sexes, very large and heavy in the males, and longer and more slender in the females. These animals are without either lachrymal sinuses, inguinal pores, or bracelets on the knees; they have naked muzzle, large hanging dewlaps, and the females are provided with four teats forming a small udder. The group contains two species, both natives of South Africa.

[The Blauwbrok, A. leucophaea,].

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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 bucks are commonly chosen on account of their great size and weight, it not infrequently happens that the herd is left altogether without a male.

56. (*A. canna*, H. Smith.) This is one of the species which Colonel Smith has given a description, and which he supposed to be the *baustaud* land 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, and this species is said to be common in the Great Eastern forest of the Cape, north of the Gareip, and to be occasionally seen on the Karroo 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 striæ almost to their extremities. The species is without either lachrymal sinuses, inguinal pores, or knee-braces, but it has a common naked muzzled and the females are destitute of teats. 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 as inhabiting similar localities. The only known species is

59. The *Goral* (*A. goræ*, Hardwicke) was first described by General Hardwicke in the *Linnean Transactions*. The goral inhabits the kingdom of Nepal and is found 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 by a sudden career 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 group contains a single species, like the goral, a native of Nepaul 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 antelopes. Its 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 striæ, produced by transverse depressions running through 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 by the complete nakedness of the females, and neither inguinal pores nor knee-braces.

60. The *Thar* (*A. thar*, Hodgson) was described for the first time in a paper by B. H. Hodgson, Esq., British resident in Nepaul, read before the Zoological Society, and printed in the second part of the *Proceedings* of that body. The thar inhabits the central region of Nepaul, at an equal distance from the snows of the Himalayan range on the one hand, and the sultry heat of the low plains of India on the other. It is the most common of all the wild ruminants which are found in that country, and its chase is the favourite exercise and amusement of the hill tribes; its flesh is, indeed, coarse, but there is plenty of it,—and these hill people are easily satisfied on the score of quantity, provided the quantity be sufficient. Its habits are wild and solitary; it is seldom found in herds, however small, and the grown males especially live apart in the mountains, and never seek the pasture of their females till well into the rutting season. As might be supposed from its heavy make and short stout limbs, it is a slow runner, and soon brought to bay, but it leaps well, and makes its way over broken ground with great dexterity than all other species excepting the *Buck*. It is found from the eastern confines of Nepaul to the banks of the Sutledge, and abounds especially towards the east.

XX. We are now arrived at a group of antelopes of which two species at least are well known to naturalists, and are described under the name of *Bubulus* from the most remote periods of Greek and Roman literature. This group is distinguished by having heavy, thick, annulated horns, at
first inclining slightly forwards, and then suddenly bent backwards, so as to form a prominent angle or shoulder in front. The muzzles are small and not so completely developed as in some of the other groups; the lacrimal sinuses are also small, and instead of opening by a fold in the skin, consist simply of a small gland on its surface, almost concealed by the surrounding hair, and only to be distinguished by the viscous matter which exudes from them. The character of the inguinal pores has not been observed, but the species are without scapul, and the females are provided with horns and have only two teats. The species is spread over the whole continent of Africa, and lives in large herds on the open plains and karroo.

61. The Bekr-el-Wash (A. bubalus, Pallas) is about the size of the largest stags, and is particularly remarkable for the great length of its head, and its narrow, flat, and straight forehead and nose.

This animal, called Bebr el-Wash, or wild ox, by the Arabs, is common in every part of northern Africa, living in numerous herds on the confines of the Tell or cultivated parts, and the Sahara or Desert, and also, according to Captain Lyon, upon the mountains south of Tripoli. Barbary seems to be the chief habitat of the species, but it sometimes happens that a few individuals find their way across the desert to the banks of the Nile, where, however, they are seldom seen, and, as it is said, only when they stray from their native habitat. At the same time it is to be observed, that its representation occurs among the hieroglyphics of the temples of Upper Egypt. Dr. Shaw informs us, that the bubalus is naturally of a timid disposition, and that the young calves frequently mix with domestic cattle, and soon learn to attach themselves to the herd without attempting to escape afterwards. They fight like the common bull, by lowering the head, and striking suddenly upwards with the horns, which are formidable weapons either for attack or defence.

62. The Caama (A. caama, Cuvier) is a species of South Africa, nearly allied to the beker-el-wash, and long confounded with it.

The caama, called Hartebeest by the Dutch farmers, inhabits the plains of South Africa, and is the most common of all the large antelopes in that country. It resides in large herds, and is a favourite object of pursuit with the natives and colonists. Its pace, when at full speed, resembles a heavy gallop, but is tolerably quick notwithstanding; and the animal has a habit of frequently stopping to gaze at its pursuers when it has got to any distance a-head of them. Its manners are sufficiently mild and tractable, but when put upon its defence it makes good use of its powerful horns, dropping on its knees before charging, and after advancing some distance in this position, darting suddenly forwards with great force against its adversary. The flesh is rather dry, but of a fine grain, more nearly resembling the beef of the ox than that of any other antelope, except perhaps the caama, and it has a high game flavour which makes it universally esteemed. The female produces but a single calf, which she brings forth in September or April, and which, if taken young, is easily domesticated.

63. The Sassaby (A. lunata, Burchell) is a species at present very imperfectly known. It is found in the Booshwana 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 specimen shot by Mr. Burchell was tender and well tasted, and the name of Kama, which his attendants bestowed upon the animal, shows that they consider it as a kindred species with the Hartebeest of the colonists, the Antelope canna of the last article. The Booshwanas call it Sassaby.

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 seaboars at the roots, and smooth toward the points. The head is hirt in like that of the ox, and terminated by a very broad muzzle, which opens on each side into a thick muscular flap, which fits into each nostril, and covers it like a lid or valve. The lacrimal sinuses, 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 Katelopes (catelop), of the ancients. (Plin. Hist. Nat. viii. 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, and are known to an unknown distance in 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 karroo 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 forward with amazing force and velocity. When first alarmed they commence by slipping up to the male by means of a sensitive organ in their long, slender, pointed heads and tails, and butting at the mole-hills or other objects, but immediately after taking to flight, and traversing the desert with a speed which soon carries them beyond the reach of danger. They do not run in a confused crowd like the oxen, but in small lines, or in a double file, and have a pleasing appearance as they skim over the level plains. They are said to be subject to a cutaneous eruption at particular seasons of the year, which they sometimes continue to desolate to domestic cattle, and which invariably ends in death.

65. The KOKOON (A. taurina, Burchell) is of a larger size than the gnu, to which, however, it is very similar in its external form and proportions. The habits and manners of the kokoon closely resemble those of the gnu, but it possesses neither the speed, spirit, nor activity of that animal. It is sometimes found solitary, but more frequently in large herds, and inhabits the open plains and deserts. It has no name on the Boeshana; it never associates with the gnu, which frequents the same localities, at least about Lataloko, but which it appears to replace along the eastern coast of South Africa, according to M. S. Smith.

The species has been observed in the situations here mentioned by Professor Lichtenstein, Messrs. Truter and Somerville, Burchell and Thompson. Kokoon is its Boeshwan name.

66. The BRIKUNDI Gnu, (A. gorgon, 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, which was brought from South Africa. This gnu is much larger than the Booshwan gnu, 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 Bane, not, however, of the Namaquas 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 scatterer, and most probably refers to the bold and reckless character of the animal. It appears to be a variety of gnu mentioned by Le Vaillant in his Second Voyage.

In the preceding enumeration of the species belonging to the extensive genus Antilope, as it is at present constituted, we have carefully avoided the multiplication of fictitious names, and the formation of which the majority are of any degree doubtful. 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 mammalogy, and the various detached notices scattered through the works of the different Asiatic and African travellers.*

**ANTENNIA.** 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 Greek a and n anassa, and is applied by the Romans to the sail-yard of a ship. In insects, they are uniformly two in number; but in crabs and lobsters there are more than two. They are connected with the head always by a slender ball (bulbus) and a sort of stalk (stig- mula). They are composed of minute cylinders or rings successively added to each other, to the number of thirty in some butterflies; and thus forming a tube which incloses nerves for sensation, muscles for moving, as well as air-pipes and cells, all of which are figured with minute precision by M. Strauss-Dürckheim, in his splendid work on The Anatomy of the Cockchafer, published at the expense of the Institute of Paris.

The form of the antennae is exceedingly various, some being simple and some feathered, clouted, comb-shaped, in endless diversity. In moths, the female is distinguished from the male by being either more or less articulated. In some moths and beetles the antennae are very long compared with the length of the body, whereas in the house-fly, and some other two-winged flies, they are very short. Their length does not depend on the number of joints, for they may be short even when composed of three or four pieces, and short when composed of ten or more pieces.

With respect to the functions of the antennae, it is the most common opinion that they are organs of touch, and are, on that account, often termed feelers; but, as Strauss-Dürckheim justly remarks, this conjecture is founded upon facts imperfectly investigated, if not altogether false. I have made numerous researches on this subject, and I have never been able to satisfy myself that insects examine objects by feeling them with their antennae. On the contrary, I have rarely observed these animals touch anything with these organs, and when this did happen, it appeared to be only by accident, and not at all from design. Many insects, besides, have their feelers possessed of a texture, which, when erected upon their heads in order to come at the bodies which they might wish to explore, and for this their feet are certainly much better adapted.

M. Strauss-Dürckheim, almost all articularied animals possessing a solid skin (percut) have antennae, which are furnished with nerves of an extraordinary thickness in proportion to their own size, there cannot remain a doubt that they are organs of sense, and that too a very acute one.

I have said that insects are proved, by observation, to be furnished with an organ of hearing. It is, indeed, scarcely possible that creatures, such as the tree-hopper (Locusta) and the locust (Locusta), to which we are accustomed to ascribe the faculty of producing a peculiar sound by means of an appropriate organ, should, at the same time, be deprived of the means of hearing such sounds, insomuch as these can have reference only to their own kindred. It is still further proved that these insects share the faculty of hearing along with all other living beings, by their ceasing to sing the instant they fear they have been discovered.

When observing the various actions of insects we see them suddenly stretch their antennae forwards in case of noise, danger, or, in general, when anything is done to attract their attention; and they keep them thus stretched as long as an attention to any particular circumstance which proves that the antennae serve the purpose of sensing them of what passes at a distance, and consequently must either be organs of hearing or organs of smell. M. Réamur, (Mém. des Insectes, I. 645,) while he rejects the opinion that the antennae serve to detect the smell, is of opinion that they may be the organs of some unknown sense, or of smell. The latter opinion, however, is supported by no fact either anatomical or physiological; nor is it at all even probable, insomuch as the antennae are not soft and lubricated, as observation proves to be necessary for this kind of sensation; it appears to me more plausible to infer that the antennae serve for the perception of sounds. This opinion is founded partly on the analogy of what occurs in the lower animals, who pick up their ears under similar circumstances in order to hear better; and partly on comparison of the organs of hearing in the first of the vertebrate animals (Amphibiae), and the antennae of articulated animals, where we observe a sort of transition occurring between the lobster and catfish (stictus), a genus in which this organ occurs in the simplest form, compared with that of superior animals.

The solidity of the envelope of antennae renders these organs well adapted to the air. They appear to be capable of vibrating in the air, in the same manner as the strings of an Opian harp vibrate and emit various sounds according as they are differently struck by the air. In this view, however, we might infer that nature has endowed these organs with the faculty of rods, consisting of a single piece, in order that they might be more susceptible of vibrations; but it ought to be considered, that these organs would, by such a conformation, have been much exposed to breaking, while, in consequence of their jointed form, they have the advantage of circulating...
the degree of vibration at pleasure, as may indeed be observed when insects listen with attention; I mean, that the jowky touch of the antennae performs the functions of a chain of small bones in the chamber of the human ear, insomuch as they form a similar chain, and transmit the vibrations of the air to the auditory pulp.

Professor Bonderoff, of Abo in Finland, came to embrace a closer acquaintance with the dispositions, in opposition to those of Linnæus and Bergmann with whom he was contemporary. His paper on the subject is long and deutilary, but the following passage is worth quoting. "No evidence more conclusive could be derived from the similarity of the antennæ to quick sounds, than what occurred to me last summer in my garden. I observed in a morning walk, undertaken for the purpose of catching insects on the hazels, that the antennæ of the weevil, standing quietly at a distance upon a leaf, with the antennæ hanging down 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 antennæ which had been hanging down became elongated, and, being full of joints, struck by the undulations of sound they extended themselves, and remained on the alert till alarmed again by a fresh sound. All my observations agreed in this one circumstance of the antennæ being erect as soon as they were put on the alert; they never moved, but shivered and thither and thence, 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, avoiding life and safety by the most rapid flight. So I have observed very frequently when the antennæ were folded up in the Leptura, Blatères, Curculiones, Papilionides, and Apeni; nay, even the house-flies, as soon as they were moved and excited by irregual sounds or noise, would erect their antennæ and betake themselves to flight without any other excitement."

We have deemed it best to give the very words of these able naturalists upon a point which is doubtful, or at least comforting, and as near as we could, a condensed account of the same view are given in the volume on Insect Miscellanies, chap. iv. in the Library of Entertaining Knowledge.

There is one subject connected with the antennæ which requires notice:—the younger Huber has attributed to ants the use of certain signs made with these organs, which he terms antennal language, understood not only among ants themselves, but also by the spiders and insects to which they depend for the exemption popularly termed honey-dew. The motions of the antennæ, however, to which he refers in proof of his views, do not, so far as we can judge, amount to anything more than the discharges of the insect's own smell, in the way of any language, more than to characterize the same way as the bills of nestling 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 spiders are concerned, any one who chooses may prove by taking a pin or a camel-hair pencil and gently touching the aphids, when it will eject the honey-dew as readily as in consequence of being touched with the antennæ of an ant. We deem this to be quite fatal to M. Huber's conclusions.

ANTEPAGMENTA. This is an ancient term for the jamb of a door, or, as they are familiarly termed, the doorsteps.

ANTEQUERA, ANTICARIA, 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 one of the richest in the province, owing to its being irrigated by the two rivers Guadalhorce or Guadalajara, and Lavia, and produces all sorts of grain, fruit, wine, and oil. The neighbouring mountains abound in fine woods, with elms, beech, oak, black, and red marble, limestone, and granite. About eight miles south of Antequera lies the Sierra del Torcal, a mountain elevated 4219 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, temples, and even figures in line of animals. The order of their arrangement 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 old Moorish story, that it was once a populous town, miracularly transformed into stone, and how they ventured 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 maidens figures, in line of animals, which are fed numerous herds of bullocks, sheep, and goats.

The Roman municipium Singilis was situated about four miles north of Antequera, and another Roman town, called Papiliones, near the town, of which nothing is now known, 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 Antiquaria, have been preserved in the stones of the Arco de los Gigantes, or arch of the giants, built in 3858, at the entrance of the old city.

Antequera was conquered by the Moors in September, 1416, by the Infante Don Fernando, who was afterwards king of Aragon. King Juan II. gave it back afterwards to the kings of Granada; but the inhabitants refusal to submit, headed by their gallant alcaide, Rodrigo de Narvaez, boldly drove off the bands of土耳其, and many of the Moors, who besieged them twice, to abandon the place. This is the origin of the motto 'Antequera por su amor,' 'Antequera for its sake,' which is on the arms of this city.

The manufactures of the inhabitants are wool and silk, leather, and soap. The population amounts to 22,732 souls. There are at Antequera, a collegiate church with twelve canons, four parish churches, eleven convents of monks, eight of nuns, an ecclesiastical seminary, a hospital, and an academy.

Antequera is in 37° 9' N. lat., 4° 32' W. long. See Mirano; Ponz, carta iv., n. 50 to the end, tom. xviii.

ANTHELMINTICS, from two Greek words, signifies measures or operations for expelling parasites, worms, etc., by the means of a canal, and to prevent their formation. Though the origin of worms in the intestines has been a subject of inquiry and controversy for many ages, we are far from having arrived at a satisfactory conclusion respecting this point. Some have regarded them as the result of what is termed spontaneous or equivoque generation occurring in the intestines, (see Aristot. Hist. Anim. v. 19.) others maintain that they are introduced into the stomach from without, either along with other food, or 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 them have never been discovered, and if from within, how the 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 manner, viz. by parents of distinct sexes; and the eggs 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 previous to their development into imperfect 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 state of our knowledge, we must refrain from further discussion of the subject, and leave to be investigated 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 divided into two classes: 1. general causes tending to the residence, and, 2. special, referring to the individual infested by them, his constitution, habits, diet, &c.

Of the first division, the most general is climate. In certain countries, the temperature and frequency of certain insects is so regulated as to determine the frequency of infection, and to a certain extent, the part of the year that the disease will appear. In the Netherlands, for example, the annual admission into the atmosphere of the ammoniac and nitric acid, produced by the respiration of hogs, is the reason why this disease is more frequent in the summer than in the winter. In Holland, 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,—further predisposes to their development. We see the same causes operating, as we have seen in their effects on the stomach, in the swelled, pained by the presence of a worm (the *Distoma hepaticum* or *fluke*) in the liver; and we shall find the same means prove successful in preventing their formation in both cases: as only sheep feeding in wet pastures, such as marshes, are subject to the lot.

Dwelling in an impure air, where there is not sufficient ventilation, prepares the body for becoming the seat of worms, and converts the inhabitants of towns into certain inhabitants of the human town, 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, is always a 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 conduces 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 worm infection are infants and young persons, and people generally acrobulous in habit. In these last there exists very commonly weakness of the digestive organs, along with an immediate craving for food, which injudicious parents and nurses often too easily gratify; and thus a sign—by which a 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 matters remaining in them, and also by the unhealthy secretions, which, under such circumstances, are 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 liable to infest the stomach with worms. 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 transiés (tape-worms) have sometimes been passed, of the existence of which not the least suspicion was entertained by the individual; nor was any derangement of the health observable. But we are justified in suspecting them to be present when the appearance and aliment of the patient are such as are inconsistent with the healthy state of the natural subject: 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 of the wrong size, the eye-lid swollen and conjunctival in circle. 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 ringing of the ears; the tongue is coated, 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 cholices, the bowels irregular, seldom coagulate, more frequently loose; the skin becomes subject of tingling or pricking, 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, by the greatest caution, led to the belief of suffering from worms, and the idea of treatment for worms, when none existed; while, too often, they are allowed to commit their ravages un molested, and to plunge the unhappy victim into a state of great misery and suffering, and even to lead to a fatal termination. We are not unapt to regard roll credence to all the horrid symptoms ascribed 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. The patients propagate their species often with astonishing rapidity. We shall, enumerate the most common sorts, following the nomenclature of Bremer. (*Lebend Würmer in lebenden Menschen.* Wies, 1819, also translated into French, by Dr. Grundler, Paris, 1826. *Traité des Vers Intestinaux.*)

The *Triechocotyle multiplex,* found in the liver, and in the upper part of the large intestines (as Canum); *Oxyurus vermicularis,* (Ascariis vermicularis, the mouse, or thread worm), which inhabits the rectum, or lowest intestine; *Ascariis lumbricoides,* (the large round worm,) most often found in the small intestines; *Bothrococclus latus,* (Temiia lata, the broad tape-worm,) found in the small intestines, (principally of the inhabitants of Russia, Poland, and Switzerland,) *Ascariis oolom,* (the tape-worm,) in the small intestines, generally solitary, occasionally three or four together: the *Distoma hepaticum,* (or *fluke,) sometimes found in the liver and gall-bladder of men, but more commonly of sheep, goats, &c.

The worms which are occasionally found in other parts of the body are not under the influence of the medicines termed antihelmiticas, 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 commonly met with.

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 diminishes the tendency to their formation. This last is a point of great importance: it is not only 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 articles inconsiderately administered, (which however are generally considered as valuable antihelminthics, 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 from what we have already stated, that in treating worms, the worms must do much more injury to the inner coat of the stomach and intestines, and cannot possibly be introduced or inculminated 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 hooks the tape-worm attaches itself to the gut. When we see these, then, need we wonder at the difficulties 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 purgatives; those which serve to destroy the worms directly, as opposite remedies; and those which are calculated to increase 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, dislodging them from the bowels, and killing them,

The treatment of worms is, in general, to be decided by the nature of the case, and 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 cure, and employed in various ways. Large quantities of cold water, and spirits, and other stimulants, are often succeeded by aloe, with antimonial powder, which last being laid aside, preparations of iron alone, or with gentian and canella, may be united with the aloe. 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 cure, and employed in various ways. Large quantities of cold water, and spirits, and other stimulants, are often succeeded by aloe, with antimonial powder, which last being laid aside, preparations of iron alone, or with gentian and canella, may be united with the aloe. This plan may be
rous symptoms present, such as a tendency to epilepsy or hysteria, valerian may be advantageously added. Different mineral waters are of great service, particularly in the treatment of the masto-worm. Those both remove the slime in which the worms nestle, and diminish the tendency to its formation. With this view we may have recourse to the Beulah Spa at Norwood, to Cheltenham, and above all, to the springs on the outskirts of Harrowgate, followed by clav-lybes, or at Tunbridge.

The means of strengthening the digestive organs, consist of tonic and astringent medicines, both vegetable and mineral. Vegetable bitters are doubly advantageous, since they both strengthen the stomach, and prove direct poisons to the worms: of these, the best are chamomile tea, and infusion of quassia, or gentian, to which muriatic acid, or tincture of mercury, or bile may be added; the children, the tartrite of iron, being almost tasteless, is advisable. The utility of vegetable bitters is proved by the fact, that wherever the menyanthes trifoliata, (bog-bean,) or the tormentil, grows, however damp the pastures may be, the rot never infests 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 Reports of Lord Somersville.) The omission of a proper quantity of salt with our food favours the engendering of worms. The great tendency to the formation of worms in Holland has been mentioned, and when 'the antient laws of that country ordained men to be kept on bread alone, unmixed with salt, as the severest punishment that could be inflicted upon them in their moist climate, the effect was horrible;' the wretched criminals are said to have been 'decayed by worms.' The medicines enumerated constitute the most efficacious means of preventing the return of worms; those which follow are deemed the best for expelling particular kinds of worms. The tape-worm (Tenuis solium) is almost invariably expelled dead, by a large dose of oil of turpentine; and even the long round worms are influenced by it in some what smaller doses. Scarcely any other article need be employed, unless the disagreeable smell and taste be objected to, when the branagh anthisatica should be given as at once safe and efficacious: we might naturally expect this result, since it belongs to the same natural family, viz., the rosacea. The root of the pomegranate has much esteemed in India. No reliance should be placed on the root of the male fern, as it is only useful against the 3th rotundus latus, or broad tape-worm, which, though common in Switzerland, is rare in Britain.

The long round worm is almost invariably expelled by the Spigetis Marylandica, or Indian pink, which belongs to the same natural family as the bog-bean, or water trefoil, viz., the genitana. The oxyurus, or masto-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 employment of the above-mentioned local meas-ures, we should use local means only. The intolerable itching which they occasion about the rectum, is best re-lieved by a lavenment of sweet-oil. A lavenment of very cold water, or lime-water, may be useful, if the matter is of a purulent nature, and left to discharge in the bowel. Injections of tobacco, and the use of all such dangerous ar-\text{\textit{ANTHEMIS}}}.

ANTHEMIS, in music, a word of doubtful origin, but sup-posed to be derived from t\textit{anthesi} (see ANTHEPION), be-cause antiently sung alternately by the two sides of the choir; these, being discordant, were called the two kinds of psalm-tune. The term is now applied to those com-posi-\text{\textit{ANTHEMIS}}}.

There are three kinds of anthem,—\textit{verse} full, with \textit{verse}; and \textit{full}. The first, which is solo, or duet, \textit{\&c.}, has only one voice to a part, and, requiring noct 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 choral wholly, and performed by all the voices.

The English anthem, in all the compositions of anthems, Tallis led the way in full anthems, and was immediately followed by Bird and Farrant. Their harmony is quaint, but indescribably solemn, and in true English style, excepting with the verse parts, where the voice is heard, and still continues to resound,—\textit{fames} whose 'high embowed rock' soften and blend the tones of the full-voiced chorus below, and give an effect to the music which, if written, this opinion might well say, 'brings all heaven before our eyes. Orlando Gibbons next succeeded those masters, and in the same kind of anthem—but highly elaborated, and enriched with whatever flint counterpart could supply—brought forth works that have always been, and must eternally continue to be, admired; not for the harmony only, but 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 anthems, some few of which exhibit 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 rational and pleasing anthems; and in a later period, Boyce, and Nares, in anthems of all the three species, united art and harmony, genius and learning, in a manner unequall'd; 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.

\text{\textit{ANTHEMIS}}} is the genus of plants to which the useful herb chamomile belongs. It is of the compound flowered order, and is distinguished by having the scales which round its flower-heads membranous at the border, like those of a chrysanthemum, from which genus it is, in fact, differs chiefly in the receptacle of the flowers being furnished with little cassy feature of petals.

\text{\textit{ANTHEMIS}}} 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 dwarf plant, with finely-cut leaves; the 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 effected by the bumble-bee than those of the cultivated ones, 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 chemists to contain campher and tannin, and also a little of a beautiful blue colour.

There is another wild plant, called \text{\textit{ANTHEMIS}}} oca, or mayweed, which must not be confused with chamomile, to which it bears great resemblance: it may be distinguished by its being an erect branching plant, with an exceedingly disagreeable and powerful odour.

\text{\textit{ANTHEMIS}}} is used in France by the dyers for the sake of a brilliant yellow tint, which is obtained from it.
ANTHUS.
The part this named in plants is the upper half of the stamen, or fertilising organ, of a flower; it is the case which contains the pollen in which the principle of fertilization is inclosed. An anther generally consists of two hollow lobes, lying side by side, and united by a flaky body, which is sometimes small, and, called the connective. Their position is, for the most part, such, that, when they open, one by which they pass is next the stigma, so that the pollen they emit falls on the latter, and is not further dispersed. Sometimes, however, they are much spread out, and, when the flowers are not pollinated, 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 insect. The position and manner 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 these cases, then, an anther becomes four-celled. Authors generally open by a line that passes along the face of the lobe 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 potato blossoms.

The irregular deviations from regular structure are those in which the connective becomes excessively 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 consequently far above the general rule. In some of the ringent 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 sage it forms a long, flat body, which looks exactly like a second filament placed across the first se.

The dehiscence, or act of bursting, of the anther, should take place at the exact time when the stigma is ready to receive the pollen, and at least before the petals fall; but 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 pistillum 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 collected in a sufficient collection, have so great an assunder the two sides of each lobe, which give way at the line of dehiscence above referred to, and the pollen falls out, or is ejected, according to the degree of rapidity with which the anther is separated from the connective. I leave the animated world a more striking proof of the perfect design with which every part of every living object is fitted for the fullment of the end of its creation.

If an author looked at it in its most usual 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 in disguise. 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 connective to be the central part of the petal. If we look at the lilies, we shall see how a monstrous flower be objectified, to take a white waterlily, and you will see so insensible a transition from petals to stamens, that no one can say where the limit is between the one and the other; or, if I may so call it, half lilies, half flowers. 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 them, and state that there is a great number of orders totally distinct organs, may often be shown to be nothing but other organs in masquerade. [See Filament, Pollen, Stamens, Sex of Plants.]

ANTHOLOGY, a compound Greek word, used meta-

phorically, signifying a collection of Flowers, viz. of poetry, and consisting of short poems on amatory, convivial, moral, funereal, monumental, descriptive, dedicatory, satirical, and humorous subjects. Their characteristic mark consists in the just expression of a single thought with brevity and poetical beauty. The compass of a few couplets admits not of sublimity, but is well fitted to exhibit elegance without tediousness. The term antho
yology is peculiarly appropriated to a collection of Greek epigrams, taking the word not in the confined sense in which we now use it, for a small and witty composition, but in the more enlarged and literal acceptation, of an inscription. The earliest and closest of application of the term epigram was to certain short sentences inscribed on offers in the temples, to the deceased, to the gods, heroes, living or dead men, next case under the democra
tion. They might be either in verse or prose. Their brevity, easily impressing striking events or illustrious names on the memory, recommended them also to general purpo
se, for the main point of the verses usually embodied in this convenient form. The lover was sure to breathe out his passion in a simple strain of tenderness and gallantry. Hence, every little poem presenting one distinct idea, or insolated argument, gradually acquired the title of an epigram. The largest portion of those collected in the Greek Anthology was written in honour of the dead, introducing their names and characters, or occupations; or as tributes to beauty, in gratitude for acceptance, or in compl
timent on account of rejection; some of them are panegyric on living and illustrious virtue; others contain brief records of remarkable events; others again consist of observations on human life, for the most part in a dark style of colouring. The wearness of this age, the loss of the abounding fertility of ancient times, may be ascribed to the vague notions, undefined prospects, and differently sustained hopes respecting our transition into some other state of existence by which the philosophers, and ordinary men, are at present confounded, and left to a
dum in the manner of poets.

Maius the Tyrian, whose exact date seems difficult to fix, lived probably somewhat less than a century before the Christian era, and is generally understood to have first collected the scattered fragments of the Grecian inscriptive muse. More than one person hearing the name of Maius has been mentioned by Diogenes Laertius and by Athenaeus; but the internal evidence of two epigrams seems to deter

mine the epoch of that Maius to whom we owe this first main record of the intellectual vigour of Greece in its declining days, whose energy, whether in arms or in arts, had be
come less active, but had not entirely died away. Maius, to critics, the have been the authors composed in this collection would be tedious; we shall barely mention the successive forms in which it re-appeared. Philip of Theaslostene continued the work about the time of Tiberius. The additional compositions written by that re
ing, and still pleasing. In the sixth century, Agathy
collected the miscellaneous fragments of his time, and added his own contributions to the expiring muse of Greece. The best of his own mind towards poetry seems to have been strong; in early youth he had produced a col
collection of amorous poems, entitled Daphnica, which would have done honour to better times. He had a conductor in his friend Paul the Silentiary, an officer in the court of Jusa
tinian; and in his epigrams, correspondingly, the best of his topics were satirical, and his style that of the courtier and the voluptuary. From the decay of manuscripts, and the real
al of the clergy in the dark ages against all works of imag
nation, even poetry or of gagantical history, the library was reduced. From that of its brightest and earliest ornaments, and it so happens, that it retains more pieces from the compilation of Agathias, than from that of his two predecessors conjunctly.

In the tenth century, Constantinus Cephalas saved these manuscripts from oblivion by re-editing them. Maximus Planudes, a monk of the fourteenth century, was the last collector. Greek selection was marked by a want of discrim
ination. The first reason for the main selections of that of Lension, accompanied with some Greek verses by the editor, and a Latin epistle to Pietro de Medic. It bears the date of Placentia, 1484. Claude de Saumaise, better known to the world by the Latin name of Halmannus, and to Eng-
Habmen as the antagonist of Milton, who lived in the sixteenth and the first half of the seventeenth centuries, described Plato and his schools in the *Deipnosophistae* of Planudes for the duties of an editor, by the discovery, in 1606, of a MS. in the library of Heidelberg. The history of this MS. may be seen in Schoell, iii. 42. During the eighteenth century, St. Dositheus in the publication of the残作 of the *Anthologia Graeca* was ransacked, and a valuable booty of epigrams, undiscovered or rejected by Planudes, enriched the *Anthologiae* of Bruck and the *Anthologia* of Jacobs. The former work, *Anthologiae Veterum Poetarum Graecorum*, is contained in three volumes, octavo, Strasburg, 1772-18. The latter in thirteen volumes, octavo, Leipzig, 1791-1814. Jacobs was partly led to his undertaking by the motive of excluding the extraneous matter in Bruck's edition, picked up from fragments of the minor Greek poets, which did not come properly within the definition of an anthology; but Jacobs himself retained the lyrics and elegies of Simonides, the remains of Archilochus and Bacchylides, and the hymns of Proclus. The edition of Jacobs is the latest, and best. But there is much matter strictly applicable to this purpose still left unedited. There are some inscriptions, for instance, in the Elgin collection of the British Museum, that ought to be added to any future edition.

A volume of translations, chiefly from the Greek *Anthology*, was published in 1806 by Messrs. Bland and Mervilla, with contributions from other gentlemen. This has been twice republished; once in 1813, with a considerable mass of additional matter and relevant matter in the shape of notes and illustrations, both in prose and verse; and again in 1833. In the last edition, the superflities of the preceding one are removed, and a number of additional specimens, mostly from the younger translators, are introduced, and in this state the work may be recommended as presenting a very elegant and faithful specimen of the original Greek *Anthology*, and one which is not likely to be surpassed. (For a full account of the editions, &c. of the *Anthology*, see Schoell, Geschichte der Grec. Lit., vol. iii.)

ANTHONY, ST., the first institute of the monastic life, was born at a village in Upper Egypt, in the year 211. His parents, who were wealthy, are said to have prevented him, when young, from acquiring any other language than his native Coptic. Having understood some passages of our Saviour's precepts in their literal sense, he distributed the property which came to him by inheritance, at an early age, partly among his neighbours and partly to the poor; and having placed a sister who was committed to his charge in a house of virgins, retired to a solitude in the neighbourhood of his native village, where he is represented to have been tempted by the devil in a great variety of shapes. In this retirement he was reputed to have received the gift of miracles. A great number of disciples, in consequence, crowded about him, at whose importunity he erected various monasteries, where they passed their time in acts of devotion and manual labour. He is said to have erected his first monastery at Phaistos, near Aphroditepolis, about the year 302.

In 313, during the persecution under Maximinus, he went to Alexandria to encourage and give consolatio to the Christians, who were suffering martyrdom; and about the same time, built a second monastery called Paphir, near the Nile.

After a long residence in the place of his first retreat, he withdrew farther from his native village, to Mount Colorm, near the Red Sea, where he made a ruined sepulchre his residence. Here also followers flocked to him, and terrors for seclusion and mortification were formed under his example; and here he was again assailed by the devil.

Toward the close of life, about the year 355, St. Anthony again went to Alexandria, at the request of Athanasius, to defend the faith against the Arians. At this time he is said to have given many to Christianity. Desiring to accept an invitation from the Emperor Constantine to visit Constantinople, he returned to his cell, where he died in the year 356. The most ancient martyrologies naming him on the 17th of January, it has been concluded that that was the day of his death. 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. Anthracite is a black, light, mineral substance resembling coal; so named from anthrac, or charcoal. It is also called fixed 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 of which pencils are made, and in which it is used in composition. 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. Anthracite is a black, light, mineral substance resembling coal; so named from anthrac, or charcoal. It is also called fixed 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 of which pencils are made, and in which it is used in composition. 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.
water being 1000; it is slowly combustible, but without flame, and according to the analysis by Schoutab of a specimen from the Meisner, it contains 96 per cent. of pure coal. In the practical course of its application, it must be considered as one extremity of the mineral carbonaceous substances, and anthracite as the other; and from the highly-inflammable fluid naphtha, we have numerous variances in the deposits of coal: from the crystalline lignite, the cannel coal, caking coal, slaty coal, &c., all diminishing in inflammability, until at last we come to the blind coal, or anthracite. If asphaltn, or indurated mineral pitch, be subjected to distillation, at a certain-stage of the process, when the fluid ancient; by a mixture of bitumen, 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 frequently happens that these strata are 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 coal, when it came in contact with the basalt, must have been in a melted state like lava; the heat diminishing off the substance of the coal; and, secondly, that anthracite, when found in place in the coal, is never to be accounted for unless the coal is heated. It is evident, too, that the 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, Cornwall, left behind in the consequence, 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. Weare, three years ago, in a paper on the geology of the South of Ireland, described beds of anthracite occurring in clay-slate and gneiss, so thick as to be regularly worked for the purpose of furnishing the law of the district. He says that the most considerable coalfields 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 equisetum and calamites, analogous to those found in the true coal-formations; this is an important circumstance with reference to the history of anthracite, and gives strong countenance to the opinion that this substance, even in the oldest of the stratified rocks, is of vegetable origin. It is found in many of our coal-mines, but generally, it is near the contact of coal and basalt. It is also met with more or less coal, where this contact with carbonaceous deposits of more modern date, as at the Meisner, a mountain near Eschweiler.

ANTHROPOGRAPHY, a term designed to express the object of one branch of physical geography.

The object of anthropology, 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 other stock, and have from circumstance adopted the language of another stock; to describe 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: Some German 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 migrations and connection of various peoples. Taking it in this sense, ethnography is a branch of historical character, and may be considered as distinct from anthropography. A series of anthropographies, of different epochs, would form the true history of our species.

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 academical institution. It was, however, 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 from its nature, a separate and separation, the most popular of his works. It was published by himself in the year 1789, 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, 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 might be termed pragmatical anthropology. The latter is evident, too, that 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 imperfect, we must be content to remain a mere spectator of Nature’s mechanism, and can turn his observations to no account: whereas, if he applies his experience, what has been found useful or prejudicial to memory, in order to acquire greater power, or facility in the use 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 aids, if not direct sources of anthropology, as, for example, biography, the drama, and even novels and romances.

The chief obstacles to its acquirement, and obtaining the rank of a science, are, in others, the unwillingness to be observed—in ourselves, the counterfeiting of the part, while we are under any emotion, we cease to observe, and when we observe, the emotion ceases: lastly, the force of habit, which perplexes 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 various qualities are arranged, in 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 contributions, would, in the long run, 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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ANTHROPOMORPHISM. A compound 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 editions of the Bible (Mant and D'Oyly'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 as a man. It might be worth while considering if some improvement could not be made even on Mant and D'Oyly as to the choice of illustrations.

Anthropomorphists is 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 Linnaean genus Alauda, 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-bread (Sylvia Cisticola).

Adhering, then, to the distinction of Bechstein, we characterize pipits by the bill being straight, slender, somewhat awl-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. Feet, with the Shank (tears) 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.

ANTARIS 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 unwholesome, 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 Antias macrophylia (a diminished figure).)
ANT


In the eye of a botanist, the upas is a species of the genus Antiaris, which belongs to the natural order Aricocarpeae, a group of plants all of which abound in a milky juice, and many of which are extremely poisonous. (Arico.
carpeae.)

The genus Antiaris has its stamens and pistillas in separate flowers. The former are collected in little heads in the centre of a leaf, and are frequently seen; the latter are generally small, and the number is inclosed in a hairy involucre formed of several fleshy divisions, which are roiled inwards. The pistillodium is surmounted by a calyx of several leaves, terminating in a long, clubbed style, and contains a single suspended ovule. The pistilla and the anther are in the lower flowers stand in pairs, side by side, by the axils of the leaves.

Antibes, a fortified town and port of France, on the Mediterranean, in the department of the Var, was near the frontier of the Sardinian dominions, 587 miles S.E. by N. of Paris, and about 19 miles S.W. of Nice, 49° 33' N. lat., 7° 1' E. long. from Greenwich.

It was on this coast that, long since, the great and hereditary empire, having been founded by the Greeks who had settled at Massalia, now Marseilles, as a barrier against the incursions of the Salies, and the Ligurians who inhabited the Alps. (Strabo, p. 180.) Some accounts state that the city of Antibes existed a little time before the Ligurians; but however this may be, the place probably owed its importance, as well as its name, (Antibaeis, Anti-

Bipes,) to the Greeks. It was taken from under the jurisdiction of Marseilles, and placed in the rank of an Italian city, by the decay of the power of the former, which had been a flourishing place, to which the tunny fishery may have contributed. The remains of a theatre and some other ancient buildings attest its former importance. During the Roman period, it was a seaport, and dates, with its fortifications, of which two strong towers yet remain.

After the downfall of the Roman empire, Antibes became subject to successive nations of barbarians, Visigoths, Ostrogoths, and Franks. It was described by the Saracens in the tenth century, rebuilt and repopulated in the tenth, and again plundered by Spanish and Moorish pirates. In 1746, it stood a siege against the Austrians, aided by England and Savoy. It signified its submission in 1815, by a humble and grateful return to the French, after a captivity of 40 years. It is built on the eastern side of a small peninsula, di-
viding the gulf of Juan from that into which the Var falls; in a district fertile in wine and fruits, specially oranges, but barren of vegetables, to signify their parched state. The harbour, which is nearly circular, is so choked up with the sand brought by the Var, the mouth of which is only a few miles distant, that, in all the extent of the basin, there is only a space of less than 300 feet by 550 feet where vessels can anchor; and to approach the mole they must not draw above fifteen feet of water. The trade of Antibes, which is but small, is chiefly in oil, olives, dried fruits, and especially salt fish. The inhabitants, who amount to about 5000, are considered very skilful in preparing anchovies.

Antibes is a place of considerable strength, though not in the first class of fortresses. There is a citadel and several batteries and forts for the protection of the harbour. The fortifications appear to have been erected in the times of Francis I. and Henry IV., and improved by Vauban in the days of Louis XIV. Their erection has served to drain the surrounding marshes, and render the air healthy. (Élo-
clopédie Méthodique; Dict. de la France; M. Brun; Balbi.)

Antichrist (Antichristus) means, literally, the op-

ponent of the anointed, or of the Messiah. The name of Antichist occurs in the only two epistles of St. John: 1 Epist. ii. 18, 29; 2 Epist. 7. In some of these passages false teachers are called Antichrists, and every spirit that confesseth not that Jesus Christ is some in the flesh, is not of God: and this is that spirit of Antichrist, whereof ye have heard that it should come; and even now already is in the world. St. Paul calls Antichrist that man of sin, the son of perdition; who opposeth and exalteth himself above all that is called God, or that is worshiped; showing that he is God, giving himself to be known as God. That wicked whom the Lord shall consume with the spirit of his mouth, and shall destroy with the brightness of his coming: whose coming is after the working of Satan with all power and signs and lying wonders. 2 Thess. ii. Emblematical de-
scriptions of Antichrist occur in the twelfth and thirteenth chapters of the Revelations. One of the newest German novels bears the title of Antichrist.

Anticosti, an island lying in the river of St. Lawrence, between 45° 4', and 46° 35' N. lat., and between 61° 14', and 64° 30' N. long. This island does not possess a single harbour. It is more on the north side is high, and the water close to the sill 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, but the occupation of two families who have been established here by the governor of New-

foundland, one at the east, the other at the west end, for the purpose of giving help to persons cast away upon the coast of the island. The vegetation is remarkably rich, with birch, fir, poplar, and dwarf spruce trees, all of which are situated in their growth. Bears, foxes, hares, and sables are numerous, as well as partridges, curlews, plovers, and snipes. The interior has never 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 Natissei, of which its present name is evidently a corruption. It is included in the island of New-Brunswick. (Annap's History of Newfoundland; McGregor's British America.)

Antidomialianites. [See hertiscs.]

Antidotes, from two Greek words, against, 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 to the remedies for the derange-
ments of the functions arising from the contact of into the system of a known and material poison. Doubtless every disease may be looked upon as springing from some poison; as sieves from an altered and unhealthy state of the body; as the water of the aqueducts, the air, the vi-

vated 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 poisonous state cause of disease, which may change into the signs, and symptoms of which 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 as 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. Fodere considers poisons to be 'those substances known to be capable of rapidly altering or destroying some or all of the functions necessary to life.' This must be understood to apply to their introduction (whether acci-
dentally, intentionally on the part 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 diseased con-
tions of the system, which seem to render it incapable of being injuriously affected by doses of poisons which 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. It will be seen that this latter state is one of an altered body, to the enemy of true religion, who shall, according to the Holy Scriptures, appear before the coming of the Messiah in glory. The general effect woeiled by Antichrist is called by the Jews מַלְאָךְ הָאָרֶץ מְעָן הַיוֹם or the pangs of the birth of Antichrist.

The name of Antichrist occurs in the New Testament only in the first two epistles of St. John: 1 Epist. ii. 18, 29; 2 Epist. 7.
poisons operate in destroying life, we must be made aware that what we commonly regard as an individual, is made up of two, or more, systems, which, though 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 cessation of the function of one organ, may not always beget the immediate suspension of the rest. The most essential of these are consequently denominated the vital functions, viz., the circulation, respiration, and innervation. The circulation of red or arterial blood through the system, especially when we consider 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 the action of the heart, its effect, blood arterial, respiration is necessary, and this is effected by the lungs, assisted by a great number of muscles, the cooperation, or simultaneous action of which, is occasioned by the influence of the spinal chord, directed or influenced by the brain. Now, certain poisons act either solely on one of these organs and functions, or upon two or three, but always in an ascertained order or uniform succession. Oxalic acid, (or the acid of sugar, as it is popularly called,) for example, in small doses, 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 will cease together. The latter point is more probable, than is much 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; but if, as in the second instance, the heart also has ceased to beat, resuscitation 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 treatment, 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 this as to such an arrangeent.

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 this way, either directly or by the other way. Few in both these, the first set are the most formidable and the most speedy in their action, allowing little time for the employment of antpoisons. As these, without act, 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 (corrod) 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, caused from any other cause—even when 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 part of the functions, and thus prove fatal. These are termed irritant poisons, such are acids, but they are frequently termed corrosives, though inadsequently.

Lastly, there are poisons which neither corrode nor irritate the part, but act upon the system, up to the slightest extremities of the nerves, which is conveyed along these to some remote organ or organs, the function of which it impair or suspend. Many of these should be termed sedatives, in the strictest sense of the word [see Sedatives]; others are merely those cases of the subjective nervous system 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 general rules, viz., 1. The first object is 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, till the injurious impression has subsided. 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 rattlesnake, a cupping-glass, or what will answer as well, a wine-glass, tumbler, or cup of about two or three, 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, or the poisoner's art to prevent, the stomach may be emptied 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 the poisons are in a manner washed out. In all of these means we think 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 skilled in its use, 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 a little water given; or a small plaster of an ounce of a scurf or of the salt 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 fork, 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 by the vomiting.

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 before it has had time to act directly, or to limit its 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; or to destroy the action of the poison, or remove it altogether from the system, by means of a powerful medicine; or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medicine, or to destroy the poison, or remove it altogether from the system, by means of a powerful medic
chloride, 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, the poisons, 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 poisoning 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, it has a tendency to 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 to: such agents are to be found among the diffusible stimuli, ammonia, or its carbonate, i. 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 spasms and difficulty of breathing; and when the brain, there is partial or complete insensibility (coma), often with, at first, full pulse, flushed face, and laborious 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 respiration is stopped, or by splitting up the blood, 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, e. g. spirituous liquors, opium, henbane, hemlock, emaphor, 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, styrchyna (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 feeble spark of life which might have sufficed to reanimate him but for such injudicious interference.

It is to be hoped that more just principles of treatment will be generally among the people, as well as among medical men, by which much distress may be prevented to their families and to the community. (See POISONS.)

For the immediate consequences of Alexander's death, we refer to Antipater and PERDICASS. In the general distribution of provinces, or satrapies, to the chief Macedonian officers, Antigonus received the greater Phrygia, Lydia, and Pamphylia. But as soon as Antigonus was informed of 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 lost no time in gathering his forces, and preparing to oppose his adversary, and its power. He did not appear that he took an active part in the short contest which ensued between the European and the Asiatic chieftain: but Antipater, on making a feint as if he intended to get the upper hand of the Antigonus and Lysimachus, which Antigonus already held, (we find no mention of Pamphyllia in the second division,) and declared him general of the king's forces in Asia, with a special commission to prosecute the war against Eumenes, one of Alexander's best officers, satraps of Bactria, and Per- doucia, who had espoused the party of Perdicass, 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, left him to be surrounded by Antipater, his former protec- tor, and Attalus, the brother-in-law of Perdicass, the only persons except Eumenes now openly hostile to Antipater.

There is some difficulty in settling the chronology of this period, since Diodorus, as our copies now stand, passes at different times from n.c. 321 to n.c. 312. The former years.

But the expedition of Antigonus against Aetatus is placed by him in the latter half of 319; and his arrival in Macedonia may be determined to the beginning of 321, in which year Perdicass died. If we therefore 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' time will be left for the operations, in the proceedings against Aetatus 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 require.

Antigonus, on hearing of 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 300 elephants, and by the commission of the late regent Antipater, constituting him the general of the satraps of Bactria, India, and the estate 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 almost nominally succeeded Arhidamus on the Macedonian throne. Considering it of high consequence to gain over the satraps he sent the most flattering invitations to that general, while still cooped up in Nora; and Eumenes so far assented to his terms as to take an oath of fidelity to him, conjointly with Olympias and the children of Alexander. Meanwhile he expelled the satraps of Lydia and Helles- pontine Phrygia, or Mycia, from their provinces, and took possession of Ephesus, and of four ships laden with 600 talents of silver, which had been sent by Alexander to be used against the Scyths.

The state of things in Europe favoured his views. Cassandar, 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 Asia. But he found a formidable enemy in Eumenes, who had taken so soon upon himself the body of his Cappodocian friends and followers collected round him; and receiving from Olympias and Polyperchon a large sum of money, with the command of 3000 of the Arygy- lipades, or Illyrian ships, 2000 of the Cappadocian, and 1000 of the Thracian and Thrace, and 3000 of the Cilician; the other satraps, 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 retreated through Cilicia and Cato-Siria into Bactria, 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 Media, and the hostile generals of some of the satrapies 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, in which the fortitude of Antigonus, who stood on the field against Antigonus, the armies separated; Antigonus taking up his winter quarters at Gargara, or Gadama, in Media. Eumenes in Gabiene. A district of nine days' journey separated the two. But considering this by a forced march it must have been an Antigonus endeavoured 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 one of Eumenes' officers. On another day Antigonus took the town, which was delivered up bound to Antigonus by the Argyrespiada. This completed the ruin of the royal party in Asia, which Eumenes alone upheld. (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 desiring to engage him in his schemes for reducing the Medus, or the opportunity of his Macedonian followers, prevailed on him to consent to that great general's death. His friends now began to experience how much more ambition weighed with him than gratitude. Python, who was exalted to the second of the army, was next another of the most hard and bravest of Alexander's officers. On quitting Media, he directed his march towards Susa; the citadel of which containing treasures stored there by Alexander, he resolved, with the consent of Antigonus, to seize upon. It was delivered up to him by order of Seleucus; in addition to which he had amassed 10,000 talents in gifts and valuable booty in Media and elsewhere. Returning towards the Mediterranean through Babylonia, he took occasion to sell the treasures thus accumulated for the revenues of his province. The Babylonian satrap declined to render it, alleging that he held the government as a free gift from the Macedonians, on account of his services during the life of Alexander; and indeed it is to be observed that of Antigonus to their respective dominions, stood on the same ground. But finding that his dangerous ally would by no means admit this answer, and warned by the fate of Python, Seleucus fled betimes to Egypt; seeking to engage Ptolemy in a combination against Antigonus, who now aimed openly at uniting all the Macedonian conquests under himself.

Cassander, and Lysimachus, governor of Thrace, readily joined with Ptolemy and Seleucus to check the power of this Antigonus, and in concert they proceeded in such a manner which they could not expect to be granted, requiring him to resign Cappadocia and Lycia to Cassander, Hellaspon-tine Phrygia to Lysimachus, Syria to Ptolemy, and Babylonia to Seleucus to divide the advantages which he had acquired in the war against Eumenes. Antigonus replied by menaces against Ptolemy, and prepared for the struggle. He sent ambassadors to gain Rhodos and Cyprus to his party, and dispatched Aristod-e-mus the Milesian into Peloponnesus to raise soldiers, and cultivate the friendship of Polyperchon; who, having lately been the common enemy of Cassander and himself, was now united to him by their common jealousy of Cassander. Aristodemus succeeded in both his objects. Meanwhile Antigonus had been diligently employed in Phoenicia in building ships, the chief naval power of the Mediterranean being in the hands of his enemies. It is said that Diodorus that 8000 men were employed in felling and sawing timber in Mount Libanus: and Antigonus boldly declared, that before the summer was over, (c. 314) he would command the sea with a fleet of 500 vessels. In that summer the Rhodian fleet in his service had been defeated by Ptolemy's lieutenant on the coast of Cilicia; but this misfortune was more than counterbalanced by his success in Syria, where the strong cities of Joppa, Gaza, and Tyre fell into his hands. He then left his son Demetrios, substituted Polyperchon, or Tiberius, a young man of big promise, to command in Syria, and himself repaired to the western coast of Asia, in the winter of 314-3. During the next year, the greater part of Caria fell into his hands, and he that year completed the famous Pyri-tho. He had sworn to return, and during the winter, 313-12, he had given an example of his reformation, or, at least, of his submission to Seleucus, in that he had given the same year, 313-12, in the event of a great battle at Gaza, in consequence of which the coast of Syria, as far as Sidon, returned into the victor's possession (c. 312, after midsummer). Seleucus, encouraged by this success, took the protection of his son in the list of his clients, and returned to the scene of his former subjects, returned to Babylonia with only 2000 followers, and with that small force regained possession of his satrapy. From this time the era of the Seleucidae commences. The fortunes of Antigonus were restored, partly by a war which gained him the confidence of Cassander's lieutenants, and partly by his own return to Syria, upon which Ptolemy, unwilling to risk all in a pitched battle against so able a general supported by a superior army, fell back into Egypt. Antigonus then employed his son in a fruitless attempt to take Petra, the chief city of the Nabathean Arabs. This place, of which a very curious and interesting account has been published by Captains Irby and Mangles, is situated at the mouth of a large river, called the Baryuch, as the eastern entrance to the Mediterranean, on the western branch of the Red Sea, and is thence connected with the Syrian coast by a caravan station and a great depot of Arabian merchandise: the hope of plunder seems to have been the chief object of the enterprise. Demetrius failed in this project, and also in his attempt to win over to his cause the Rhodian fleet, (c. 311). A peace was concluded between Cassander, Lysimachus, and Ptolemy, on the one part, and Antigonus on the other, upon condition that Cassander should be president (eperrypnec) of the council of Europe until the end of the current year; that the power of Cassander should be under the Great by Roxana, attained his majority; and that the other parties should remain in possession of what they each had; and that the Grecian cities should be free.

We may here briefly trace the history of the royal family of Macedonia up to this time. After the death of Polyperchon brought forward Alexander, the son of Roxana, supported by Olympias, as a rival to Archibulus. Archibulus fell into the hands of Olympias, who put him to death, (c. 317). In the following year, Olympias being taken prisoner, together with Roxana and her son, suffered the same fate at the hands of Cassander, who retained the young king and his mother in close custody. On the conclusion of this peace, he added the murder of them both to the long list offlagrant iniquities which pollute this history, moved partly by the fear that the Macedonians would be inclined to favour the cause of Alexander's son, partly by the desire of obviating that article which provided that his own government should be secured when Ptolemy was with his army in Egypt: for the descendants of Philip now remained. Hercules, the son of Alexander by Barsine, (see Alexander,) was brought forward by Polyperchon as a claimant to the crown; but his position was rendered precarious by the amity and alliance with the Seleucid, (c. 309). Somewhat later, Cleopatra, Alexander's sister, having engaged herself in marriage to Ptolemy, was secretly poisoned by Antigonus, who durst neither detain her forcibly at Sardes, her place of residence, nor was willing to let her go to Egypt, to strengthen Ptolemy by her claim to the succession. Thus was the house of Philip and Alexander cut off root and branch, not reaching even to the fourth generation, and it was extinguished by the hands of such, as, upon no account less than the execution of God's justice, due unto the cruelty of these powerful, but mereless, princes. Wherefore the ambitious frames, erected by these tyrants upon so wicked foundations of innocent blood, were soon after cast down, overwhelming themselves or their children with the ruins, as the sequel will declare. (Raleigh, History of the World.)

To return to the order of events: the alliance did not last more than a year, and Ptolemy resolved to break it, alleging that Antigonus had transgressed the conditions by interfering with the Grecian cities. During the years 310, 309, 308, hostilities continued, without any marked events, but somewhat to the disadvantage of Ptolemy. In the following years, 307, 306, 305, there were no less than twenty-three conflicts between the two parties; with a powerful fleet to set free the Grecian cities which were still held by Cassander, appeared before the Pireus, and having made himself master of that important place, proposed to march upon the vast capital by the way of Athens, to whom he guaranteed the independence of their state,
He completed their deliverance by besieging and demolishing the fort of Tmolus, which the Macedonians had used as a citadel to hold Athens in subjection. 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 Antigonus on this occasion; Demetrius, too, which the Macedonians had earlier given him, was recalled to the empire. Demetrius also took, which the Macedonians had earlier given him, was conveyed to him near those of Hades 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 Antigone and Antigonus. The Macedonians were overthrown, and great fleet to relieve the island, in B.C. 304. On hearing of this great success, which was expected to bring forth more important consequences than the event proved, Antigonus assumed the diadem, the ensign of regal dignity in Persia, with the title of king, and his example was followed by Ptolemy, Lysimachus, Seleucus, and Cassander. In this year, Antigonus founded the city of Antigonia, in Syria, on the river Orontes. [See Antochia.]

In the following year, 305, 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. To the supply of the coaling stations 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 many years, hastened to proclaim itself an ally of him, and to repeal the proclamations for his cause, or to defend itself by arms. The Rhodians resisted bravely, and though pressed by Demetrius with utmost skill and vigour, held out for a year; at the end of which Antigonus required his son to make peace on the best terms he could. This was done by balsam and a large promise of land, and he was driven away. Cassander, during his absence, had regained much power. Demetrius found no difficulty in replacing things on their former footing. Cassander was driven beyond Thermopylae by Nearchus, who then joined Nicanor, his old rival, and made a junction of forces with the Persians, behind which was the fleet, B.C. 299; but he acted the part of a kind of protector to Philip, who succeeded him. He enlarged the limits of the Macedonian monarch, and took an important share in the affairs of Greece, for the most part in concert with Aemus and the Achaeans, and wasPtolemlx, and Cassander. The latter part of his life, he held his own dominions in peace; but he was continually employed in extending his influence in Ptolemais, both by force and fraud, and was brought into frequent collision with the Achaeans again. [See Asia.1] He died B.C. 243, or 239 (Clinton), leaving a son, Demetrius II., who reigned ten years.

Antigonus Doxon (about to 491) was so named, because his præmises were more modern than his predecessors. It is said he was the son of a Demetrius, who was the son of Demetrius Poliorcetes, and of course the brother of Antigonus Gonatas. Being appointed guardian to Philip, he was reared at Pella, which was only a bare twelve years after Philip was killed in the battle of Issus. He was married to Cleopatra, daughter of the last king, and had a legitimate son, Antigonus II. He was born B.C. 371, but as he did not attain the throne, B.C. 299; but he acted the part of a kind of protector to Philip, who succeeded him. He enlarged the limits of the Macedonian monarch, and took an important share in the affairs of Greece, for the most part in concert with Attalus and the Achaeans, and was himself a rival of Philip in the contest for the crown of Asia. [See Asia.2] He died B.C. 221 (Feb. 220, Clinton), regretted by the friends of Macedonia, and leaving a fairer character than belonged to most of the princes of that age.

ANTIGON, son of Antigonus, was a native of Carythus in Euboea, is the reputed author of a work, entitled A Collection of Wonderful Histories (Στοιχεῖα καὶ μαθημάτων). Antigonus is generally supposed to have lived in the age of Ptolemy of Egypt. This collection, which on the whole is of very little value, was last edited by J. Beckmann, Leipsig, quarto, with a commentary.

ANTIGUA, one of the Caribbean Islands. The town of Saint John, the capital, was founded in 1638. It was at the time the largest settlement on the island.

The first settlement that was made on Antigua was by a group of English families, about the year 1637. Three years from that time the island was granted by Charles II. to Lord Willoughby; in 1666, it was invaded by a French force, which laid waste all the settlements. A few years afterwards Antigua was again settled by Colonel Codrington, who was appointed its governor, and whose family still possesses considerable estates on the island.

Antigua is about twenty-one miles long, and is nearly of the same breadth. The land in cultivation amounts to 69,623 acres. Rather more than half of this area is occupied by sugar plantations, the remainder being employed for raising provisions. In 1832, there were exported from the colony equal to 11,016 hogsheads of sugar, 7,942 puncheons of molasses, 1,843,457 bushels of rice, 473,604 puncheons of rum. A considerable quantity of cotton was formerly produced, but its cultivation is now discontinued. Two descriptions of soil are prevalent in the island: one a rich black mould on a substratum of clay; the other a stiff, clayey substratum of marl, which is not so fertile as the former description of soil. It contains a large proportion of level land, and is not in any part mountainous. The shore is in general level, and surrounded by woods; consequently difficult to approach, but there are several excellent harbours, in one of which—England Harbour, situated on the south side of the island—is a dock-yard belonging to government, with every convenience for caring for and repairing the royal navy. There are two small fleets: this being the usual care of the fleets in the British navy, and here, during the war, the king's ships on the West India station were usually moored during the hurricane months.
The island does not contain a single river, and the few inconsiderable 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, whose offices of libation and sacrifice consisted essentially of water; and it is not unlikely that, in maps constructed before the existence of a new continent was known, the name Antilia was assigned to a supposed country westward of the Azores, and that when Columbus first saw the Antilles he gave them that name in consequence. By a recurrence to the early Spanish historians, it appears that at least the word Antilla was applied to Cuba and Hispaniola previous to the discovery either of the Caribbean islands or that continent of Antillia. (Professor Parry, 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 Hispaniola.' 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, and Porto Rico.

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

**Spain.** Martinique, St. Pierre, Martin, Tortuga, Blanquilla, Orchilja, Rocca, Ayas.

**France.** Guadeloupe, Martinique, Marie Galante, All Saints, Deshaies, Saint Martin (north part).

**Holland.** Curaçao, Aruba, Saint Martin (south part), Saba, Saint Eustatius.

**Saint Thomas.** part of the Virgin Islands.

**Denmark.** Saint John, group.

**Saint Croix.**

**Sweden.** Saint Bartholomew.

Their geographical position is between 10° and 23° 30' N. lat. and between 59° 30' and 83° W. long.

These are again subdivided into windward and leeward, systems which take their name from the British and foreign colonies, in the prosecution of which trade upwards of 300 small vessels annually enter and leave the different ports of the island.

Antigua comprises 35,714 souls, of whom 26,163 are whites and 9,551 coloured people, and 9,299 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 free coloured and black persons from all political restraints and disabilities, and for securing their rights and advancement in 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 divided into four parishes, or districts, which are the towns, and into fifty parishes, or districts, which are the parishes. The capital of the island is St. John's, which is about seven miles from the sea, and seven from the town. The population of the town is about 2000 persons, and it is a pleasant place, with good buildings and a public garden, and is the metropolis of the colony. The island is about 200 miles in circumference, and contains an area of about 1300 square miles. The climate is mild and healthy, and the prevailing winds are from the south-west and south-east, and the temperature is about 72° F. in the winter and 80° in the summer. The soil is fertile, and the produce is chiefly sugar, cotton, and tobacco.

The inhabitants are chiefly of African origin, and the language is English, with some Spanish and African words. The religion is mostly Protestant, and the principal Churches are the Established Church, the Church of England, and the Church of Scotland. The education is chiefly secular, and the schools are supported by public subscription. The government is parliamentary, and the legislative body consists of a council and assembly. The council consists of twenty-four members, elected by the inhabitants of the island, and the assembly consists of forty members, elected by the inhabitants of the twenty-four parishes. The island is subject to the British crown, and is governed by a governor and council appointed by the crown. The island is divided into two districts, the north and south, each of which is divided into two parishes, and each parish is divided into two districts. The island is divided into two districts, the north and south, each of which is divided into two parishes, and each parish is divided into two districts. The island is divided into two districts, the north and south, each of which is divided into two parishes, and each parish is divided into two districts. The island is divided into two districts, the north and south, each of which is divided into two parishes, and each parish is divided into two districts.
Thus, because in their reaches this is the broadest and least deflected stream, 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 intersected with, coral formations of reefs or islets called eyots or keys, which render the navigation intricate and dangerous. There are some islands, as Martinique, provided with a volcano on base; these present undulating plains, and do not attain half the height of the volcanic mountains: they are but scantily watered by small brooks, the soil is dry, with few trees, but the air is more salubrious. "In the Antilles, medicinal plants are more of what is termed potable than is the general practice 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, mosquitos, 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 litre of 100 to 150 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 summer reigns in fury: another tropical storm being set 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 ten and 11 in the forenoon, and blows with great regularity, increasing in force to a maximum in the middle of the afternoon, and subsiding away entirely about sunset. The middle height of the thermometer at this season is about 80°. The nights are transcendentally 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 50 to 60 cubic inches being about the medium for seasonable years, but at Barbados in 1754 no less than 87-1 cubic inches was ascertained to have fallen. This continues till the middle of December, between which time and April, which is in fact the winter, serene and pleasant weather prevails with a reduced temperature. So great is 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 altogether escape its fatal effects.

Most of the islands produce sugar, coffee, and cotton; many tobacco and cacao; and some indigo, lignum vitae, pimento, &c., which, with rum and molasses, constitute their staple produce. They also 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 Lesser Antilles have little communication with the other islands, owing to the great difficulty of returning; indeed 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 a 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 the island of Antigua have a national assembly, chosen 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 respectively 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 flood 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 Colombian Navigator.)

ANTILLOGARITHMS. In this country, means the number to the logarithm. Thus, in Briggs's system, 109 is the antilogarithm of 2, because 2 is the logarithm of 100.

We have introduced this term, because the French Encyclopaedia, followed by Dr. Hutton, have defined the word to the logarithm.
to Berzelius, the oxide of antimony obtained by the above processes consists of nearly

| Three atoms of oxygen | 8 x 3 = 24 | 14 atom = 12 |
| Two atoms of antimony | 64 x 2 = 128 | 1 | = 64 |

Atomic weight 155 Combining weight 76

It is therefore a sesquioxide. The most convenient method of preparing this oxide is to dissolve sulphuret of antimony reduced to powder, in muriatic acid; sulphuretted hydrogen is evolved, and a colourless solution of muriate or chloride of antimony is obtained; when water is added to this, submuriate of antimony is precipitated in the state of a very white powder, from which the muriatic acid may be separated by heating it in a solution of carbonate of potash. After washing and drying, a dingy white powder remains, which is the protoxide or sesquioxide in a state of purity. This oxide is insoluble in water, but dissolves by dilute nitric acid, and by strong nitric acid it is converted into antimonial acid. Muriatic acid also readily takes it up; the same effect is produced by bitartrate of potash, and the solution on cooling deposits octahedral crystals, which have been long known and employed in medicine under the name of tartar emetic, or tartarized antimony. It is soluble also in the alkalies, potash, soda, and ammonia; if the submuriate precipitated by water is converted into the muriate with potash, a portion of the oxide is dissolved, the greater part, however, diminishes rapidly in volume, and is reduced to a fine greyish crystalline powder, which is a neutral compound of the oxide and potash, and is but slightly soluble in water. In consequence of this, that this oxide acts as a base with acids, and as an acid with some bases. It operates violently as an emetic, and though now seldom used as such by itself, it is the basis of all emetic antimonial preparations.

This acid, sometimes called deuteroxi acid, or deut-oxide of antimony, may be procured by oxidizing antimony by acting upon it with nitric acid, this yielding oxygen; the mass is to be evaporated to dryness and calcined. Its colour is white, but it is yellowish when hot. According to Berze-

lius it is composed of nearly

| Two atoms of oxygen | 8 x 2 = 16 |
| One atom of antimony = 64 |

Atomic weight 80

This acid is neither fusible nor volatile at a red heat; the only change which it suffers by it is that of being less soluble in acids, and combining less readily with bases. When heated with charcoal, it is not easily reduced to the metallic state as the oxide. Its saline compounds are termed antimonites, as antimonite of potash, &c.; if it be fused with the alkali, the salt formed dissolves in water, from which the acids throw down a white precipitate of antimonious acid, combined with water; in this state it reddens litmus paper, like other acids, but if the water, which has been expelled, is heated, it no longer acts as an acid upon vegetable juices. It is insoluble in nitric acid, but slightly dissolved by concentrated sulphuric acid.

The antimonites are not an important class of salts. Antimonial Acid is the peroxide of this acid. This acid is prepared by heating powdered antimony in aqua regia; the solution is to be evaporated to dryness, and the residue treated with nitric acid; it is to be again heated, but not to redness, to expel the nitric acid. The antimonio acid then remains in the form of a pale yellow powder. It is composed of nearly

| Five atoms of oxygen | 8 x 5 = 40 |
| Two atoms of antimony | 64 x 2 = 128 | 1 | = 64 |

Atomic weight 168 Combining weight 84

Its action on the animal economy is but slight. Antimonial acid is precipitated by water from solution in aqua regia, in the state of white hydride, and when thus combined with water, it acts like other acids upon vegetable juices. The white hydride contains 20 per cent, and is expelled by a gentle heat; the acid then becomes yellow, and ceases to reden vegetable juices. This acid may be procured by detonating a mixture of one part of powdered antimony with four parts of nitre: water added to the residue dissolves the antimony nitrate, and this is then dissolved into the nitre solution combines with the potash and precipitates the acid in the state of hydrite.

Antimonial 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 carbonic acid.

When antimonial acid is subjected to a strong red heat, it loses oxygen and is reduced to antimonial acid, like which, it has but little medicinal power. Neither antimonial acid nor the antimonites 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 sesqui chloride is a yellow powder, composed of 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 water on this the antimony takes chlorine from the mercury, and the chlorides 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 other acids it is decomposed by the muriatic 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 anhydride of the antimony pentachloride, formed under the name of pavid Algarotti. It is dissolved by strong muriatic acid; and by nitric acid the protoxide of antimony is converted into antimonial acid. It has been well maintained that, if a compound, formed with a dilute solution of carbonate of potash, 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 chlorinetic gas; the antimony burns during combination with the chlorine.

It appears to be composed very nearly of

| Three atoms of chlorine | 36 x 3 = 108 |
| Two atoms of antimony | 64 x 2 = 128 | 1 | = 64 |

Atomic weight 236 118

Perchloride of Antimony is formed by passing dry chlorinetic 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 smite white Artes. It attracts moisture from the air, and when mixed with water it is decomposed, and converted into muriatic acid and antimonial acid. It is composed of

| Five atoms of chlorine | 36 x 5 = 180 |
| Two atoms of antimony | 64 x 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 a common temperature it is solid, colourless, crystallizes in needles, attracts moisture from the air, and is decomposed by water. It melts at about 206° Fahrenheit, and boils at 518°. 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.

Sulphur and Antimony combine to form several compounds; the first to be noticed is a yellow mace found occasionally 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 met with compact, in sacular 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 antimony into the nitric acid, which, when strong, converts antimony into into protoxide. Muriatic acid, when concentrated and hot, decomposes it, dissolving the antimony and evolving sulphuretted hydrogen gas of great purity. It appears to be composed of

| Three atoms of sulphur | 18 x 3 = 54 |
| Two atoms of antimony | 64 x 2 = 128 | 1 | = 64 |

Atomic weight 178 88
It is therefore a sesqui-sulphuret. It is much employed in preparing metallic antimony, glass of antimony, crucia of antimony. James's powder, and some preparations in the London Pharmacopoeia.

The sesqui-sulphuret 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 a current of sulphuretted hydrogen gas is passed into a solution of antimony tarsan, an orange precipitate is thrown down, which appears to be a compound of sulphuret of antimony and water; and when the water is expelled, it has the usual appearance of sulphuret of antimony, but is found of a deep orange colour; this coloured precipitate is highly characteristic of the presence of antimony.

It appears from the experiments of Rose, that a bisulphuret of antimony may be formed by passing sulphuretted hydrogen gas into a methyl solution of antimonious acid; and also a per-sulphuret, by the action of sulphuretted hydrogen upon antimonial acid. These, however, are unimportant compounds.

Sesqui-sulphuret 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 solutions, in the former preparation, it 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 antimonium tartrarum, as it is termed in 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 sulphur and silica, prepared by roasting sulphuret of antimony) to be boiled in water, with an equal weight of potash; and the solution thus obtained is decanted, and the residue burnt: it is then dissolved in water, and from the precipitate thus obtained, tartar emetic is prepared by adding a solution of tartar emetic prepared by distilling tartar emetic, and adding it to the solution of antimony obtained; this precipitate is then filtered, and the deposit of tartar emetic is dried.

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. Thomas, it consists of one atom of tartrate of potash = 114, one atom of bitartrate of antimony = 218, and two atoms of water = 350. The Pharmacopoeia also contain a preparation in imitation of James's powder, called cura antidotis; they are both inert mixtures either of antimonious or antimonial acid and phosphate of lime.

Antimony is susceptible of combining with all metals. It melts with lead and tin, and is especially the case 'with gold, a thousandth part of antimony rendering it unfit for the use to which it is generally applied.

The principal alloys of antimony are that with lead, employed as a flux; that with tin, 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 decreed by the Parliament of Paris. The use of antimony against its use, is now justly regarded as a most valuable remedy in many diseases. As antimony cannot produce any effect on the human system, unless so prepared as to be capable of decomposition, it is proper to consider these antimonious and antimonial acids as being the most soluble, has probably superseded the others. Its action varies according to the dose, the mode of administration, and the state of the system when it is exhibited. 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 form the inner lining of the lungs, and intestinal canal; and also an increased secretion of the sweat. In larger doses, the action is very violent, and the whole system appears to 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. Concerning 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 last of all should it be given in cases of narcotism, since it acts as a poison, unless vomiting take place; and as, by narcotic poisons, the sensibility of the stomach is so lowered or depressed as to occasion the rejection of anything received into it, the improvidence of expelling tartar emetic in such cases is extremely dangerous. It is also clear from this substance which is sufficient to occasion vomiting, there is one state in which it is to be preferred to every other means of causing vomiting. By whatever channel the infusion or decoction of it is introduced into the stomach, it very naturally 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 water, may, by a skilful operator, be injected into a vein, when the gutlet 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 prepared by boiling some astringent 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 tannates, when certain tinctures, furnish the best antidote in cases of over-dose, 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 cinchona bark, or, when these cannot be easily prepared, a strong infusion of it.

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 fluids of the stomach, as well as 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 stage of fever, and the restoration, and even strengthened character of the most favourable signs of its abatement, antimony is employed with great advantage in the treatment of fever, and it cannot be 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 AQUA). 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, as in typhus, the salines must be soon laid aside, and stimulant medicines given. Antimony is employed 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 mucus and bilious fevers, when the part affected is the tube of the intestine, with very depreased 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 catarrhal 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 or twenty 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 even smaller doses, and at the interval of two, four, or six hours. Lately, much larger and more frequent doses has been practised with marked benefit in several diseases of an inflammatory character, particularly in pneumonia, or inflammation of the lungs. Antimony is also used in certain fungous diseases, when dissolved in water, are given, and repeated every two hours or so, for a considerable time, even for two or three days. The early doses cause vomiting and purging, but these effects soon cease to appear, while the pulse is found to
have fallen to fifty beats, 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 requisite. It ought, however, if the mucous membrane of the stomach be in a state of irritation or subacute inflammation, a condition which often occurs during pneumonia. This state of the stomach must be removed by general or local means before we venture to attempt by This plan of administering tartar emetic is generally believed to have originated with the Italian physicians Rasori and Tommasini; but whatever merit it possesses is justly due to Dr. Mriar of Bristol, who professed it in 1790, many years before its employment in Italy.

Tartar of antimony is applied externally as an ointment and plaster; and in either way it exerts 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 always be taken to make them too strong, 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.

ANTINOIMANIS, from the Greek, signifies against the law. Hence, all theologians hold that if any there be who hold 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, by him there be, because there is reason to suppose that the accounts of earlier antimonians 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.

In the hundred and thirtieth year of our redemption, we find various antimonian sects in the first three centuries; but the name was first applied to the followers of John Agricola, a townsman and contemporary of Luther, born at Isleben in Saxony. Their opinions had the tendency to moral licentiousness, and were attacked by Luther, who, with the assistance of the elector of Brandenburg, obliged him to publish a retraction. It must, however, be observed, that Bayle points out (in the article Iulienne) the exaggerations which had been made of Agricola's opinions and their source, and that Agricola himself was employed with others in drawing up the Interim, a provisional confession of faith, promulgated by the emperor Charles V., at Augsburg, in 1546, which Dupin (one of its twenty-two 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 its principal appearances rather to have been distributed among other persuasions. The assembly of divines in 1643 condemned several writings which appeared to them antimonian; and the parliament in 1648, in what ought to be called the Presbyterian persecutions, among other 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 assurance 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, like that of the other sects, is not well understood by our readers, we cite from an old English account of sects some of the peculiar opinions which were called antimonian 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 to in any other respect than as shewing what opinions it pleased some to attribute to others.


The antimonians are so called from their opposing and rejecting of the articles, which they say is of no use at all under the Gospel, neither in regard to direction, nor correction, and that of them as well as of the sect in the Church of Rome. They say that good works do neither further, nor evils 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. That murder, adultery, drunkenness, are sins in 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 Christians.

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 Antinoopolis, instead of Besa, its former name. Its remains exist under the name of Emsené. 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 ascendency. It still prevailed in the time of Valentine; but it was turned to account by the fathers 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 the remaining treasures of ancient sculpture, the busts of Antinous are also very fine. (See Xiphilinus; Bayle, Dict. Hist., and the authorities there quoted; also Whetstam, ii. p. 464, &c. French trad.)

ANTINOUS (Astronomy).—[See Aquila.]

ANTIOCHEIA (Arieádoú).—Commonly called Antioch, and Antaki, or Antakieh, a town in Syria on the left bank of the Orontes, 36° 12' N. lat. 35° 12' E. long., forty-six geographical miles west of Haleb (Aleppo), and twenty geographical miles west of the Seanderoon or Alexandria, on the gulf of the same name.

Silver, Hist. Mar.
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 present town was thus built and that the ancient was entirely destroyed. Sir W. G. B. Bawden has shown that the position of the ancient town is stated at about 10,000, but it does not appear to be well ascertained. It has no public buildings. The houses are chiefly built of stone, and covered with red tiles. The streets are narrow, with a raised pavement on each side for foot passengers. The bazaars 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 pottery, cotton cloth, silk twist, leather, and saddlery. 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 is described as 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 graceful poplars. The old town seems to have run from S.W. to N.E.; following its direction towards the Bab Boulos, or gate of St. Paul's, which leads to Aleppo, a part of the ancient pavement is observable. 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.

Antioch was founded by Seleucus Nicator, and named after Antiochus, a contemporary, which Antigonus had previously built near the site of the future Antioch, sunk in insignificance and disappeared before the city of Seleucus. Antioch became the residence of the Seleucidae, and its name is given to one of the largest 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. 750) describes Antioch in his time as containing 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 founder to 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 games of the circus and the amphitheatre were never discontinued; and yet it had 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 the residence of the Christian religion, which had been firmly established here by Barnabas and Paul; and here were 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 Crusaders, to which some suppose it was assigned as a wall or fort on the hill to the south of the city. Antioch, after it was taken by the Crusaders under Godfrey and Bohemond, (A.D. 1098), became a Christian principality under the European conquerors of Syria. The sultan Bajars, 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 the capital of the sultana, and the inhabitants 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 Pasha Aug. 1, 1822, but was subsequently restored to the Porte.

The neighbourhood of Antioch is peculiarly rich in medals and engraved stones: great numbers have been collected at different times after the earth has been laid bare by the plough, and some of the monuments of the Seleucidae, and next to them, those of the period of Julius Cesar and Augustus: one, of the date of Augustus, is given at the head of this article. Phcenician coins are also found in great quantities.

The last great Antioch was built by Halab, in 1822, extended also to Antioch and did some damage. (See Strabo; Manner’s Syria; 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 Antakhi or Bahur Agoul, which communicates with the Orontes.

Antiochus, a town of Asia Minor, where Paul, accompanied by Barnabas, preached the Gospel (Acts xiii.). It seems, that at this time Antioch had some Jews among its population. The position of this town is not accurately known, until it has been 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.

1. Antiochus, surnamed Soter, or Preserver, was the son of Seleucus Nicator, who after the death of Alexander the Great, undertook to raise Syria into an independent kingdom (see Antigonus). 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, having learned of his son’s disease, resolved to nurse 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 Macedon, B.C. 280, Antiochus succeeded to the throne and reigned nineteen years, during which few events of much importance occurred. He prosecuted his father’s claim to the kingdom of Macedonia against Antigonus Gonatas, son of Demetrius, and his own rights as husband, as king of a kingdom, by the 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 his new dominions, and Antigonus consented to marry 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 appellation 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 soon after, B.C. 261 (Appian, Syr., ch. xxvii.; Just. book xxviii.; Archaeol. Inst. 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. 250, under Ardashir, who succeeded ultimately 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 Tolemeny of Philadelphia, B.C. 252, by which he agreed to repudiate his wife Laodice, and to marry Berenice, daughter of the king of Egypt, setting this marriage by childless hands to the chagrin of his son-in-law, the Bactrian. These promises were fulfilled; but on the death of Tolemeny, two years afterwards, Antiochus restored Laodice...
to her conjugal rights, and in return was poisoned by her, n.c. 547, with the view of securing the succession to her eldest son, Seleucus Callinicus. He left another son by her; Antiochus, called 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 Schloesser's Remarks on the Reign of Antiochus II. Universal Historische Enzyklopädie. M.)

III. ANTIOCHUS, surnamed the Great, was the son of Seleucus Callinicus, and succeeded his brother Seleucus Ceraunus, n.c. 223, who was slain in battle while engaged in war with Attalus, king of Pergamus. Antiochus owed his safety and his throne to the honesty of his cousin-german, Achaeus; who, though pressed by the army to assume the crown, retained it in obedience to the request of the king, and by his fidelity, and by his attention. Thus was 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. Egypt, which was under the absolute management of Alexandria, had already profited by the weakness of the Seleucid dynasty; but under the able management of Achaeus, those provinces which had been wrested from the Syrians were recovered, and Attalus was again confined within the limits of his present kingdom. Antiochus was less fortunate in the choice of Molon and Alexander, two brothers, who were appointed governors of Media and Persia. Trusting to the weakness of a youthful reign, they forced the tribute of the Syrian empire, and by the violation of the treaties, and the depreciation of the currency, rendered their attention. Achaeus, who had formerly so signalized his fidelity, now found that his distinguished successes had excited jealousy, and that plots were laid against his life by the envious party. He Accordingly, he devoted himself to the provinces of Asia Minor, which he had recovered, and which had been entrusted to his charge. Thus shorn on the one hand, and by the intrusion of the king's discontents, on the south, where Ptolemy Philopator still held Cœle-syria and Palestine, which had been conquered by his predecessor, P. Euergetes. By the advice of his council, the young monarch turned his arms first against Egypt. He marched into Cœle-syria, and assisted by the defection of Theodotus, the governor of that province, gained possession of the greater part of it, including the capital, Damascus. The campaign was terminated by a truce for four months, to which the feeding parties consented. Antiochus, by the necessity of returning northwards to oppose Achaeus, who, not satisfied with his possessions in Asia Minor, aimed at extending them to the eastward of Syria, and Ptolemy Philopator, who 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 Cœle-syria 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. 218. At first, Antiochus carried all before him; he penetrated into Cœle-syria, forcing the passage of Mount Libanus; gained possession of Gallilee, and subdued the inheritance of the tribes beyond Jordan. But these advantages he lost in the following year in a great battle fought at Raphia, near Gaza. In which he was defeated and slain, with his father, and generally, and obliged to retire to Antioch with the wreck of his army. Cœle-syria and Palestine returned to their allegiance to Ptolemy; and the Syrian king, pressed at the same time by Achaeus, was compelled to sue for peace, and renounce all claim to the coast of Cœle-syria. Being now at leisure, Antiochus turned his whole attention to the destruction of Achaeus, whom he overpowered and put to death; Antiochus thus shorn of the administration of his empire was 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 four growing powers ventured to oppose him. Phœnicia, which he had obtained in condition of resigning his claim to the contested provinces. Being now at leisure, Antiochus turned his whole attention to the destruction of Achaeus, whom he overpowered and put to death; Antiochus thus shorn of the administration of his empire was again annexed to the Syrian empire, n.c. 213.)

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Antiochus, the son of him who established the Parthian empire, had overthrown Media while Antiochus was engaged in the wars against Ptolemy and Achaeus. He was unable to withstand the attack of Antiochus in person, and was soon driven out of his new conquest. The Syrian monarch, in turn invaded Phœnicia, and after several campaigns, a treaty was concluded, by which Arsaces 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 exiled Bactrians, with whom he had left an army, he crossed the mountains of Paropamisus (also called Caucasus) into India, formed a treaty of alliance with the king of that portion of the country, and directing his march homeward through this country, his two vassal kings, Callinicus, intermediate between the Indus and Persia, re-established the supremacy of Syria in those distant regions. He returned by Persia to Antioch, having been employed for seven years in these distant campaigns. This emperor, then, in the most splendid period of the Syrian monarchy, saw the revolt of Parthia in the reign of Antiochus Theos; and it was at this time that Antiochus had earned by his successes the most splendid title to the crown of Greatness.

Soon after or about the time of the return of Antiochus, Ptolemy Epiphanes, a child of five years old, succeeded to the throne of Egypt, (n.c. 205,) on the death of his father, Ptolemy Philopator. Antiochus and Philip king of Macedon united in a design to expel him, and share the Egyptian dominions between themselves. The unfortunate provinces of Palestine and Cœle-syria were the bone of contention, the favourite battle-field on which their more powerful armies were to be arrayed; the choice fell on Antiochus to retain possession of them in the course of two campaigns. On his being called away to Asia Minor, Judaea was over-run by Scopas, the Egyptian general; but it was soon reconquered by Antiochus, who, upon entering Jerusalem, found the temple un profaned, and the temple profaned, and the temple itself and every demonstration of respect; in return, he granted many privileges to them, especially ordaining that no foreigner should be permitted to demand access into the sacred precincts of the temple. In this victory he was crowned with unbroken success, and his own resources incompetent to wage war on two sides of his empire at once, and being anxious to recover all that had belonged to the first Seleucus in Asia Minor, Antiochus sent his son to beget a son for himself, and to give him the title of king of Syria; and the conquest of that success in the second Punic war, when Antiochus crossed into Europe, and wrested the Cilicians from the impious power of Philip. Jealous of this new interference in the affairs of Europe, the Romans sent ambassadors to require restitution, not only of all that Antiochus had taken from Philip, but of all that he had taken from Ptolemy, These guardsians, soon after his return, to the throne, had placed him under the wardship of the Romans, as a protection against the ambition of his Syrian neighbour. Antiochus replied to these requisitions in terms as haughty as those in which they were made; and it was evident that the quarrel would soon end in an appeal to arms. (See Polyb. xviii. 33.)

In the following year, (n.c. 195,) Hannibal, driven from Carthage, came to Ephesus to seek the protection of the king of Syria; and his demands were successfully treated with his value of his services, fixed the wavering determination of Antiochus, and induced him to match his strength against the rebuffed power of Rome. A period of negotiation elapsed, in which neither side was satisfied with the concessions or the extension, and neither probably was sincerely desirous of peace. It was both the misfortune and the fault of Antiochus, that he suffered his confidence to be alienated from Hannibal, no longer threatened in his affairs. In the winter of 192 n.c. Antiochus was invited by the Athenians to pass into Greece. He crossed over with an army, posted himself in the town of Demetrias, and was
The first events of his reign which require notice, are his hostilities with Egypt, which then reclaimed the provinces of Palestine and Coele-Syria, wrested from her by Antiochus the Great. In the first campaign, (c. 171.) he routed the Egyptians between Mount Casius and Pelusium, and took advantage of his success to consolidate the frontiers of Palestine against further aggression. Pursuing his success, in the next year he overrun all Egypt, except the strong city of Alexandria, and gained possession of the person of Ptolemæus Philomelos. In the same year he sacked Jerusalem, and profaned and plundered the temple, as related in Maccabees i. 1, and ii. 5; after which he appointed Philip the Phrygian governor of Judea. After the return of the curates of the temple, and 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 Ly鳃chis, in Thrace, and from the strong cities on the Hellespont, which he was at least to heighten the progress of the Romans for some time; and thus gave freedom to aaccess into Asia. Yet they had no sooner crossed the Hellespont, than, struck with terror, he sent ambassadors to endeavour to negotiate a peace. The terms he offered, though tolerably humiliating, were not such as satisfied the ambition of the Romans, who required that he should destroy all the expenses to which they had been put during the war, set at liberty all the Greek cities, and pay a indemnity of 20,000 talents, on the word 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, (c. 170) in the plain of Magnesia, 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 favourable to himself, yet such as must have been very galling to the haughty monarch, and hitherto successful conqueror. He was to resign the province of Mount Taurus; to pay 18,000 Euboean talents for the expenses of the war; to deliver up to the Romans his elephants and ships of war; and, a very disgraceful stipulation, to place in their hands Hannibal, and other foreigners who had taken refuge at his court from the hatred of those grasping and revengeful people. Hannibal, with another, preserved his safety by timely flight; the rest were delivered up, together with hostages for the observance 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 Jews, in a body, massacred him and his attendants, (c. 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 series of princes of 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; Appian, Syrac.; Liv. lib. 35, 37; Ralegh, Hist. of World; Anc. Univ. Hist., vol. viii.)

VI. ANTIΟΧΟΣ, surnamed Epiphanes, or Illustrious, the second son of Antiochus the Great, succeeded his elder brother Seleucus Philopator (c. 175 or 176.) Antiochus was, at the time of his brother's death, on his way from Rome, where he had been detained as a hostage for the observance of the treaty concluded with his father after the battle of Magnesia.
(so named from a Syriac word, signifying to hunt, according to some authorities, but more probably from the town of Side,) was a younger son of Demetrius Soter, and brother of Nicator. On the latter, who was expelled by A. VI. and Typhon, experienced various fortunes, and fell at last into the hands of the Parthians. A. Sidetes then married his brother's wife, Cleopatra, laid claim to Syria, and expelled Typhon. He lived (a. c. 103) in Cilicia, and died in his bed, it is said, by poison administered by A. VI. His reign was prosperous and tranquil, compared with the weak and turbulent governments of his immediate predecessors. He reduced many cities, which had taken arms, and expelled their regicides, among them Jerusalem (a. c. 134): and he engaged in a war with Parthia, which had profited by the distractions of Syria to usurp much of her eastern dominions. He defended Thraes, king of Parthia, in his battles, compelled him to withdraw within the limits of Parthia itself, and recovered all which had been wrested from Syria, except that province; but his life and reign were brought to an untimely close in a sudden onset made by the enemy upon his winter quarters. He perished, a. c. 129 or 128, leaving a fairer character for justice, generosity, and bravery, than belongs to most of the princes of this most profligate age.

VIII. ANTIOCHUS, surnamed Grypus, or Hook-nosed, from his nose, was the son of A. Sidetes. Syria was again distracted by civil wars. Demetrius Nicator escaped from Parthia, and resumed the crown; but he was soon deposed by Alexander Zebinas. Cleopatra, the wife subsequently of A. Diocles, his successor, regained some possession, however, of a portion of Syria; and Seleucus, her son by D. Nicator, regained some districts contiguous to those held by his mother, and proclaimed himself King of Syria. This raised her jealousy, and she murdered him with her own hand. Still thinking it necessary to have some one of royal blood to give countenance to the sovereign power which she was bent on acquiring for herself, she recalled from Athens, her son Antiochus Grypus, (named also Philoraetor, and, thirty years later, Antiochus Seleucids, a. c. 123.) Supported by Egypt, Grypus soon expelled Alexander Zebinas. Cleopatra then became jealous of him also; and, perished, being compelled to drink a poisonous draught, which she herself had contrived for her son. Grypus then reigned in peace for eight years; at the end of which a fresh competitor for the throne stood up in the person of his half-brother.

IX. ANTIOCHUS, surnamed Cyzicenus, from being educated at Cyzicus, the son of Cleopatra by A. Sidetes. After a sharp contest the brothers agreed to divide the empire, a. c. 113 or 112: A. Cyzicenus occupied Ctesiphon and Palestine; A. Grypus, the rest of the empire. Both led a dissolute and careless life, and several great cities, as Tyre, Sidon, and Phoenicia proper, were left to their sway without any semblance of a settled government. Grypus was assassinated, a. c. 96. A. Cyzicenus was deposed and slain by Seleucus, the son and successor of A. Grypus, a. c. 95. Seleucus perished, after a short reign, if a period of contest may be called such, of seven years.

X. ANTIOCHUS, surnamed Eusbeus the Pious, son of A. Cyzicenus, proclaimed himself King of Syria upon his father's death. For a time he disputed the throne with his cousin, Philip and Demetrius Eukeros, sons of A. Grypus: but (a. c. 88) he was compelled to fly to Parthia. He returned (a. c. 86). Eukeros being dead or banished: and while he was engaged in war with Philip, another Antiochus, surnamed Aiax, was said to have asked Seleucus' pardon. He was summoned to the throne by his father, and was in command of the Syrian forces.

The latter was soon slain in a war against the Arabs. After a brief period, the Syrians, wearied by the desolating feats of the Seleucid emperors, invited Tigranes, king of Armenia, to take possession of the country. Eusbeus then fled into Cilicia, (a. c. 83,) and passed the remainder of his life in obscurity. The events of this reign are very confused.

XI. ANTIOCHUS, surnamed Asiaticus, was the son of A. Cyzicenus, before he was of age. He was obliged to fly from Syria to make head against the Romans. A. Asiaticus gained possession of part of the kingdom, a. c. 69. He retained it for four years, at the end of which Syria was reconquered by Pompey. In the ensuing Roman province, a. c. 65. In Antiochus Asiaticus, the Syrarians lost their hope of independence, having ruled Syria for 247 years, reckoning from the time when Seleucus Nicator began his reign in a. c. 282. (For the chronology of the Syrian kings the reader should consult Clinton's Fonte Hellonici.)

ANTIOCHUS OF COMMAGNE. [See Commagene.]

ANTIPAROS, called also by the ancients Oleasros, one of the group of the Cyclades, 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 island within about 300 inhabitants. This is a fine, thriving, 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 grotto: the entrance to it, which is on the side of a rock, is by a low arch formed of rough hewn stones. Antiparos was, in ancient times, distinguished by many natural pillars. This passage continues about twenty yards, at the end of which is a precipice that must be descended by the aid of ropes, fastened to the masses of stalactites; after advancing a little further under a roof of rugged rocks, there is another descent, but not so precipitous as the last. Another passage about nine feet high and seven wide, whose walls and arched roof, composed of glittering white and red marble, are as smooth as if wrought by art, leads to a third precipice, the sides of which appear like a sheet of amethysts. Then follows a sloping passage of about 200 yards, on each side of which the petrifications assume the appearance of a ragged curtain partially drawn, with a cloud of smoke issuing from amongst them. The fourth and last descent. At the bottom of this is the grotto 120 yards long, 113 wide, and 60 feet high; it is an immense arch of white marble, from the roof of which depend stalactites, which are so impregnated with a thousand feafoats 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-four feet high. It was this pyramid of stalagmite that served as an altar when M. de Noel visited the grotto, and celebrated mass on it. When lighted up, the whole presents a most brilliant and magnificent scene, but the smoke from the torches of the numerous visitors was too much for the air, and it soon diminished its effulgence. In some places the stalactites have partitioned off portions of the cavern into cells. The difficulty of reaching the grotto has latterly been much diminished by the provision of rope-ladders, torches, &c., for which the guider demands a small demand on the purse of the traveller. It is not certain that the extremity of the grotto has ever been explored. The highest point of the island is in 37° N. lat., and 29° 3' E. long. (See also Tozéfourt's Voyage au Levant: Encyclopædic Method. Géog. 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 Aristotel, and himself a philosopher of marked distinction. When Alexander left Europe for Asia, he entrusted the government of Macedonia and the regulation of Greece to Antipater. During the year a. c. 321, an attempt was made by Lacedemon, Achaea, Eleus, and the greater part of Arabia, to deliver themselves from the Macedonian domination. Antipater, marching into Peloponnese to quell the disturbance, was met by Agis, king of Lacedemon: and a battle ensued in which the latter was slain, and his army defeated and broken. The victor summoned a congress to meet at Corinth, at which a fine of 120 talents was imposed upon the Eleians and Achauans; the Lacedemonians were obliged to submit at discretion, referring their punishment to the decision upon the question. It does not appear that any severe measures were taken against the Eleians.

Well acquainted with the dangerous temper of his master Olympos, Alexander had abstained from allowing her any share in the administration of Macedonia during his own absence. She did not bear this exclusion patiently, and succeeded in raising jealousies between her son and Antipater, insomuch that Alexander determined to remove his vicerecy to a less independent situation. Shortly before his death he placed Antipater in command of a large body of Macedonian veterans who had earned their discharge; and commissioned him to assume the government of Macedonia, while Antipater was ordered to conduct fresh levies to Babylon. A. Antipater was such a man, and was such a man's friend that 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 Antipater, by means of his sons Cussander 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: he reached Greece. The late king's brother Archelaus, a bastard son of Philip, was raised to the throne by the Macedonian generals, and the army in Asia; and Perdiccas was viceroy over the king, who was a young man of weak intellect, with the same sort of power as the Maires 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, converted into separate and independent kingdoms, Antipater was assigned the Thessalians, and almost all the Greeks of the Isthmus, except the Boiotians; and of Peloponnesus, the Argolians, Eleians, Messenians, and Sikyonians. Leostenites, the Athenian general, posted the allied army at Thermopylae, the Boiotians sent a demand of reinforcements, which Antipater, for fear of the Persians, was not prepared to supply. 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 not been prepared. Leonnatus, one of Alexander's generals who had obtained the satrapy of Mydia, otherwise called Hellestponge Phrygia, was the first who came to help Antipater. The Hellenes (as Diodorus says) made some headway in the siege and marched to meet Leonnatus; a battle ensued, in which the Macedonians were beaten and their general killed. Meanwhile Antipater evacuated Lamia, and formed a junction with the defeated army; by the help of which 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 able to forget the defeat at Thermopylae, and to advance by the return home of a considerable part of their ill-armed army, could only muster 28,000 men. An indecisive battle ensued, in which the excellence of their Thessalian cavalry overbalanced the superiority of the Macedonian infantry. They sustained a complete defeat; but they felt their inferiority too much to risk another encounter, and sent to treat of peace with Antipater. This, called the battle of Cheron, occurred in August, a.c. 322. Antipater refused to treat with the confederates collectively, but expressed his willingness to come to terms with them severally. This policy was justified by the event, for though the Greeks refused at first to disolve the alliance, yet the several members of it dropped away one by one. Antipater was 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 Grecian warfare; for he only required two obnoxious persons, the orators Demostenes and Hyperides, to be delivered up, and granted his terms of peace to all the rest. Antipater gained a considerable victory over 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 their own consent) into Thessaly, where lands were assigned them. Thus ended the Lamian war, as it is called, in the autumn of a.c. 322, the year after its commencement. Antipater returned to Macedonias

The Aetolians were the only members of the confederacy who still held out. In the same autumn, Antipater and Craterus marched against them. They abandoned their indefensible towns; deposited their women and children in their rugged mountains; and collected their able-bodied men, prepared to hold out in their fortresses, and in those cities which were capable of being maintained. In the first encounters the Macedonians sustained considerable loss; but the superiority of their forces was so great by degrees, that they broke the Aetolians, 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 almost reduced to despair, 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 had 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, fathoming his designs, fled hastily to Antipater, and apprised him of the danger to which he, in common with others, was exposed. To check Perdiccas in time was more important than to punish the Aetolians; and consequently, after concluding a treaty of peace with the brave mountaineers, Antipater and Craterus left their army and separated: Craterus took the field against Eumenes, a trap of Cappadocia and Phrygia, by whom he was defeated and slain; while Antipater marched into Cilicia, where he met Perdiccas, of which nation he was supposed to have been slain in Egypt; and the Macedonian troops, after a short interval, elected Antipater to the office of regent, or protector. These transactions seem to have been in a.c. 321, but they soon after came to an end, 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's son and queen, and receiving the salute of a king and Antigonus to conduct the war against Eumenes. This seems to have been in a.c. 320.

Antipater held the regency undisturbed till his death, which took place in a.c. 319, which was a fateful year for him, except that he fell into a dangerous illness, and that one of his last actions was to put to death the orator Demades and his son, who had been sent ambassadores by the Athenians to request that the Macedonian troops might be removed from Mynchus. Demades had always been on good terms with Antipater, till the Macedonian found, among the papers of Perdiccas, letters written by the orator, extolling Perdiccas to carry the war into Europe. The regent had scarcely read them, and was so incensed against Demades, but merely made a signal to his ministers of punishment (ρατί γεγονόντος ίνα ταῖς γραμμαγίας, who put the ambassadors to death without further ceremony.

Dying soon after the saves had been made, Polyperchon, one of the oldest of Alexander's surviving generals. He appointed his son Cassander to be chionarch,—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 that kingdom. The last advice which Antipater gave to his son 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 his eighty-first year, having enjoyed a high reputation for his talents and military abilities, and leaving a character less stained by cruelties and excesses than most of the contenders for empire who sprang up after the death of Alexander. (Diodorus, book xviii, &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 leave him. He did this, and stuck to his own wife. When Caesar, in return, obtained for him the citizenship of Rome, and appointed him to the administration of Judea, which enjoyed tranquillity and prospered under his care. He was poisoned by a Jew named Pater, who was his own freedman, as is mentioned in the history of his crimes 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 left four sons, all of whom were known in history, Phassael, governor of Jerusalem, and the infamous Herod, king of the Jews.

These are the two most remarkable persons bearing the name, but it is one that occurs in ancient history. Moret us articles upon eighteen.

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

ANTIPATHY, (from the Greek antipathos, compounded of ἀντί contrary, and πάθος feeling,) properly signifies an involuntary dislike or aversion entertained by an animal being for some sensible object. Thus a man may have an antipathy to particular smells or tastes—a turkey-cock to the turkeys with which he is used to eat—a horse to the smell of a cow. 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 to the nome of nutmegs and cloves. Many much nastier 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 subject. Some natural aversions eat away, the same thing seems to happen as it is the Esquimaux, who live on whale blubber and train oil. When the Cossacks were in London and Paris, in 1814, they sometimes drank the whale oil from the lamps in the streets; probably an Esquimaux, or a shipwrecked man would nauseate in 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 pleasurable: 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 former impressions of their being hurtful or dangerous to man; 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 afraid of them or avoid them when other persons are not affected by them. 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 be- cause they are unfashionable, as being eaten by people whom they think less refined and delicate than themselves. This may not unfrequently be observed in persons of lower rank and taste, and more especially in children, in 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 more frequent than it is; and it is generally applied to objects of this kind; 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 afraid of them or avoid them when other persons are not affected by them. 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 unfashionable, as being eaten by people whom they think less refined and delicate than themselves. This may not unfrequently be observed in persons of lower rank and taste, and more especially in children, in 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.)

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hurtful. (See the case of a physician mentioned under the
diagnosis of much, or carcinous, i.e., those
cases in which the effusion is stopped, or which do 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, modern
physicians have asserted that mercury, especially in
combination with opium, has a powerful influence, not
only in preventing the effusion of lymph, but in removing it
when once formed. If the system be vitiated, as when, in the inflamed 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 an
impossible combination of the disease.

Purges.—The quantity of blood in the system, and
the amount of serum, may be greatly lessened by the use of
purgative medicines, especially the saline purgatives, which
generally produce very liquid motions, consisting of a large
proportion of serum. These are not only proper, but con-
stitute an essential part of the antiphlogistic treatment.

Nauaeants, i.e., such doses of emetic medicines as oc-
sasional. Their effects are, to produce vomiting, to reduce the
action of the heart, and lessen the tendency of effusion, while they promote the absorption of the fluid already
effused. They are, consequently, very valuable auxi-
liary agents in subduing inflammatory diseases.

In the muscular system, all usages, which diminish the
power, and its activity, by diminishing the respiration, or discharge from the skin, which in most cases of inflam-
lation is increased, and in some altogether suppressed. By
this diminution of or suppression of perspiration not only more
blood 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 diaphre-
tics, and the use of the diaphoretic powders or tissues pro-
duced the desired effect, if there be much heat of surface, i.e., of the skin.
This means of perspiration was naturally employed in the
sickness, in which the disease was solely produced by a
rheumatic fever, which occurs less frequently than in a more upright position; the heart also pulsatles less frequently. In every case of inflammation,
affecting the system generally, the patient should be con-
finned to bed; and as there is mostly diminished power of
the respiratory organs, fatigue is produced, and quickens the circulation. Besides this, the air is vitiated by the respi-
ratory organs of the system. 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 an essential part of the cure of the disease.
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 prac-
ticable, he may be inspired with confidence and entertain
hopes of recovery.

This is a very brief outline of the means termed anti-
phlogistic, 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 en-
dower upon every one a conviction of their impor-
tance. The undermentioned medicines 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.

ANTIPHON, the son of Sophilus, and the oldest of the
Athenian orators, who are generally known under the
denomination of the ten, belonged to Rhamus, a demos
or town of Attica, and was born about B.C. 460, 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 Thucy-
dides, the historian of the Peloponnesian war, who, in a pas-
sage of his eighth book (chap. lxviii.), has commemorated his
learning and abilities, and recorded almost an incom-
pletely trustworthy event in his life. The opinion that
Thucydides was the master of Antiphon appears to us
untenable. (See Van Spann). It was the profession of
Antiphon to write speeches for persons who had either 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 took
them up except on one occasion, when he was himself concerned.
According to several authorities, he is the oldest writer who
composed speeches for the courts of justice; no speeches
of this character exist before the time of Antiphon (B.C.
dorus, Photius, &c.) There is no distinct proof, that is
satisfactory, of his being early engaged in public service.

Q 2
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, at least during the Peloponnesian war. It has been conjectured that he is the archon Eponymus, or chief archon of Athens (Ol. xc. 3, or H. 418) mentioned by Diodorus (xii.) In the year B.C. 411, and in the latter part of the Peloponnesian war, a mutiny of the Thirty, instigated by which the hundred, was abolished, and all political power was vested in a body of four hundred. [See Alcibiades, i. p. 279; Peloponnesian War.] Antiphan, who never had come forward as a public man, did not abate his determination 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, Antiphan and Phrynichus with ten others were sent to Lacedaemon to make peace on any terms tolerable. The confidants of Antiphan went out 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, Antiphan, 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 quoted by Cæcilius in the Life of Antiphan, attributed to Plutarch) was to die on a bridge, and his body was pulled down, and the site was marked by stones bearing the inscription. Antiphan the Traitor. Antiphan, says Thucydides, was inferior to no Athenian of his time in virtue; he had never been the protectors of any person, or the most equal talent in expressing his conceptions. It is singular that Thucydides says nothing about the sentence or the death of Antiphan.

Two autopsies differ the 96th or 12 hours; if we reckon the meridian round the globe; but if we use east and west longitude, the two longitudes must together make up 180 or 12 hours, one east and the other west. For example, the autopsies of a point in 22° north latitude and 60° east longitude, are in the Bermudas and Quito, or at the San Juan River. The Bermudas are a very pleasant place; the San Juan River, pleasant as it is, has one drawback, is that the water is salt. The Bermudas 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 is the shortest, and the shortest day is the longest. We here insert, 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>Netherland</td>
<td>Falkland Islands</td>
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<tr>
<td>Nanking</td>
<td>Buenos Ayres</td>
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<tr>
<td>Mouths of the Amazon</td>
<td>Moluccas</td>
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<tr>
<td>Bermudas</td>
<td>Swan River, Quito</td>
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<tr>
<td>Quite</td>
<td>Middle of Sumatra</td>
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<tr>
<td>Lima</td>
<td>Siam</td>
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<tr>
<td>Timbuctoo</td>
<td>Friendly Islands</td>
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<td>Azores</td>
<td>Botany Bay</td>
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<td>Spains</td>
<td>New Zealand</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 is the shortest, and the shortest day is the longest. We here insert, 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 confidence. By the order of Archibald Winchile, master in 1305, every church in the province of Canterbury was obliged to be furnished with an antiphonary, among other equally expensive books; and Spelman states, that in 1424 two antiphonaries cost the little monastery of Cathedral 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 at not less than 100l. of our present money.

ANTIPHONY, (music, (as alternately singing,) the ancient 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 first revealed to them in a dream, and which taught 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 ancient Antiphony.

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 establishment of the roundness 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 Fidei Scripturis, cxxi., may be summed up in a fragment 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 hang down? Is it not enough that we 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 confidants of Antiphan enter upon the words upwards and downwards will be now universally apparent, but was not so in the time of Lactantius, who lived a.d. 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 asserts that he can prove the thing to be impossible, and those who expose an inexact, or 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 antipodes in the equator, to effect any point on 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 360°, or 12 hours, if we reckon the meridian round the globe; but if we use east and west longitude, the two longitudes must together make up 180° or 12 hours, one east and the other west. For example, the antipodes of a point in 22° north latitude and 60° east longitude, are in the Bermudas and Quito, or at the San Juan River. The Bermudas 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 is the shortest, and the shortest day is the longest. We here insert, in opposite columns, the names of a few places which are nearly antipodal.
would have been had it remained stationary. Before he reaches the antiques, 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 the Royal Society has sent it, and upon 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 geographical position he had traversed from the east. And Veraminus, a Dutch physician, who travelled in the east about A.D. 1670, states that the Portuguese at Macao were always a day in advance of the Spaniards at 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 an opportunity for so doing, and I believe that such an addition would not crowd any part of the map too much.

**ANTIQUARIES, SOCIETY OF.** Mr. Gough, in the introduction to the Archaeologia, fixes the period within which the society was 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 Archbishop Parker and Sir Robert Cotton, united their efforts to establish an academy within the kingdom, to consist of those persons who, by their studies and researches into the antiquities of the country. The members met for near twenty years at the house of Sir Robert Cotton, and as early as 1590 determined to apply to Queen Elizabeth for a charter of incorporation; a petition for the same purpose, drawn up by 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 archbishop of the liver of the Core, 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 L. alarmed for the arena of his government, and as Heere conceived the Exeter blished 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.

In 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 our national antiquities, met to bring together for the same purposes as the former society, on a Friday evening, at the Bear tavern in the Strand. Among these were Humphry Wanley, Mr. John Talman; John Bagford; Mr. Le Neve, Norroy; Mr. Holmes, the keeper of the Tower records; Madox, the Exchequer antiquary, Mr. Batteley; Mr. William Eistob; Riebling, 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 Roger Gato, Dr. William Stukeley, Mr. T. Kyme, Browne Willis, and Anesta. 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 Humphry Wanley.

In 1711 the society was re-founded, their society, and made their first election of officers; Peter Le Neve, Esq., was president, Dr. William Stukeley, secretary, Mr. Samuel Gado, treasurer, and Mr. John Talman, diaries to the society. In 1715 they were incorporated by Act of Parliament, and the keepers of the Tower and the Exchequer 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; when it was resolved that every year the members should 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, extracts, or even memoranda; a few produced dissertations. In 1727 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 Close of Parliament. In 1731 it was determined to remove 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, by an act of the common council. The plan of 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 President, Council, and Fellows of the Society of Antiquaries of London; they were empowered to form 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, and 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 1753 the society moved 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, appropriate apartments. The Antiquaries held its first meeting there on 1st January of that year.

The anniversary of the society is held on the 23rd of April, when ten of the twenty-one persons of whom the council is composed, are elected 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 the president, the members of the council, and judges, who may be proposed by a single member, and balloted for upon the same occasion. The election is determined by a majority of two-thirds. Every member pays an admission fee of eight guineas, and a subscription of forty guineas a year; or 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, and 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 1753 the society moved 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, appropriate apartments. The Antiquaries held its first meeting there on 1st January of that year.

The Royal Society's meetings succeed those of the Antiquaries on the same evenings; and the sessions of the two societies coincide as to time. The council meets the first Thursday in November, and ending with the third Thursday in April. The total number of members of the Society of Antiquaries, A.D. 1835, is 753. The presidents, since the incorporation of the society by charter, have been:—1751, Martin Folkes, Esq.; 1753, Hugh Wriggly, of Parlaim; 1755, Charles Lyttleton, LL.D., Bishop of Carlisle; 1758, 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 passed 5 Geo. IV, cap. 35, the President of the Society of Antiquaries is the time being is declared to be an official trustee of the British Museum.

The publications of this society as a body have been:—


Besides the works above-mentioned, the society has published over its Social prints of large sizes, accompanied by five historical dissertations. The prints are 1. Le Champ de D'Or; or, the Royal Interview of Henry VIII. and Francis I. between Guises and Arden, A.D. 1520. 2. Francis I and the English King, A.D. 1537. 3. The Procession of Henry VIII. at Dover, 1520. 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 Encampment of King Henry VIII. at Montreuil, July 1544. 7. The Journey of Boulogne by King Henry VIII. 1544. Also two sets of historical, and some miscellaneous prints, (including Aggas's Plan of London,) engraved by Mr. George Vertue, now the property of the Society; with a portrait of Sir John Hawarden, and some views of the Ruins at St. Alban's in Oxfordshire, drawn and etched by Simon Earl Harcourt.

ANTIGUETIES, (from the Latin antiquus, antient,) a term used in the English language to designate old works of art. But this definition may be objected to as not sufficiently precise (see ANCIENTS). The term properly refers to works of Grecian 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 the Greeks,) it is not possible to find any precise chronological limits that shall determine whether a work of art belongs to the ancient or modern department. Still, as there are so much of the Empire 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 were acquired and preserved under the name of antiquities by the term antiques we understand, in general, works that have deserved merit, 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 of deserving study.

ANTIGUITIES. This term seems not to have its meaning very accurately fixed in our language. It is sometimes used as synonymous with antiques; but generally it has a wider signification. Books that treat of the 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 antiquity. But these are not the province of antiques.

This extensive signification of the word antiquities, though certainly not very precise, still keeps up a distinction between antiquities, as thus understood, and the political history of the Greeks and Romans, and the study of the Greek and Roman language, which we find the common use of the word antiquities in this country 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 may include all that is not contemporaneous with ourselves, comprehends; such as ancient forms of polity, ancient systems of philosophy, of astronomy, with political history, antient architecture, sculpture, poetry, &c.

With our 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, Mexican, and African 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 personal, are terms, or terms of art, understood of the history, mythology, &c. But unless some qualifying word is prefixed to the term antiquities, we generally understand by it, Greek and Roman antiquities.

ANTIS, [See ANCIENTS and ANTIQUITIES.] ANTIS. A porcio 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. If in the plan of the temple of Aegina [see Aegina] the external parts of the style or surrounding corona columns were removed, the pronos and opisthodomus, as there indicated, would be porticoes in antis,—not porticoes. There is a very good example of the portico in antis in North-Audley-street, London, forming the front of the house of the Earl of Exeter.

ANTISCHI, 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 number of persons, or even of nations, and during the whole year, to any two persons, neither of whom lives within the tropics, and both in different hemispheres.

ANTISCORBITICUS, from anti, 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 have different appearances. The one 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 or diseases, improperly termed scurvy, or desquamation, or some other affection of the skin, is an essential and invariable symptom, the portions or scales of which being commonly called scurf, the adjective scurvy has insensibly come to be used as a synonym for scurf, even when applied to diseases having 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 numerous and generally very inefficient. Such a 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 this country, would justify a very strengthened 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, 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 stated it to be consistent with his personal knowledge; that 10,000 men had been lost at sea from this disease 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, only one person was capable of duty, the rest having often times fallen a victim to it, and the ship been left without a single hand to guide it through the waters. This happened
In the case of the Spanish ship Oriflamma, 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 1779, there were 263 cases of disease, of which scurvy formed 145; whereas, during three years, namely, 1806, 1807, and 1808, and 1809, into the Royal Naval Hospital at Plymouth, there were admitted under the care of the physicians, 8143 cases of disease, of which scurvy formed 745,000; of these, 1806, 1807, and 1808, there were 1,053,076, of whom there were sick only 123,949, a difference mainly owing to the disappearance of scurvy.

Let us inquire what were the causes which produced this dreadfulness, 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 is proper to give a short detail of the symptoms. Under the influence of this distemper, an individual began to lose his natural and healthy colour: the skin, at 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, became very white. The skin, sometimes, assumed a greasy, oily appearance, and this uneasiness in this disease is always very much depressed, indicating a corresponding state of mind. The patient is conscious of weakness, and is averse to exertion; and when that of a bodily kind is attempted, his uneasiness for 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 exertion, and sometimes the difficulty of taking an adequate expiration, the blood has escaped from the vessels, which is the cause of these stains. The limbs become dropical, the gums spongy and swollen; ulcers or any sores, cuts or scratches, bleed profusely, and cannot be 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 coagulates, 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 alteration 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 construction of ships was formerly such, that the sailors 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 strewn 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 insensible to personal cleanliness, were unprovided with soap, 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 that were adopted in the Royal Hospital at Spithead, and 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 fifty-two degrees north to seventy-one degrees south, was he the survivor. For this, in the year 1782, he received from the Royal Society the Copley medal. (See Kippis's "Life of Cook," 1758, p. 315.)

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 proper allowance of soap to each sailor—these debilitating causes no longer exist, or are rendered powerless.

Another cause of debility was either excessive fatigue or deficiency of proper and regular exercise; the former cannot always be avoided in the case of much bad weather, when the labour of all bands is increased, and great sickness among the crew, which requires more exertion on the part of the healthy. But deficient exercise can always be avoided by the officers finding employment, or inventing means of exercise for the crew, and officers of the Royal Navy, who, having less active duty in the ship, were the most frequently attacked by scurvy. Intemperance also greatly contributed to prepare the system for a scurvyetic attack, but this vice is too much reprehended.

None of these causes singly, nor indeed all of them combined, are adequate to produce scurvy, unassisted by some specific cause, which cause is to be found in the diet. The diet of seamen during long voyages was formed of a mixed diet of salted meat and biscuit; fresh animal food or recent vegetables formed no part of it. It was also often deficient in quantity.

Salt, if taken in moderation, facilitates digestion, but if in excess, hinders the digestion of the food, even of fresh meat and vegetables; when employed as a means of preserving meat, it hardens it, and impairs its nutritive power, as well as renders it more difficult to digest. Such meat is less likely to be digested, and the long-continued use produces what may be termed the stefunctio inflammation, owing to which old wounds and ulcers break open, and fractured bones separate after re-union. The salt alone produces, not only the first, but by lessening the nutritive power of the meat; and secondly, by its stimulating properties. The former of these, unaided by the latter, is sufficient to produce scurvy, if the predisposing causes of cold, moisture, and imperfect or excessive exercise be in operation. The diminution of the quantity of food, and not its quality, was the principal exciting cause of scurvy in the Millbank Penitentiary in 1819.

In what way the absence or inadequate supply of fresh vegetables operates has not been ascertained. That the deficiency of this article of nutriment has a large share in producing scurvy is established by the facts, that before the extensive introduction of excellent vegetables into Britain, scurvy was almost as common on land as at sea; and also by the rapid disappearance of scurvy from among the crews of ships, so soon as they procure a supply of vegetable articles of diet of any kind, but more particularly those belonging to certain tribes of vegetables,—as the besperandi or aurantiaces (the orange tribe), the grossularidacea, or goose- berry tribe, which are all acid vegetables; and the cruciferae, mustard tribe (including the mustard oil, mustard seed, rapeseed, bran; turmeric; horseradish, etc.), and the well known scurry-grass, which are alkalosecent vegetables; the confers, some of which yield spruce; &c.

These vegetables, or the articles prepared from them, constitute the antiscorbatics, or means of preventing and curing sea-scurvy; but they are not all of equal value, some far surpassing the others in efficacy. These are the least valuable in which no vegetable acid greatly predominates, so as to impart to them an acid or acridulous taste. Hence the cruciferae are not so useful in their natural state, as the name of scurry-grass, bestowed on one of them, would seem to indicate; but when by their fermentation, as that of the cabbage, asparagus, black radish, mustard (the juice is prepared) and the well known scurry-grass, which are alkalosecent vegetables; the confers, some of which yield spruce; &c. are added to them, or the articles prepared from them, constitute the antiscorbatics, or means of preventing and curing sea-scurvy; but they are not all of equal value, some far surpassing the others in efficacy. These are the least valuable in which no vegetable acid greatly predominates, so as to impart to them an acid or acridulous taste. Hence the cruciferae are not so useful in their natural state, as the name of scurry-grass, bestowed on one of them, would seem to indicate; but when by their fermentation, as that of the cabbage, asparagus, black radish, mustard (the juice is prepared) and the well known scurry-grass, which are alkalosecent vegetables; the confers, some of which yield spruce; &c. are added to them, or the articles prepared from them, constitute the antiscorbatics, or means of preventing and curing sea-scurvy; but they are not all of equal value, some far surpassing the others in efficacy. These are the least valuable in which no vegetable acid greatly predominates, so as to impart to them an acid or acridulous taste. Hence the cruciferae are not so useful in their natural state, as the name of scurry-grass, bestowed on one of them, would seem to indicate; but when by their fermentation, as that of the cabbage, asparagus, black radish, mustard (the juice is prepared) and the well known scurry-grass, which are alkalosecent vegetables; the confers, some of which yield spruce; &c. are added to them, or the articles prepared from them, constitute the antiscorbatics, or means of preventing and curing sea-scurvy; but they are not all of equal value, some far surpassing the others in efficacy. These are the least valuable in which no vegetable acid greatly predominates, so as to impart to them an acid or acridulous taste. Hence the cruciferae are not so useful in their natural state, as the name of scurry-grass, bestowed on one of them, would seem to indicate; but when by their fermentation, as that of the cabbage, asparagus, black radish, mustard (the juice is prepared) and the well known scurry-grass, which are alkalosecent vegetables; the confers, some of which yield spruce; &c.
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, is not so efficacious in its doses, nor anthocyanic, or tartaric, or malic, so useful, though the fruits containing them (unripe gooseberries, tartanberries) are the best substitutes for lemons, when these cannot be procured.

For on this fact, I have 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 best refixatives in 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 intemperance, especially from the abuse of spiritsuous liquors, in which tartaric acid is eminently 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 vest; hence the practice of serving the table, as of old, with a little of these acids. If the salt has rendered the meat hard and difficult of digestion, may not these acids produce some change in it, rendering it less so by their chemical properties, as well as by their general action, heightening or increasing the activity of the stomach, and consequently the power of extracting the nourishment? Some local effect is produced by the direct application of lemon-juice, as slices of lemon placed on the ulcers hasten the healing processes. Mineral acids, such as elixir of vitriol, are found less useful, though they and other strengthening medicines, such as sulphate of quinine, may occasionally prove serviceable, when lemon-juice is wanting, or fails in effecting a cure, which would be otherwise successful; an instance occurred in 1822, on board his majesty's ship Leander, where, however, probably some undiscovered cause of scurvy existed about the ship; for wo cannot suppose the want of success to have depended on peculiarity of constitution where so many men resisted the curative influence of the medicine. (See also Bamffeld on Tropical Dysentery.) Chloride of soda appears to have some claim to a favourable regard; but at present we have too little experience of it, and of this respect, to speak positively of its antiscorbutic power.

In addition to the lemon-juice, ships intended to be sent on long voyages are supplied with animal food so prepared, as to last the men as long as the voyage, as it is all killed but a few days and dressed the day previous to its being used. This valuable discovery, which tend so greatly to lessen the inconvenience of a seas-life, as well as to secure the health of those devoted to it, was made by Mr. Appert; the mode of effecting it, and the principle on which it depends, will be explained under Antiseptics. After every fair degree of merit is assigned to other means and articles, the main instrument of banishing scurvy from among the number of diseases incident to a sea-life has been the liberal use of lemon-juice. The nation owes a deep debt of gratitude to those who effected its universal introduction into the naval service, and who yet further to the beneficial effects of this discovery; these are Eari Spencer, who was first lord of the Admiralty in 1795, and the benevolent, and now venerable, Sir Gilbert Blane, physician to the fleet, and at the head of the Navy Medical Board in 1795. But for their exertions our navy could not, during the twenty years of the war which followed that date, have achieved those victories which have rendered our country so illustrious. Had the mortality in the navy, throughout these twenty years, been equal to the prevalence of scurvy, as it was in 1799, so many lives of our men of war, who now live to such an age, would have been exhausted. (See paper on the comparative health of the British navy, by Sir Gilbert Blane, in his Select Dissertations on Medical Science, London, 1822; also in his Virtuunts of the Navy, a Medical Statistical Paper."

The historian of Anon's voyage, speaking of scurvy, says, 'the cure seems impossible by any remedy or by any management that can be employed.' In the present day, instead of the remedy being unknown, it is, happily, the disease; a fact which suggests the most important subject for contemplation, and justifies the reflections and language of Sir Gilbert Blane; 'does it not afford a cheering and consolatory prospect, amidst the thousand shocks that flesh is heir to, that there may be still in store for us, in the boundless procession of unknown changes, possible hints of the hidden means of advancing human happiness, of mitigating human misery, and of making accessions to the dominion of man over nature which have not yet been dreamt of, and which we have not yet learned to explain.'

The other diseases to which the name of scurvy has been impropertly given, and some of the remedies for which are termed antiscorbutics, have no connexion with sea-scurvy, and their remedies are often at variance with it. They are, in other words, more or less connected with a scrupulous constitution, to which are owing the disordered functions of the digestion, whence these erupions spring. Acidity in the stomach is a concomitant and characteristic symptom of these diseases, for the cure of which vegetable acids are unavailing, though the mineral acids, by their strengthening virtues, are often serviceable. These so-called scurbutic affections are of very frequent occurrence among persons subject to gravel and gout, which is, at the commencement, caused by acidity in the stomach; the appropriate means of cure for both complaints are alkalis (see Antacide), the very opposite of the means useful in true scurvy.

For the name of antiscorbutics, and intended for these cutaneous diseases, though varying in their composition, mostly contain, as their active principle, some preparation of mercury, often a very poisonous one, which is always hurtful in sea-scurvy, and can only be serviceable in sea-scurvy when it is less poisonous. A remedy which requires the greatest caution, directed by the utmost skill; the employment of such articles should, therefore, be carefully avoided.

Antiseptics, from anti, against, and epito, to putrefy, the means of preventing those changes in organized matter which are comprehended under the term putrefaction. All organized bodies consist of different materials, their specific properties and characteristics, these again are formed by the union or combination of certain ultimate principles. An organized body, therefore, is always a compound one, and the tendency of its original or natural proximate principles to form others, and, at last, to be resolved into the ultimate elements of which they are formed, is the occasion of putrefaction, which takes place in all bodies, sooner or later, according to the circumstances in which they are placed. To give an example of each: flour, prepared from wheat, which was once green grass, and is called a seed, contains two proximate principles, gluten (bird-lime) and starch; each of these is resolvable into definite combinations of what are termed simple or elementary principles, namely, hydrogen, carbon, and nitrogen. The first or proximate principles are only met with in organized bodies; the latter equally in organized and inorganic matter. Oxygen, for instance, forms a portion of the air which we breathe, and also of water; hydrogen forms a portion, or is an element, of water; nitrogen is found in the atmosphere and carbon exists in the diamond, in the charcoal obtained from wood, or from animal matter.

All organized bodies spring from parents similar to themselves, possessed of, or endowed with, a vital principle. Every such body possesses the power of assimilating itself to the other organic or inorganic elements which it finds around it; a power of transformation, which is the source of all life and nutritive force. When this principle is weak, or does not act with sufficient energy, either through the whole frame or in any particular part of it, the elementary principles manifest a disposition to exert their ordinary affinities, which would lead to the decompo-
sation 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, as is often the case after a stroke ofapoplexy, or when a disease 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 putrescence is the process by which the vital principle 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 they were termed putrid fevers, and were conceived to be caused by putrid fluids, under certain uncommon and the prevalence of the humoral pathology. But more correct views of fever have taught us that the changes in the fluids, both as respects their properties and chemical constitution, and the putrefaction of the humors, although it is completely thrown into the system, resulting from the impression of a powerful mofifte agent on the nervous or circulatory systems. This impairs the vital force or energy of the frame, and lessens the power by which the chemical affections were controlled: and hence the early tendency to putrefaction in persons affected with fevers of a typhoid type or character.

The complete departure of the vital principle is not sufficient to bring about a commencement of the processes of putrefaction: the concurrence of several other circumstances is necessary. These are air, heat, and moisture: if any one of these be wanting, decomposition will in general be prevented. If the air has an unchanging composition putrefaction will be greatly increased; and, on the other hand, impregnating the air with certain other principles, greatly lessens the disposition to decomposition. These circumstances have so large a share in the production of disease and death, that a thorough understanding of them is of vast importance to the welfare of the community.

Air. - The atmospheric air, considered in reference to its chemical composition, is a mixture of nitrogen and oxygen gases, in fixed and uniform proportion, with carbonic acid gas in a small and variable proportion. But close to the surface of the earth, it receives an admixture of particles or principles of different kinds, by which it is contaminated, and rendered less fit for the support of animal and vegetable life. By the expiration of animals, particularly of warmblooded animals, as man, a portion of the oxygen is withdrawn, and a corresponding portion of carbonic acid gas is substituted in its place. By the respiration of plants, the carbonic acid gas is withdrawn, and an equivalent portion of oxygen substituted. By the mutual action of the two, there is formed a sort of animal and vegetable 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 will be produced so destructive. Hence, when there are 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. Tires crowded together in plantations suffer more from deficiency of carbonic acid and oxygen, both of which are required for respiration, than from deficient nourishment 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 possesses a small beach, how the animal life, by the aid of strength from the purity of the air, which abounds in oxygen, vegetable life languishes from the deficiency of carbonic acid. In addition to these sources of deterioration, the air contains dust, smoke, and other injurious substances, and is contaminated and limited in their operation, others more constant and extended in their influence. A brief review of these will here be proper; but, before proceeding to enumerate them, it will afford conclusive evidence of their importance to adduce some example of the influence of a slight admixture of a deleterious principle with the ordinary constituents of the air. This gas (hydro-chloric acid, or muriatic acid gas) must therefore be very injurious to vegetable life, as it is generated in the earth, and maintained in the air, and diluted with 10,000 parts of air, destroyed the whole vegetation of a plant of considerable size in less than two days. Nay, we afterwards found that a tenth part of a cubic inch in 20,000 volumes of air had nearly the same effects.' Drs. Turner and Christian, in Brescier'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 exists others, which are far more subtle and insidious, though their effects are very conspicuous: such are the exhalations from decaying vegetable matter, termed marsh miasma, or malaria, and the exhalations from the bodies of men and animals, which, when crowded together, or from that of men labouring in a state of putrefaction, termed putrid effluvia. These are the fertile sources of fevers, whatever their form, type, or appellation; and in this respect that a reduction of the humors is the only matter to be an intermittent or remittent character, yet they often assume the continued form (see Auros); while the effluvia from animal matter vastly 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 true poison, and occasion the most fatal effect, the ultimate object of which is to reduce the body attaining to a state of putrefaction. We have no test of its presence beyond its effects, but we know the sources whence it springs, and the circumstances which favour its concentration, and occasion the human body to break out into fever. Putrefaction is its influence. It is only by removing or lessening these that we can escape this insidious foe, and the success which has attended the enlightened measures proposed by physicians and chemists afford a clear and considerable confirmation 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 we observe all the prudential precautions which can render the air wholesome, and the virtue of the atmosphere in 1780, less disease occurred than had been known before; even those who labour under sickness at the time were benefited by it; fever, diarrhœas, and dysenteries, but, above all, disorders affecting the lungs, were cured. Cases of intermittent fever were observed to be cured by an earthquake at Caracas in March, 1812. (See Brande's Quarterly Journal of Science for 1817, vol. ii. p. 401.) After the excitement of a storm, plants give out more oxygen, which accounts for the delightful and life-giving freshness of the air, of which every one is sensible, who walks out into the fields immediately afterwards.

We may imitate nature, and employ ventilation on a small scale, but not in public 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. MacCormick, in his Account of St. Thomas, 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 plantations were provided with screened windows, 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, febrile infection was most fatal. To prevent this, and to avoid the control from crowding human beings together in small ill-ventilated apartments are numerous. They were termed jail and hos-
pital-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 who may have been spared without a fever, still remained the subjects of perpetual torture, as they flung themselves over a larger space; enforcing 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 internal complaint survived, till the introduction of the wards was 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, ending by-ventilation, 11,100 children out of 7650. But after free 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 protection 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 Ferrier.

Summer heat of the sun, 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 most fatal to the crops of land and water, giving rise to yellow-fever and the jungle-fever, which are rapid in their course, and generally fatal in their close: in colder countries they produce continued remittent and intermittent fevers. Thus they are as fatal as those from the hot Vaulty, or Magdalen, Chambers, or those from the hot air of the pulm-overs, or from the hot air of the leaden vaults, which they resemble but are not so fatal. In the marshes of Ancôf, a great number of different kinds of grasses, rushes, &c., grow, and the spaces between these plants are covered with large quantities of the Pistia stratiotes, 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 pistia 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 the course of a few days, they may be preserved by covering it with a leaf of the Pistia.

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 the water of the summer, and create a beautiful misty appearance in the air here, which the pistia does to that around 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 severs are shown in the perfect immunity which London enjoys from ague as an epidemic, contrasted with former times. Dr. Celsius, the most eminent physician in this land, and well informed, states, that the ague 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 disarming them of their potency. Of the measures formerly resorted to for this purpose, some were useless, while others were hurtful to the sick, and some were practised in the interest of one class of 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 of lime. In these preparations chlorides are combined with the bases of soda or lime, which renders them 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. But useful as a supply of proper nourishment, it is still it is not of general 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 the typhus fever than they were in France, which was formerly termed antiseptics are either tonics or refrigerants: of which echinacea bark may serve as an example of the first class, and the mineral and vegetable acids, as citric, 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 closest discrimination on the part of the medical attendant; and too numerous are the instances where their premature employment has rekindled the disease which might otherwise speedily have been subdued. We have next to consider the chemical and physical influences which are in operation 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 small pox combined with the typhus fever.

The refrigerating antiseptics may be beneficially used from a very early period of inflammatory diseases, especially of the young and robust—such diseases as scurvy (i.e. sea-scurvy) they surpass all other remedies. As the operations of nature in regard to organized matter seem to consist in reducing to their elementary state each individual, or part, when it ceases to live, and in reconstructing others, it forms an interesting and important subject of investigation to inquire into what is the means of effecting this, and how it may be prevented, when it is desirable to preserve the whole or a part of organized matter from putrefaction; by what means can the tendency to putrefaction be so modified, that the result of it, though leading to the formation of a substance having a very different character, shall yet be of a kind which may be preserved for a longer period, than the original substance; and how the process of putrefaction may be arrested and converted into an essential part of the operation. The first two questions concern the preservation of food, so that the produce of a period of plenty may be stored up as a provision for a time of scarcity, and the superabundant productions of one country may be transmitted in a sound and wholesome state to a distant land, which concerns the provisioning of our ships, as far as depends upon a proper supply of animal and vegetable diet. The last question relates to the beneficial application of putrefying materials to the soil as manures.
All organised 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 matters are most quickly vegetable, especially of a woody texture; graduallly: the decomposition of the former is characterized by an unpleasant odour, and the formation of ammonia; that of the latter is rarely unpleasant, except in the case of cases common to both, such as calamine 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 he excluded, the process is prevented. The moisture may either be external, 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, hot 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, that of natural and artificial.

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 question: can we comprehend those 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 affinities which take place during the common process of decomposition; by 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 of the body are all solid, 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 a river which flows into the sea discovered imbedded in ice, which, as it melted, gradually disclosed him to view. His hair, skin, and flesh were in so good a state of preservation, that dogs and many wild animals preyed upon it. (Some of the hair may be 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 antediluvian, and to have been preserved in this state for a 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 hay and hygroscopic hygrophilous moss. The tubs are supplied with veal 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 precaution is 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 the plunging individual into cold water, than by placing him in a warm bath.

This method of preserving food is not applicable to vegetables, but these when frozen they should also be first put into cold water.

2nd. The abstraction of moisture by heat is employed in drying meat, fish, poultry, and other articles. By means of a certain quantity of salt, &c., along with desiccation necessary, unless the process be carried on with great rapidity, which may be effectuated by a high temperature, or a quick 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 proportions of the article sent to sea, or preserved in the desert, increases. This method is 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 medical 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 atmospheric air contains the seven parts of oxygen, we shall limit our remarks to the means of excluding it. The influence of this is very great. Réaumur varnished some eggs, and found that at the end of two months, they were yet capable of producing chickens, and Bonasre mentions an instance where three eggs were inclosed within the walls of a church in the Milanese, and when found at the end of 300 years, they had not lost their savour. On this principle hutter is rubbed by careful housewives over their eggs; lime-water, however, is 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, promulged by M. Appert. This consists in boiling the articles (if meat, the bones must be first taken out) nearly as a great a degree as if intended for immediate consumption; they are then placed in hot or not very jist jugs or canisters, which must be completely filled with a broth or jelly prepared from portions of the same meat. The jugs are then corked and covered with a luting formed of quicklime and cheese, the canisters be usually soldered down. After this, they are placed in a boiler of cold water, to which heat is then applied till the water boils, and the boiling of which is continued for an hour; the fire must then be instantly extinguished, and the water soon drawn off, but the house must not be uncovered, or the bottles taken out for one or two hours after.

By this method meat may be kept sound and well-flavoured for six years, or even longer, and sent to any part of the world, having all the taste and effect of the fresh article. This is the elementary constitution of a body as shall form a new and less destructive article, or by introducing some additional principle which shall hinder the exercise of the natural tendencies or affinities of the elements of the substance.

The first set of means constitute the various kinds of fermentation, of which this is not the place to treat, but with respect to which we may remark that the products of them not only little disposed to undergo, putrefaction and decomposition, and have also a powerful effect in preventing other substances from undergoing it; the most remarkable of these are acetic acid or vinegar, and alcohol. The mode of action of vinegar is very similar to that of heat, it hinders the decomposition of the substance; and animal and vegetable substances has not been determined, but alcohol is supposed to act by abstracting the elements of water. The formation of sugar, which is another product 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 liable to putrefaction than those of 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 power of a 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 the sides of the same, it is proposed to use charcoal in the same manner.
putrid, is to saturate it with fresh lime, (and in this lime-water, eggs for use at sea may be kept) when the water is needed, the addition of a few drops of sulphuric acid (oil of vitriol) will precipitate the lime, and leave the water pure and fit for the purpose. For this purpose must be covered, closed against the admission of the air, otherwise the lime will be precipitated by abstracting carbonic acid from the air.

There are many substances which when added to animal matter prevent for a longer or shorter time their decomposition, such as salt-petre (nitrates of potash), and common salt (chloride of sodium), which last is supposed to act by abstracting the elements of water; certain it is that meat is rendered by it harder, less fetid, and infinitely less nourishing. [See Antiscorbutics.] Many aromatic substances have a similar power of preventing putrefaction for a time. They were extensively employed in Egypt, both in ancient as well as modern times, as the Egyptian mummies prove. Oils and resinous substances long resist putrefaction, and preserve other substances from it; bitumen, naphtha, and empyreumatic oils, are examples of this. Russia leather, which is dressed with the empyreumatic oil of the birch, not only does not become mouldy, but also preserves the books which are bound with it. The process of decomposition is greatly hastened by the agency of fungi, such as those which cause mouldiness, and the more frequent so are our curing substances, the dry-rot fungus which cause mouldiness are generally prevented from developing themselves by the presence of some aromatic oil; and the others which occasion the dry-rot in timber, may be prevented from developing themselves by the process of dressing by Mr. Kent. This may be done by preparing 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-chloride, the same compound (see Atymsmen); 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 ergot, (pepper-salt) 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 destiny of some inroads in America; and the latter was some years ago a million and a half of pine trees, in the Hartz mountains, perished from the ravages of the bostrichus typographicus, 80,000 larvae of which were found in one tree. About fourteen years ago, the elm-trees in St. James's Park, and afterwards in the woods of many other places, were visited by an insect called the Hylotinus destructor. The only means yet known of stopping these, is the expedient suggested by Mr. McLeay, of cutting down the trees and burning them, when the eggs have been deposited, before they turn to larvae 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 the attacks of the pitius far, by applying to them, while 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 surface of the earth. Bones should be buried sooner than most vegetable substances; but cruciferous plants, such as cabbages, when exposed to the air, are as pernicious as any, and should be buried; some years ago a severe fever originated at Cambridge, owing to a quantity of bulbs having been thrown away in the garden. Such matters should always be buried as marrache. In this case the food of plants is prepared where it can be used; and that which would offend the senses, and injure the 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 men and animals. (See Davy's Lectures on the Constitution of the Atmosphere, etc.)

ANTIPASMODICS, from divi, against, and spasms, the means of removing spasm. The state called spasm, or cramp, occurs only in muscular structures, and consists in an irregular, and often excessive, action of particular ones of a 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 nutritive functions, and the other in 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 act set 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 being conscious of them. The stimuli which give rise to 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, and originating in some thought, and connected with some object of desire or purpose, to act in any part into action. Of the motion of such muscles we are always more or less conscious, and when the system is in its perfect or usual state of health, we can repeat their action for a considerable length of time, and regulate the extent and the peated and distinct efforts of the will; as when a man walks, and quickens or slackens his pace according to his inclination. But a variety of circumstances influence the action of these voluntary muscles. It may, for instance, be interrupted or prevented by being given to some improper stimulus, instead of the appropriate one, being applied to the organ or part affected. Venous blood, circulating in the arteries, is productive of great disturbance, being converted into arterial blood, and it acts as a poison to that organ, for which arterial blood is the natural stimulus as well as source of nourishment. In like manner there are bodies which, though perfectly mild, such as the antiscorbutics, substances of difficult digestion, yet excite more violent convulsions than the substances which are generally bitter, and of which are a very acrimonious nature. Undigested food, or unhealthy secretions, in the intestines, excite more disturbance and spasmodic contractions (i.e. chole, in different degrees of severity) than foreign substances, which we might expect to prove very hurtful; such, for instance, as the poison of the viper, which is perfectly innocent when received into the stomach.

Both voluntary and involuntary muscles, and the organs of secretion, are very much influenced by emotions of the mind. Under the influence of hope or joy the heart beats vigorously, while under the depressing passions its action is slow and laboured, and accompanied with such oppression as to have given origin to the term phlegmatic. Fear excites to irregular contraction and relaxation many of the voluntary muscles, whence comes trembling; and produces relaxation of certain muscles, called sphincters, which are usually contracted; it also augments the flow of tears. Grief, when not excessive, increases the secretion of the lacrimal gland, producing a flow of tears; if extreme, it hinders secretion, and forms the state truly characterized by our great poet:

'A misery 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 producing jaundice. The state of mind which may be termed the phosphoric, or garden state, is accompanied by a great amount of agita...
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, ANGINA PECTORIS furnishes an example, and is a sad result of excessive eating and drinking, 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 affections, such as the condition of hooping-douling, 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 be cured in the same way.

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 irritable impulse. No one is more conscious of this than the patient who has been inflicted with that excruciating disease, a circumstance which can only be accounted for by observing that in it the mind is in no degree implicated, the mental faculties remaining clear and undisturbed to its termination; and this is one reason why the complaint is often mistaken for an inflammation or peculiar state of irritation 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 first symptoms. A brief account of the disease is as follows: The patients 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 a great unknown, for there is no nervous disease which is 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. For such a disease, the most, the greatest, whatever is the mind or body, markedly predisposes to such complaints. The female children of the higher and middle ranks, feebly by birth, are rendered more so by the improper modes of education, physical as well as mental, to 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 of any particular part are 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 the one will cause a spasm in the other, as the united state of the alimentary 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 found in connection with the afflammate members of the other sex; such persons will generally be found to be of a coarse habit. The peculiarities of the female system have a large share in increasing the disposition to be powerfully acted upon, at times, by trifling causes. Exhausting discharges, to which they are very 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; and a slight excess sent to one part, or a deficient supply of it to another, will cause disorder of the functions of that part. If he any portion of the nervous system which is subjected to these errors, spasmodic action is almost always the consequence. Nothing is more clear 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 suffers death and, perhaps, not in vain. The 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 state of the circulation, always the seat of extre-
The remedies which have been found most efficacious in spasmodic cases, are astringent, antispasmodic and new 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 forted 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 receive this by affecting the other limbs or body, as well as the part severally, but this is not greater in practice, so in the cases of spasms with few nerves 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 fibres are brought to the same level. This example of a mechanical process is one of the worst of all the symptoms, and its effect is to render the nervous system otherwise, but simply is not equal to the rest. 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 cause muscular relaxation; such as opium, belladonna, &c.; or to the tonics, such as metallic salts, viz., of iron, zinc, and silver; or vegetable stimulants, as cardamom, cumin, &c., and the like. Some of the spasm-nos are of such a character, as to make the symptoms of the spasmodic act, apparently, by raising the nervous energy of the system, and raising the neighbouring muscles to a level with the part in a state of spasmodic excitement. These are found set and to so as rendering the nervous system insensible to every sensation; in large doses producing complete insensibility, even to the extent of coma and death.

These two are administered when an attack is threatened or actually begun; the tonics are administered 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 antispasmodic are volatile oils, such as mint, lavender, &c., derived chiefly from the tribe of the labiatae; or camphor, oil, from myrteaceae: or diu, anise, fennel, &c., from the umbelliferous, from the family of the labiatae, and sometimes from the oil of the labiatae, from the oil of the horehound, from the oil of the horse; and the like. When used, the patient is made to inhale it as a cold draught. These acts, or the medicines, are in some cases tonic in their effect, and in others soothing and restful.

These kinds of antispasmodics differ in value, not only as relates to their mode of action, but to their safety. The stimulating antispasmodics are only admissible when a fit is threatened, or a fit is then present, and to excite the vascular system, i.e., quicken the circulation; if upon their being given once they fail to remove the spasm, they should not be repeated. This caution is more espe-
nally necessary in respect to brandy, which is too com-

monly taken by people suffering from hooping-co
gh and other attacks, such as cholie. So many of these diseases being connected with, or disposed to end in, inflammation, the free use of brandy, or other stimulants, is decidedly injurious. The inflammation in group, hooping-cough, and dysentery must first be subdued, and then the spasmodic attacks 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-
cotic antispasmodics, such as belladonna, paregoric, or
henbane, are to be preferred. The propriety of employing belladonna extensively in this disease is very questionable. (See Golia on Hydrocephalus, translated by Dr. Goocht.)

In the course of the stimulating antispasmodics, more is allowable in cholie or hooping-cough; but here they act on a different prin-
ciple, 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: trastare 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 productive of more good than the antispasmodic
medicines which can be tried. (See Taeale on Neurological Diseases.)

Stammering, or other difficulties of speech, might be materially diminished by repeated irritating ap-
lications, as blistering, atropine, or tincture of
brandy, 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-
ened.

The means which may be employed to intercept the
passage of the peculiar sensation to the brain are merely
effectual; for example, tying a string tightly round the
throat, as a measure of prevention, 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.

In the application of the gums in children, when teething,
there is much more efficacious in allaying convulsive a
fections 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 pa
toxics, 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
unload the bowels, improve the secretion, and impart vigour to
the heart. As many, however, assume that the spasmodic
nance 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 Purgative Medicines,
simultaneously and thoroughly.) As, however, the heart
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
toies may be employed with great advantage, particularly
in hysteria, chorea, epilepsy, and stammering. In hysteria,
chorea, and stammering, the preparations of iron are in
general 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,
with the discovery of his convulsions from South
America, called the wormail, may be beneficial, if we may
judge by its effects on animals affected with tetanic spasm.
(See cases by Mr. Sewell, in Morgan's Lecture on Teta
as, Appendix, London, 1832.)

Several of the diseases of which we here speak being con-
nected 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 to prevent a relapse.

Upon a threatened attack of hysteria, or epilepsy, power-
fully affecting the mind to a different degree than that which occupies the attention of the patient may ward off the fit. But in a large part of the cases, the most disgusting means were resorted to, and the sufferers were made to swallow animals of a forbidding kind, or other equally repulsive measures were tried. These cannot be
too much reprobated: and we should bear in mind that
be, or eloper, or dangerous blast, set free by a sudden fright.
The separation of a person subject to changes, or having
nervous and epileptic fits, from among others, is often necessary;
and when we know that the spasmodic actions are the effects
of imitation, the employment of fear may be justifiable; but
and in any other case the attempt to allay the spasm
and thereby, perhaps, add a mental disorder to a bodily one,
already sufficiently affecting.

Our endeavours to lessen the tendency to nervous dis-
cases will be most successfully directed to regulating
the education, physical and moral, of children, especially
of female children. This subject has been already treated
under the article Aon, to which we refer, as well as to
Gay-Lussac's "Hydropneumatics and Hystera;" also to the excellent chapters on Spinal Irritation, Chorea, Hydrocephalus, and
Convolutions, in Burns Principles of Midwifery.

ANTISTHENES, the pupil of Socrates, the master of
Diogenes, and commonly reputed the founder of the Cynic
school. The time of his birth, as well as that of his death,
is uncertain; but he was the contemporary of Socrates,
Plato, Aristotle, Xenophon, cce., and may be said in general
terms to have flourished about 380 B.C. Diogenes Laertius
mentions him as still alive in the third year of the 103rd
Olympiad, corresponding to a.C. 366. (See Clinton's Fasti helleni
ci, p. 107.) According to Diogenes Laertius, who has
been a celebrated biographer, and one of the most learned
men of his age, Socrates, for the critical education,
considered his father, and designed him for his successor.
He was not of the Thracian, or, as Plutarch says, of
Phrygia. He first attended the school of the Rhetorician
Sargas; but, leaning to his own taste, he became a
follower, and eventually one of the most distinguished dis-
ciples, of Socrates. He afterwards established a school
of his own, in a place a short distance from the city, called
Cynosarges. Whatever may be the origin of the word
cynosarges, it is certain, as Diogenes Laertius says,
that the name is given for the sake of some writer or other,
who, in imitation of it, has invented the term; and
regards it as simply expressive of the popular notion res-
pecting the character of the sect of philosophers so design-
nated. The opinions of the Cynics will be discussed under
that word. We may have merely remarked, that it is cer-
tainly a mistake to rank them as ascetics. The ascetic
philosophers and inventors of Antisthenes, and especially of his more
celebrated follower Diogenes, appear to have been powerfully
directed against the elegancies and ornamental superfluities
of life, but by no means against the enjoyment of its
senses as could be obtained without much trouble or ex-
 pense. The vice of these pleasures, according to their
notion, lay not in the indulgence, but in the cost. Any-
where than in the Cynics, it was argued, that the spirit of general civilization and to the elevation of indi-
vidual character, it would not be easy to conceive; but the
system is very susceptible for all that of a plausible outside
representation. It was a not unnatural perversion of the
penetrating, sagacious, and sarcastic philosophy of Socrates,
by a person of the moral and intellectual construction of
Antisthenes. He seems to have been endowed with some
natural powers, but is said to have held all learning in
contempt, and to have taken no part in any of the me-
more famous conclave of that age, of which Diogenes
Laertius tells us, extended to ten volumes (or perhaps treatises, 
atts), they have all perished. From
the list of their titles given by the biographer, they ap-
pear to have been only rhetorical compositions; and, like other such compositions, they had proba-
ably plenty of point and smartness, but not much sting-
less value. Indeed, the only judgment as to their merits
which Laertius records is that of a critic of the name
of Timon, who thought their author an inventor of plat
Laertius has enumerated many of the sayings of Ant-
isthenes; but, like the witticisms of the ancients in general,
most of them have an elaborate and ponderous air to
them which has been relieved by his sarcasm on the foolish choice of their magistrates and other public officers frequendy 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 as strange to your fancy, heads 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 be initiated therein would enjoy eternal life. Here, said he, if you give and unceremonious offering, 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. Cicero (De Natûrâ Deorum, 1.13) has preserved a theological dogma of this philosopher, which has been often quoted to his honour—E esse populares deos multos, sed naturalem umnum: That the popular gods are many, but the God of nature is one. It has, however, been acutely remarked by Courthoys, (Intell. Saty.) this is clearly the expression, populares deos, here, we are to understand, not the gods of popular superstition generally, or the multifarious deities of the pagan system, but merely the different names given to the Supreme Being by different races and nations.

The meaning of Antisthenes is more clearly expressed in the version of Lucanarius, Unum esse naturalem Deum, quamvis gentes et urbes sua obiaceum populares: 'There is one God, the nature, though men give their own popular (peculiar) deities.' Courthoys is of opinion that the philosopher had no design to take away all the inferior gods of the pagans, which, had he attempted it, 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 that he was the same whom the Greeks, Egyptians, Babylonians and Hebrews called Jehovah, the Egyptians as Hammon, the Babylonians as Bel, the Scythians 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 his credit, however, as the teacher 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 carried the principles of Cynicism to such an extent that he said, 'A man is the master of his soul.' The fullest and best of the fairest pictures which we have of Antisthenes is given by Xenophon, who has introduced this philosopher as one of the speakers in his Symposium, or Banquet, and put into his mouth, among other statements, this striking dictum, 'There is no poverty.' Altogether he is here represented in a very engaging light.

A few additional particulars respecting this philosopher may be collected from Laertius 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 of the staff and beggar's bag, which afterwards became the distinguishing badges of the sect. He is also stated to have first worn the cloak doubled, (κυδώνα τὸν ρωμισάν καὶ διαμετὰ τοὺς ώμον.) whatever that may have meant. 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 right arm, shoulder, and a part of the breast exposed. What we first learn of this curious 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 Natûrâ Deorum, ii. lib. 4, cap. 2.)

The peculiar name for the philosophical cloak is ρωμισάν, or in Latin tribonium, which signifies literally, a worn or threadbare garment. Antisthenes professed to dally the laughters of Plato; and on one occasion, 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; though it might not have been considered, as it is at present of some philosophers and blame to wear a cloak in the Academy. One day, we are told, when Antisthenes, being in the company of Socrates, had ostentatiously displayed a ragged part of his garment, by way of showing his philosophical contempt for those things which are esteemed by other men as vain, 'Ah, Antisthenes,' said Socrates, 'instead of trying to make one go through the holes of your cloak. Antisthenes is said by Laertius to have had a principal share in bringing Anaxus and Miletus, the accusers of Socrates, to punishment. But it has been observed (Grundriss. d. Krit., I. p. 79) that theIonian philosophy was not so accursed. The company ever took place at all. (See Barthelemy, Voyage du Jeune Ana.

charis, cap. 67, note.) Two short orations, entitled Ajax and Ulysses, attributed to this philosopher, are printed in the Orationes Rectae of Henry Stephen and of Reiske; and also in Dobson's Collection, vol. iv. They are two puerile rhetorical declamations, and, if written by Antisthenes, which we may reasonably doubt, do him no credit. The Cynics were particularly devoted to rhetoric, and have found in it matter for abundant ridicule.

ANTISTROPE. [See Soph.] ANTITACTES [See Heretics.] ANTITAURUS. [See Taurus.]

ANTITYPHESIS, a Greek word (ἀντικηνεμον) literally signifying 'opposition.' It is used in various senses by the Greek writers, as in opposite ideas, opposite ideas, and 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 himself in a favorite light, compared the work he was about to undertake with what the accused ought to have done, and then what he has done.

But the term antityphesis 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, Inst. Orat. lib. ix. cap. iii.) The following example from the oration of Demosthenes against Kichias, entitled the Crown, is, in part, quoted by Demetrius, as Juba of Libya, in his Ref. on Demosthenes, § 226, and by Heragenes: 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 choragus (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 hissed. This taste for antityphesis shows itself very strongly in the Greek language, both in poets and prose writers, and he is especially in some of the orators and rhetoricians; but it is generally a depreciating and jesting style, aiming at something on style. The antityphesis does not necessarily imply contrariety between the things which are brought together; for example, one of the rhetorical exercises of Gorgias, entitled the Encomium of Helen, begins with the following antityphesis:—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. 3) expresses the Greek term ἀντικηνεμον (which is equivalent to ἀντικειμον) by the Latin word contrapostum; and he remarks, that the antityphesis does not always contain contrarieties or opposites. He gives the following example from the rhetorician Rutilius: When the gods first instituted the fruits 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. Cicero has the following example of antityphesis, which may be compared with similar examples in our own language:—'Quod seis, nihil prodest: quod nescis, multum obest,' which may be very imperfectly translated—'What you know, does no good; what you do not know, does much harm.' With respect to the tuning of the mind, 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 perceiving of the objects of the speech. It has the effect of increasing the wordy and empty tone of words more than on the real meaning of the sentence.

ANTITRINITARIANS. [See Arians, Socinians, Unitarians.] ANTIUPTUANS, now called Porto d'Anzo, a sea-port on the coast of Ltium, or the Campagna of Rome, or a city of Digitized by Google
the Volsci, and noted in Roman history as the place of refu-

gence of the Volsci. Antium, later Anzio, having been often the

enemy and at times the ally of Rome, was finally taken by the

Romans in the year a.c. 337, and became a Roman colony.

On this occasion, the rostra, or metal beams with which the prows of the galleys of Antium were armed, being
taken as a trophy to Rome, were set up in the forum, as an
ornament to the hustings from which the orators pleaded
before the magistrates and the assembled people, and
which, in consequence, took the name of rostra. Horse
masonry, the Temple of Fortuna which rises to the bold
promontory within shelter of which the present Anto

is situated. Nero, who was born at Antium, excavated a port
and adorned it with fine buildings. He also built here a
palace, which was his wife Poppea. Remains of ancient masonry
are yet to be seen in the vicinity, and part of the water.
The port having been filled in after-times, 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 d'Anzo 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 fine natural view which extends on one side to the
Circeean Cap 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 a quantity of charcoal
made from the wood of the neighbouring forests. It is
also frequently resorted to by fishing vessels, it being the only
place of shelter in bad weather between Gaeta and Civita
Vecchia. About two miles S. of Anzio is the town of
Nettuno, on the sea-coast, with a population of 1200 inha-
bitants, 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, and the thirty miles S. of this point the Alban
hills are seen rising to the north about fifteen miles inland.
The plain is divided between numerous fums, one of which, that of Campomoro near Porto d'Anzo,
measuring above 17,000 acres, has been visited of late years
by various travellers, whose attention had been attracted to
its peculiar economy by Chateaubriand in his Letters from
Italy.

ANTIVARI, a town in Albania, in European Turkey,
on the coast of the Adriatic. It is a little to the N.W.
of the mouth of the river Boiana, which forms the outlet
of the lake of Skodré (Scutari) and has a good harbour.
It was peopled during the middle ages by Italian colonists,
and is still the see of a Catholic archbishop, who 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 Barberry states.

Antvari forms the port of Skodré, (from which it is
distant about 20 miles,) and is the depot of the valley of
the Drin, the chief manufacture of which is shoe leather.
It is defended by a fortress: 42° 4' N. lat., 19° 5' E. long.
(Holhouse, Bali.)

ANTLIA PNEUMATICA, the air-pump, a constel-
lation in the southern hemisphere, named by Lacaille.
It is bounded by Centaurus, Crater, Hydra, Piscis Austrinus, and
Argo. The magnitudes and numbering of its principal stars
are as follows:

Mag. Letter. Plan. AM. Soc. CA.

4.5 'a 82 1243

4.6 'b 90 1249

4.6 'c 91 1251

4.6 'd 10 1242

5.0 'e 165 1246

5.6 'f 199 1299

ANTGECI, from the Greek, signifies those who live
over against each other, and is applied to designate the in-
habitants of villages which have the same longitudes as
latitudes, only differing in one latitude Neiting north
and the other south. For example, Malta and the Cape of

Good Hope are nearly Anteci. Two antecial places have
the same hour of day or night, but opposite seasons of the
year.

ANTOINE DE BOURBON, Duke of Vendome, mar-
ried, in 1548, Jeanne d'Albret, only child of Henry II.,
king of Navarre. Henry Prince of Bearn, afterwards Henry IV.
of France, was the offspring 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 IX. As such, Antoine de Bourbon hoped 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 enter-
prising and ambitious Guises, uncle to the young Queen
Mary Stuart. After the death of Francois I., in 1515, the
king of Navarre was named Lieutenant General of the
kingdom, and adviser to the queen mother (Catherine de
Medici), during Charles IX.'s minority. When the civil and
religious war broke out in 1562, the king of Navarre com-
manded the king's troops, and received a wound at the siege
of Rouen, of which he died in November of the same year.

[See Bourbons, and Henry IV.]

ANTOINETTE, (MARIE), queen of France. [See
Marie.]

ANTONIA MAJOR, the elder daughter of Antonius the
triumvir, by Octavia, the half-sister of Augustus, born 39 n.c.
She married L. Domitius the son of Cn. Domitius, who sup-
ported 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
noted aristocratic personages; in Rome, Domitia Lepida, the
wife of Messalina, afterwards married to the Emperor Claudius;
and her son Cn. Domi-

tius, marrying Agrippina, became the father of the Emperor
Nero. She had married this Antony the elder greenish,
with Sustoenus and Plutarch, Tacitus, on the contrary,
spokes her as the younger daughter. (Ann. IV. 44 ;
XII. 64.)

ANTONIA MINOR, the sister of the preceding, born
n.c. 38 or 37. She married Drusus Nero, the brother of the
Emperor Tiberius, for she became by the mother, 1. of
the celebrated Germanicus; 2. of Livia or Livilla, who was
first married to Gaius Caesar, the grandson of Augustus,
and after his death to her cousin Drusus, the elder 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 n.c. 3, 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 widowed Agrippina return from the east with
the ashes of her son Germanicus. In 23, her daughter Livis,
corrupted by Sejanus, assisted in the murder of her own hus-
bond Drusus, but her guilt remained unknown to the world
until eight years, when Antonia herself became indi-
rectly 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 Antonia, who commu-
nicated her information through the freecommisioner Pallus to the
emperor. The ruin of the favourite brought many past crimes
in light, among others the murder of Drusus; and Livis met
the fate which she deserved, her own mother, if we may
believe one of the accounts given by Dins, offered her, as
the pardon offered by the emperor. Under the reign of her
grandson Caligula, she was at first highly honoured, re-
ceiving every distinction which had formerly been conferred on
the celebrated Livia. In respect to her character
and ill-treatment; and at last her death was supposed to be
hastened by his neglect, if indeed it was not brought about

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by more direct means. If we place her death in the first year of Caligula, she was about seventy-five years of age. The Emperor bore this experience 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 continued for her beauty, and still more for her chastity, in an age too that when 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 more than ordinary filthiness of her bathing pool. The beautiful head of Antonia is taken from a gold medal in the British Museum, which is exactly one half the diameter of our drawing, and in most complete preservation.

ANTONIN (SAINT), a small town in France, in the department of Ain, and five miles south of Villefranche. The inhabitants, who are given in the Dict. Géographique de la France (1804) at 5000, and by Balbi (1833) at 5000, manufacture serge and feathers. It is about five miles N. E. of Montsauzon, the capital of the department: 44° 10′ 10″ N. lat., 1° 46′ E. long. (Dict. Géog. 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 Marcomanni and other German tribes. It was one of the monuments of the Augustan age, was added to the list of the triumphs, and had an inscription which has been found near it, and which is now in the Vatican, is styled 'Columna centenaria Divi Marcii.' It was also called 'the greater Antonine column,' to distinguish it from another and a smaller one, made of an arch of piety. which had been erected in honour of Antoninus Pius. (Nardini and Nobbi, Roma Antica, and Vigmola, De Columna Antonini Pit.) During the ages of barbarism which followed the extinction of the western empire, this pillar, and especially its pedestal, suffered greatly from the hands of the various invaders, as well as from the fires which frequently occurred at Rome; the historian Poggio says also from lightning. Pope Sixtus V. repaired it at the expense of 10,000 scudi, 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 135 feet, of which 13 are under ground; and the summa on the top of its pedestal 2 feet 6 inches making the whole height 163 feet. (Taylor and Cresy's Architectural Antiquities of Rome.) The pedestal of the Antonine column is disportionate to the shaft. The capital is Doric. The shaft is made of twenty-eight blocks of marble, which are placed one above the other, and the staircase of 190 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 bas-reliefs placed in a spiral line around, which represent the victories of Marcus Aurelius over the Marcomanni and other hostile nations. One of the most remarkable facts recorded in these historical sculptures is that of the unexpected and sudden shower which came upon those who quenched the thirst of the Romans by 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 expression of the principal ornaments of the Augustan column resemble the style of that of a pillar, which the artists evidently purposed to imitate. The sculptures on the Antonine column have been engraved by Sarto Bartoli, and illustrated by Bellori. The pillar itself is one of the six outstanding monuments of ancient Rome, and one of the principal ornaments of the Antonine period. It has given to the square in which it stands the name of Piazza Colonna. The palace Ghist forms one side of the square, and the street del Corso forms another. A handsome fountain by Giacomo della Porta also adorns the square.

ANTONINUS PIUS, or, with his full name, according to Capitoilinus, Titus Aurelius Fulvus Boionius Antoninus Pius, was the son of Aurelius Fulvus and Atina Paddula. He was born September 19, A.D. 86, in the reign of Domitian, at Lutum, now Ancinus, a town a few miles south of the Alban Lake. His ancestors, on his father's side, were of Nemaeus, now Nisius, in Languedoc. His youthful years were spent at Lorium, a town on the north side of the Tiber, not far from its mouth, under the care of his paternal uncle, the imperial fabricier, T. Aurelius Fulvus, who had been twice 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 prince of the political philosophy, which, as emperor at least, he certainly encouraged.

Through his extensive family connexions he inherited great wealth, and was speedily raised to the successive dignities, as praetor, quaestor, and praetor of the province of Egypt, and also of the city of Rome, but for a country life. When Hadrian entrusted the administration of Italy to four men of consular rank, he gave to Antoninus the government of that part in which his possessions lay. During his consulship and his subsequent government of the province of which he was proconsul, there was, in his cedulous biography informs us, many strange presages of his future elevation. On his return to Rome, he was often consulted by Hadrian on public matters; and finally he was adopted as the imperial successor, and at his own request, became emperor himself, Marcus Antoninus, the son of his wife's brother, and Lucius Verus, the son of Attius Verus, who had been adopted by Hadrian, but had died prematurely. He then became associated with the emperor in the government of the Roman world. On Hadrian's death, A.D. 138, he became emperor with the title of Antoninus Augustus, to which the name of Pius is added on his medals. As to the origin of the name Pius, his biographer gives various conjectures (see Capitoilinus, chap. ii.): the title of Pater Patriae, 'father of his country,' was subsequently conferred (chap. vi.), and recorded on his medals after the titles of Antoninus and Pius. It is unfortunate that the only history of this emperor's life, his biography by Julius Ghigii, is also rendered defective in chronological arrangement which would enable us to form a correct judgment of the public events of his reign. He seems never to have left Italy after his elevation, but his officers maintained the security of the provinces, and he was quite at peace with the frontiers of aggression. In Britain, Lollius Urbicus confirmed the former conquests (see Antoninus, Val- lum); the Moors of Africa were compelled to sue for peace; and the attempts at rebellion in Germany, Greece, Judea, and Egypt, were checked by the vigour of his governors. One of the most curious events in the foreign affairs of the reign of Antoninus is his helping the Otho- polis, or inhabitants of Olbia, a Greek colony on the Dour, in the times of Severus, against the pressure of the Goths, and the Germanic marauders, the Goths of Scythia probably a native race of the Dnieper and the Don. The Tauro-Scythe were compelled by the Roman emperor to give hostages to the people of Olbia. The emperor died at Lorium in the seventy-fifth year of his age, (seventieth, according to Capitoilinus, B.C. 161), and was succeeded by Marcus Aurelius, commonly called Antoninus the philosopher. Antoninus was buried in the tomb of Hadrian, one of the architectural monuments of which he adds: in the palace of Attius Faustina, the daughter of Attius Verus, by whom he had four children, one of whom, Faustina, became the wife of M. Aurelius. The conduct of Antoninus's wife gave occasion to scandal, and the conduct of the empress Faustina was so restrained that it is to endure what he could not prevent. On her death, in the third year of the emperor's reign, the senate paid her the usual compliment of divine honours: a temple, with statues of gold and silver, was decreed by the senate, and
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 much prized as Faustinians, in honour of the deceased empress. This institution is commemorated in mediaeval times by the inscription Pueilio Faustinianae—the Virgins of Faustina. The general character of the policy of Antoninus was beneficent and just, and the Roman world regarded him as a most 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 exactions. He supported 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 discharges 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-countrymen 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- linum informs us, agents annually to the professors of rhetoric and philosophy in all the provinces. Antoninus the Stoic was specially invited from Chalcis to superintend the education of M. Aurelius. But the life and worthiness which had obtained public admiration felt 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 partici- pated 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 crocodile, with a crocodile-stealer, the renowned hippopotamus, 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, Umiulius, Valerius, Valens, Volusius Metianus, Ulpius Marcellus, and Diobolus, were employed by the emperor in improving the laws. One of the emperor's regulations of sanitary police is worth recording: he forbade the burying of the dead bodies of citizens. With regard 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 is not always apparent. Antoninus was tall, and of a handsome 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 amiable princes whom history has recorded. Whether he owed this to the favorable history of his reign, or to the Capitoline, and the general absence of other evidence, we cannot decide. (See the Life of Antoninus by J. Capito- linus; and Schlosser, Universalhistorische Uebersicht, vol. iii. p. 181.)

ANTONINUS, THE ITINERARY OF, one of the most valuable works, in a geographical point of view, which has descended to us from the antients. It is merely what later writers have made of it, for it existed in the MSS. of the work it is variably ascribed to Julius Caesar, Antonius Augustus, Antonius Augustalis, and Antoninus Augustus. On a consideration of all the arguments ad- ducted to prove the priority of one or the other of them to the work, there seems to us reason for thinking that some share in the authorship may be ascribed to the three distin- guished names, Julius Caesar, M. Antonius, and Augustus, though such is not the opinion, it should be stated, of Wes- seling 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, especi- ally when a work so important as the 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 Aristogatas, the tyrant of Miletus, posses- sed of a map of the whole world on papyrus, 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. Alexander in his march to India was provided with a corps of officers called Archimedes (archimedes), to report the distances; and Strabo, in his history of the world from Apollonia on the Adriatic to the Helbus was similarly marked by a column at every eight stadia, or Roman mile. Agrippa, among other ornaments of the Roman capital, designed a noble geographical monu- ment in a representation of the whole world on a porceleine, a design which was completed by Octavia and her imperial brother in the Octavian portico. Even the provincial city of Augustodunum (Autun) had porcelains of the same kind, where maps of every part of the world with all 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 would appear to be the very moment when the emperor of Caesar in Egypt, Greece, Asia, Africa, and Spain, had at last consolidated the Roman conquests; and who con- ferred on his country the great blessing of a well constituted calendar, would naturally direct his mind to the important object of a general survey of the empire. But we are not left to conjecture. Atheneus (a geographical writer of uncertain date, but not later than the fourth cen- tury, if it be true that St. Jerome translated his Cognosc- ciones) says (from Greek) that in this reign of Caesar, the author of the bissextile 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 Nicion, the north by Philip, and the west by Trajan. Nicion they began 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 Athanasius, 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 not incredible that Athanasius 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 Athanasius by some modern writers. The MSS. may have been all used until the time of Severus, whose volumina, or great wall of protection against the Picts, (cited A.D. 209.) is more than once mentioned.

That the Itinerary, supposing it to be founded originally upon the above-mentioned public documents, afterwards received many additions and modifications, cannot and need not be disputed. The roads of Britain could not have been all used until the time of Severus, whose volumina, or great wall of protection against the Picts, (cited A.D. 209.) is more than once mentioned.

The name DIOCLETIANopolis (p. 320) carries us to a period between 265 and 266, and the expression 'Portus quae modo Maximianopolis.' (p. 321) shows, as before stated, that the name DIOCLETIANopolis (p. 139,) and que Constantinopolis (p. 322) are not found in the Vatican MS. So again the words a Constantinopolis usque Antiochia (p. 140) are omitted in the same MS. It is, however, taken by Wesseling and similar MSS. as is seen in pp. 55, 88, 89, 94, &c. In the case of the other mountain, the great city of Numidia, is not called Constantia; Antardus on the Phoenician coast is not called Constantinople. Nor is there any mention of the Christian religion which might well have been made in speaking of Antioch; while, on the contrary, we find the names of Juno, (p. 524.) Minerva, (p. 525.) Venus, (p. 526.) Apollo, Diana, and Latona (p. 527, 528.) in the MS. As a rule, it is the case that in these six MSS., there are 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 case. The MSS., with but a few exceptions, carry a variation in the MSS., 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.

Antonia... M. P. XVI.

Tribus tabernis... M. P. XVII.

Appo Foro... M. P. X. (XVIII.)

Tarracina... M. P. XVIII. (XXIII.)

Fundis... M. P. XX. (XVI.)

Formis... M. P. XIII.

Minturnis... M. P. IX.

Sinuea... M. P. IX. (XIII.)

Capua... M. P. XVI.

Caudis... M. P. XXI.

Benevento... M. P. XI.

Eque tutico... M. P. XXI.

Exo... M. P. XII.

Emonias... M. P. XVIII. (XXIII.)

Canussio... M. P. XXVI.

Rubes... M. P. XXII.

Butunus... M. P. XI.

Caritum... M. P. XXI.

Turribus... M. P. XXII.

Egnatiae... M. P. XVI. (XXI.)

Spenuscas... M. P. XX.

Brenus restaur... M. P. XXII. (XXIII.)

ANTONINUS, WALL OF. This was an encampment raised by the Romans across the north of Britain under the direction of Lollius Urbicus, legate of Antoninus Pius, about the year A.D. 146, and is supposed to have connected the forts erected by the Antonines. Some of the ancient writers, it is noticed by Julius Capitolinus only, and by him is termed a turf wall (murus cerpititius). 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 Dunglass Castle on the Firth of Forth, probably to Blackness Castle two miles farther on, though it cannot now be traced so far. In its course are nineteen forts, the eighteenth distances between which amount to 63,380 yards, or 26 English miles, 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 on all sides, even to a distance of 20 miles, was traving, as far as circumstances would permit, that a river, morass, or some difficult ground should form an obstruction to any approach from the front. Forts were also placed upon the passages of these rivers which crossed the general chain of communication. From inscriptions discovered in Scotland, it appears that the entrenchment was made by the second legion, by vexillations of the sixth and the twentieth legion, and the first cohort of the Tungr. Very considerable portion of the entrenchment may still be traced. The modern name is Grimes Dyke; Grime, in the Celtic language, signifies great or powerful. (See General Roy's Military Antiquities of Britain; and Horseley's Britannia.)

ANTONIO, MARC. [See RAIMOND.]

ANTONIO, one of the claimants to the throne of Portugal after the death of King Sebastian, was the natural son of the Infante Don Luiz, son of King Manuel. Antonio accompanied his cousin, King Sebastian, in his unfortunate expedition to Africa, and was there taken captive in 1576. He had the king's secret to conceal, but he was finally betrayed, consequently had less difficulty in obtaining his deliverance.

On his return to Lisbon he found his uncle, Cardinal Enrique, who had been appointed regent by Sebastian, in possession of the throne. Antonio immediately claimed the crown on the plea that his father had secretly married his mother. Enrique ordered him to produce the proofs, which were found to be forgeries. By the advice of the pope's nuncio, Antonio excepted the signatures as forged; and, to appease the Archbishop of Lisbon, reserving the final decision to the pope. The cardinal-king declared Antonio a traitor, degraded him from his rank, and exiled him from Portugal. Antonio fled to Spain, where, however, he did not long remain. He was solicited by the Spanish minister, and offered to give up his claim to the king of Spain, Philip II., for an annual pension of 300,000 ducats and the regency of Portugal during his life. This extravagant proposal was naturally rejected. In the mean time the cardinal-king assembled the cortes of the realm at Lisbon, in April, 1579, to decide the question of the succession. He also appointed a council of eleven judges to examine the merits of the respective claimants, and named a regency to govern the kingdom in case his death should take place before the cortes had come to a final decision. All the candidates bound themselves upon oath to abide by the resolution of the cortes, but before they had pronounced their judgment, the king died, on the 1st of January, 1580.

The cortes was at this time at Almeirim. Antonio, who had already returned from Spain, hastened immediately to Lisbon, where he summoned to those cortes to receive him as king. Not succeeding here he was repaired to Santarem, where his claim was thrown out and he was declared regent. The cortes of Santarem, at the instance of the inhabitants of the towns in the vicinity of Santarem to repair thither, and proposed to them to recognize him as governor of the kingdom. One of his own servants put a rag on the point of his sword, and insisted, saying, that as a Don it was lawful to kill the Don. Antonio, on the other hand, 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 Portuguese had 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 retired to Coimbra, and on several occasions going to Oporto, where he had been plundered, and proceeded to Oporto, where he knew he had some adherents. The success of the Castilian armies, 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 not more than four thousand men, chiefly the Regency, who died before the Spanish veterans, and both conquerors and conquered entered Oporto together. In this hurry and confusion, Antonio escaped to Viana do Minho, where he embarked; but the sea being rough, he was taken prisoner. He was now placed in a very perilous situation. A large body of cavalry was in pursuit of him, and the sun of 80,000 ducats was offered for him dead or alive. In this situation he disguised himself as a horseman's stable boy, and taking only the lower orders, he was able to remain for some months in Portugal, going from one town to another, until at last he escaped to France.

At Paris, he 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 1585. In 1588 he came to England, soon after the destruction of the Spanish Armada. He was favourably received by Elizabeth, but though he 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 enemy; to give up the Azores to the English; and to put the kingdom in England. In 1589, the expedition, consisting of 120 vessels with about 20,000 volunteers, sailed from Plymouth under the command of Sir Francis Drake and his brother, together with Sir Richard Grenville. After a voyage of three days, they landed at 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 assaulted 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 provisions, and from feeling 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, on the 15th of July, 1595, at Paris. He was buried, as his wish, in the church of Saint Germain, near the Pantheon, where his body is still preserved. He left behind him no offspring.

ANTONIO, NERON, CICERO, 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 of Seville, where he studied law 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 1646 he was a knight of the Order of Santiago, and in 1653 Philip IV. appointed him general agent for the court of Spain at Rome, which office he held with honour until he was recalled by Charles II. He was then made a canon of Seville, and created a canceller of Seville. He was sent from Seville to the court of Philip V., and 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 Exile, sive de Exiliis pena antiqua et nova, Exilium conditio et juris. Libri tres; cum indice: Antwerp, 1641 and 1659.—Of Banishment, or the Punishment of Exile, Antient and Modern, and on the Condition and Rights of the Exiled: Antwerp. Antonio was agreeably informed about these works.

2. Bibliotheca Hispana, the best and most complete edition of which bears the following title: Bibliotheca Hispana, vetus et nova, sive Hispanorum Scriptorum, qui ab Octaviano Augusto anno ad annum Christi MDCXXXIV. floruerunt, Notitia. Curante Francisco Perezio Bayero. Madrid, Joachimus Ibarra. 1788. 4 vols. folio.—Bibliotheca Hispana, Antient and Modern, or an Account of the Spanish Writers who have Flourished since the age of Octavian Augustus to the year 1585, 1682.


The principal work of Antonio is his Bibliotheca. Buallet says that he prefers it to all the works of the kind in existence, not excepting that of L'Alegambe. '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 the phraseology.' The critic, though he is in many opinions, correct, 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 lucrative offices he had held, he died so poor that he did not have sufficient property to enable him 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, Le Bibliotheque de M. de Bayeux.)

ANTONIO, ST., the most northerly of the Cape Verde islands.

ANTONIUS, MARCUS, the orator, was born 142 B.C.; in 99 he was the colleague of C. Postumius Aulus in the consulship; and in the following year he defeated 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 Marius and Cinna, when they took forcible possession of Rome. The荠cution was ordered by Marius, who put Cicerio in his Brutus, chap. 37. 38. Two of his sons appear prominently in the history of Rome.

ANTONIUS, MARCUS, son of the orator, and father of the Triumvirs, died at the battle of Actium. He died in 33 B.C. Over the Grecian islands had been put an end to by the successors of Sulla and his lieutenants, in the absence of a controlling fleet a general system of piracy arose in 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.C. 69; and the credit of reducing the island was reserved for Metellus.

ANTONIUS, CAIUS, surnamed Hybrida, another son of the orator, was the colleague of Cicero in his consulship (A.C. 63). It became his duty, under the orders of the senate, to conduct the war against Mithridates on the one hand, and to prevent the battle he was prevented, or pretended to be prevented, by illness from appearing on the field, and the command devolved upon his lieutenant, Petreus. On the termination of the war, he proceeded (A.C. 61) as proconsul to the lucrative province of Macedonia, which he had long coveted; he went 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, says, I have cut out that man, and can prove him, though, that 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, Antony was guilty of
great extortion, and his conduct gave such general dissatis-
faction, that at the end of the year he was dismissed
from the senate for his recid. Cicero, who avows in
his private letters that he could not defend Antony without
injury to his own character, nevertheless exerted his eloquence
most powerfully and successfully in his defence. Accord-
ingly, Antony held the provocation afforded him by his
return (a.c. 59) when he was formally brought to trial by
Cicero 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 of M.
Antius, surname Creticus, and Julia, a member of the
patrician house of the Cæsars, sister of L. Julius Cæsar,
the consul of 64 a.c. The year of his birth is somewhat
uncertain, being assigned by different authors to 56, 53, and
52 a.c. His father dying while he was yet young, he re-
solved 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 Cæsar as ac-
complices of Catiline, one of the most distinguished was Antony’s
step-father, Cornelius Lentulus, then praetor of Rome. He
was probably guilty; but the consul and the senatorial
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 Cælius, when that powerful
tribune (whose character, it may be observed, should not
be taken from his unscrupulous enemy) was employed in
bringing Cæsar to punishment. But Antony felt no
disgust at the proof of the violence to which Clodius resorted. Ac-
cordingly, he went over to Greece, where he diligently applied
himself to the two pursuits most important to a Roman,
state and military science. From thence he was invited
to join Gabinius, who, as proconsul of Syria, was engaged in
protecting his province from the ravages of Aristobulus and
his son Alexander (a.c. 57, 56). Antony in this war com-
manded the cavalry, and acquired great spirit and military
talent. In the course of the following five years under
him took to restore Potamæ 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 Potamæ.
Gabinius returned to Rome in the autumn of 54, but Antony,
who had been elected an officer of the soldiery soon as hostilities ceased in Egypt, hastened at once to
Gallia, the theatre of a still more important war. In the
year 52 we find Antony acting as one of Cæsar’s lieutenants
at Tarracina. He now became a candidate for the
questorship, and even aspired to the place in the college of
augurs, then made vacant by the death of Cæsar. His
pretensions to the latter office he withdrew in favour of
Cicero, who, at the intercession of Cæsar, was reconciled to
Antony, and promoted 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
in command of Cæsar at the embarkation there of the
troops there quartered. The following year he was employed
under Cæsar in extinguishing the last embers of the Cæsar
war; and so fully had he gained the support of the general
that through his interest and that of Cærio he was elected
by the plebs in 50 a.c. to the consulship of the following
year.

The senatorial party meanwhile had withdrawn Pompey
from his friendship with Cæsar, but the tributary power was
still a check upon their arbitrary proceedings, and through
this the policy of Cæsar was still powerful over the minds of
the Romans. And thus Antony’s great ambition, directed
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 advocating the just rights of Cæsar with the
people. When the kalends came, however, the senatorial
party put to the vote the fatal motion that Cæsar should dis-
band all his troops by a given day, or be treated as a public
enemy. Antony and his colleague Cassius interposed their
tribunal veto, but the senate, still unaware of the
Pompeian fleet under Lupo, and soon after he crossed the
Adriatic with reinforcements for Cæsar. 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, Cæsar, having been
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
more 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 Hyl-
ria. He accordingly divorced Antonia, and gave way to
the most open licentiousness, about which Cicero’s second
philippic abounds with scandalous anecdotes, exaggerated
however most probably by the malice of the orator. One
of the most notorious of Cicero’s attacks, and his appearance in public with an actress named Cytheria in a
car drawn by lions. When Pompey’s property was confis-
cated, Antony had purchased his house and grounds in the
first street called Sauro, at the sum of 300,000 sesterces.
Cicero says Cicero, that the money would never be demanded, and when
Antony insisted on the payment; he was obliged to sell a large portion
of his property, including a patrimonial estate at Mi-
semum, to raise the required sum. To the fact that Antony
occupied Pompey’s house, there are no preparations 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 Pulcheria, the widow of the
war in Spain (45 a.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
interference of Antony, whose letter on the subject
still exists. The next year 44 a.c. was Antony the colleage
of Cæsar in the consulship, but the senatorial party again
dreamed of recovering their power, and the idle affair of
the Lupiteralia was seized as a pretext for the conspiracy
against Cæsar. At this time there was a conspiracy of
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
the subject, and had been desired by him to write. This
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 Cæsar, when we have the authority of Trebonius,
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 having escaped from the place by night. He was met on the road by some of his friends, who prevailed with him in conversation outside of the senate-house while the assassination of Caesar was committed within.

Antony, a man of spirit, but of prudence, saw that it was a good time of possessing himself unambitiously of the rewards of his past labours. We omit to enumerate a number of acts on the part of Antony, such as his receipt of Caesar's treasures from Calpurnia, his speech over the body of Caesar, his publication of decrees, 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 senatorian oligarchy was held. The self-styled patriots were soon afraid to appear in Rome, and Antony, supported by his two brothers, Caius and Lucius, who happened at this time to hold the offices of praetor and tribune respectively, had a prospect of establishing himself absolutely in power. Antony, it seems, had no share in Caesar's downfall. But he found his most powerful opponent in young Octavius (afterwards Augustus), the great-nephew and adopted son of the late dictator, who, with the power to be his, had the support of the most opposite parties, the oligarchy and the veterans. Utterly unconcerned 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 bore so auspicious a name; and two of the four legions from Greece suddenly passed over from him to Antony. Before the year was closed, hostilities commenced in the north of Italy, where Antony besieged Decimus Brutus in Mutina. On the 14th of April, B. C. 43, the first battle was fought, when Antony, after beating 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 senatorary party were already enjoying their triumph, when the scene unexpectedly changed. The two consuls who had fallen in the last contest, Decimus Brutus, though related to Cæsar, was insensible to the sympathy of Rome, and unable to purse; and Caesar, ne'er a minister in 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 pretence this time was the death of Lepidus, then stationed in the south-eastern angle of Gallia, even if Lepidus was in earnest in opposition to him. Finally, Plancus on the Tara and Pollio in Spain, after a long hesitation, 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 unarm’d, now retraced his steps across the Alps at the head of seventeen legions, and seven more veteran legions, drawn by others to guard 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 of the lighter sort with some of these Antony sent to the equivilog conduct of the senate by marching upon Rome, and extorting the consular fasces.

In the autumn of this year the celebrated triumvirate was established between Antony, Lepidus, and Caesar; sometimes called the second triumvirate, but more often the first triumvirate on account of the private understanding between the first Caesar with Pompey and Cassius never assumed a public character. Antony and his colleagues, on the contrary, received their title under a public vote; for Rome, Cæsar had put an end to the equivocal conduct of the senate by marching upon Rome, and extorting the consular fasces.

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war against Antigonus, for which he likewise triumphed a few years after (34 B.C.); and a third, Cænius, had recon-
vened the armies of Rome to the fate of the Caucasus. On the other hand, the siege of Samosata, which was partly conducted by the general in person, rather detracted from than added to his military fame by the long and determined defence of the Commandus of Antiochus.

But Antony was again called to Italy by the sus-
picious conduct of Cæsar. On his approach to Brundisium
he was refused admittance into the harbour, on the ground
that he was accompanied by Domitius, who, it was pre-
tended, had been a party in the murder of the dictator.

After much argument and some hostile movements, a
second reconciliation was effected by the mediation of
Octavia, and Julia, the mother of Antony, who at the same
time bore to Cæsar the close of February. A new agree-
ment took place at the end of 37, or in the following
spring. The most important article was the renewal of the
triumviral power for a second period of five years, com-
 mencing from the last day of the year 36, and on which
the first period of their triumvirate terminated. Cæsar now
conducted the war against Pompey, while Antony directed
his arms against the Parthians. On his approach to Syria
he sent for Cleopatra, on whom he conferred the provinces
of Coele-Syria, Cilicia, and part of Arabia. His preparations for the invasion of the
Parthian empire were on the largest scale, but the influence of the Egyptian queen produced the most disastrous effects.

This was in the spring, and after a campaign in which the soldiers showed the
greatest spirit, and the general, on some occasions, no little
military talent, the retreat was effected with great loss,
partly through the eagerness of Antony again to meet Cleopatra.

The failure of this campaign had been in a great measure
owing to the treacherous desertion of the king of Armenia.
Accordingly, in the following year, Antony was anxiously
looking for an opportunity of revenge, and a quarrel be-
tween the king of Media and the Parthians seemed to offer
a favourable opportunity. The prospect of a war at any rate
afforded him a pretext for avoiding an unwelcome visit
from Octavia, whom he had directed to remain at Athens, while
he added to the insult by still dallying with Cleopatra at
Alexandria. The following year, the invasion of Armenia
took place, and by treachery, in his turn, Antony got the
king into his power. In the mean time, Cæsar, by the over-
throw of S. Pompeius and the usurpation of the provinces
assigned to Lepidus, was at last prepared for a contest with
Antony himself, who afforded him more than a pretext by
the neglect of his sister and his conduct at Alexandria,
where he seemed to have more of the character of a
Roman citizen for that of an eastern monarch. In
33, Antony again commenced an invasion of Parthia, but
as soon as he had reached the Araxes, he retraced his steps
to prepare for the war that now threatened him from the
west, which was passing away. In the spring of 33, in 31, the possession of the Roman world was decided by the
victory of Actium. (See ACTIUM.) From that day
the fate of Antony was fixed. In August, 30 B.C., Cæsar
appeared with a fleet and army before Alexandria, to which
Antony had retreated; and the desertion of his fleet and of
his cavalry before his eyes left him only the poor hope of sustaining a siege. A false report of the death of Cleopatra
completed his despondence, and he killed himself with his own
sword. Cleopatra likewise saved herself by suicide from
adorning the triumph of the conqueror. It was a singular
coincidence that the account of Antony’s death was laid before the senate by M. Tullius Cicero, the son of the
orator, who assumed the consulship on the ides of September.
Antony’s age at his death was a little more
than 50; that of Cleopatra 39. He was four times married,
or indeed, five times, if we may admit his marriage with
Padias, on the authority of Plutarch. Of his two children
by Pulvia, Antyllus the elder was put to death; and the
younger, Julius Antonius, to whom Horace has addressed
an ode, after long enjoying the favour of Augustus, suffered
for the same cause. At the command of Cleopatra, the daughter of Octavia, he had at least two daughters (see ANTONIA); and
by Cleopatra, a daughter of the same name, and two sons,
Alexander and Ptolemy Philadelphia. Of these, the
daughter married the learned African prince Juba. (See
Cicero’s Letters and Orationss; Cæsar; Velleius; the Epi-
stromies of Livy; the 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 favoring 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
continuance of the Lough Neagh, a fresh-water lake, which,
between the mountains of Antrim and Down, and in
the Irish Sea, and separates Ireland from Scotland.) on
the S.E. by Belfast Lough, on the S. by the county of Down,
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. 304 miles, and contains, according to the trigonome-
trical survey now making under the direction of the Board
of Ordnance, 756,996 acres, of which only 463,088 are
arable, 225,970 being mountain and bog, and 45,790 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 ‘Giant’s Causeway,’ an immense pile of
perpendicular basaltic columns, varying in their numbers
and forms, 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 GiANT’S CAUSE-
WAY.) Other specimens of columnar basalt are found along the
coast, as at the promontory of Bengore in the neighbour-
hood of the Giants’ Causeway, and at Fairhead, a head-
land about eight miles west of the last, also in some places
inland. From Fairhead, the coast, which runs so far nearly
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
forsaken and secluded harbours. On the coast lie the islands of Skerries, and Rathlin or Ragheray. The Skerries are small islands
W. 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 Slunk-na-marr:—the passage of this strait is
often dangerous from the heavy swell. The inhabitants,
who amount to 1800, are engaged in fishing, raising barley, or manufacturing kelp. At Doon Point, in this island, are
some singular basaltic columns, horizontal, perpendicular,
and curved. The eastern side of the county is mountainous;
but the mountains form irregular groups rather than a
continuous chain, and are interrupted, as it were, by
valleys, which also prevail in the western and flat part of the county.
The principal heights are Slemish, about the middle; and Knock-
yard or Knocklead, 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 Lon-
donderry, the adjoining county to the west.

There are no navigable streams of any importance running
through the county. The largest are the Bush, which,
rising in the mountainous district to the N.E., near Knock-
yard, flows first to the west and then to the north, and falls

* The distance from the Malt of Cairn, in Scotland, to the N.E. point of
the county of Antrim, is less than fifteen miles.
into the ocean at Ballintrease near the Giant'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 Gouk, near Ballycastle, and runs parallel to 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 the county of Londonderry, [see Barrow]; and the Lagan, which is shared by the poor county of Down, has watered the county of Antrim 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 Dunluce and Carew in the north, and Upper and Lower Glamorgan, stretching along the east coast, westward, Kilconway, Upper and Lower Antrim, and Upper and Lower Toomey; Upper and Lower Belfast, inclosing the county of the town of Belfast, as the county of Londonderry, consists of the south, and comprehends the most beautiful, improved, and populous parts of the county. These baronies include 74 parishes; one in the bishopric of Clogher, 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 immediately from the crown, or held by lease from the grantee. The fee of the greater part of the arable land is possessed by the Marquises of Hertford and Donegal. The principal proprietors are the Countess Massarene, Lords O'Neil and Templeton, and Colonel Packenham. Agriculture is in a very backward state. The great part of the land has been divided into small holdings by the farmers, who are also engaged in linen weaving. In the flat parts of the county, along the shore of the Belfast Lough, the farms rarely exceed ten acres, part of which is devoted to raising potatoes, the quantity thus appropriated being regulated by the quantity of manure, which latterly 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 raising potatoes, two or three sowings are repeatedly drawn; 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 to 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 land of the county of Londonderry is divided into very small occupiers, take what are termed 'corn acres,' or 'con acres,' i.e., ground hir'd to raise a single crop of potatoes or oats. In the northern part of the county, the hills are more barren from the exposure to the north winds; but the districts are inhabited 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: 89,000 firkins from this county and those of Down and Armagh were, in 1827, exported from Belfast. Cheese is made also; that of Carrickfergus 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 cabins; 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 immense. In the returns of 1826, the number of sheep was enumerated at 71,000, amounting to 200 lbs. each, when sold in Belfast, fetching from 1/12s. to 2/14s. 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 Count of Ireland; and MS. 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 coal (the so-called honeycomb coal) at Killymore on the same estate. English coal is imported into Belfast. Gypsum, marble, beautiful crystal pebbles, and different sorts of oysters are found.

The great manufacture of the county is that of linen. There was one great works to those extending to 14,000 acres (viz., 11,600*) having been devoted to this crop in Antrim than in any other Irish county, except Armagh; but the cultivation of flax has diminished of late years. The seed is almost entirely brought from Holland. It is spun into yarn by the poor, and is worked into many sorts of cloth: a great branch of 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 weavers work on their own account, and are divided into bleachers, blackers, shapers, or stumpers, and spinners, or spinnners, who do not spin, but shape the 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 4l. to 5l. each) which they let at 10s. or 12s. per annum, or to a few weavers, as apprentices, or to a number of persons employed in Belfast, Lisburne, Carrickfergus, and the neighbouring districts, is estimated at 26,000, having about doubled since 1800. 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 most of the foreign commerce. (See Belfast.) There are some salmon fisheries at Custeedal, Tor Point near Fairhead, Ballycastle, Carrick-a-rede, and the Bush-foot. The more important one in the Bann near Coleraine rather belongs to the counties of Londonderry and Down. 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: 2866 were of the established church, 11,540 were presbyterians, 439 dissenters of other denominations, 3765 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, which is still preserved. According to the returns of the Commissioners of Education in 1831, 8698. Belfast is, however, the place of greatest importance (population 53,327). Both of these are on the north shore of Belfast Lough. Lisburne, on the south shore, 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 1541,) an important and considerable place, with a post office, and consisting of 4063, and Ballymolly, (population 2222,) a neat little town, with stone houses, and slated roof, and having a decent inn; both these are on the road from Antrim to Coleraine; Ballycastle, (population 1860,) with its own coal mine, 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 1800, and does not seem to include planting of less than one acre, which are very numerous. It is probable that the acre is 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 remains of two other towers, one at Armoy near Ballycastle, and the other on Ram Island in Lough Neagh; Dunluce Castle, a Scotch shore, and Keem Castle, both near Sligo, 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 cromlech and a rocking stone are to be seen in the county.

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 3487, of whom 561 were freeholders; 462 were rated, and 2400 more.

The county is a native and constituted county.

The town of Antrim is 56 feet 9 inches above the Malay sea-level; and the best of the two spires was finished. By the kindness of a friend, we are enabled to rectify the height of the spire of Antrim cathedral, which must be reduced to 366 feet at the outside; consequently it is lower than the spire of Salisbury cathedral, if the height of this latter is correct, and the spire of York Minster. The height of the Antrim spire was made with a mountain-barometer by Jones, and were repeated in order to insure accuracy. Being warned by this example, we will not again make a mistake to search for the spire 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's finest pictures, one of which, the Descent from the Cross, is now exhibited in the town of Antwerp. The other is given to Earl of Macdonnell. (Wakefield's Account of Ireland; Beautifur'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° 8' W. long; of Greenwich. It is near the N.E. extremity of Lough Neagh, the largest lake in Ireland, and on the great river which flows into the Lough. Although Antrim gives name to the county, it is not the shire town, and had, in 1831, a population of only 2555. It was once, however, a place of importance, as appears from the Union, returned two members to the Irish House of Commons, from the mayor being a pillar of considerable extent of coast, and from the corporation having been entitled to the customs paid by all vessels within the limit of the jurisdiction that was by the mayor. This grant was repurchased by the crown, and the custom-house was transferred 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 spire, and within there is 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, once the seat of the Shetingtons, Viscounts and Earls of Massarene, and now of Shetington Foster, Earl of Ferrard.

The life is a vice 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 antiquarians; most of them, however, agreeing that they are the work of the Ostmen or Danes. Mr. Ledwich (Antiquities of Ireland) supposes them to have been the belfries of the cathedrals. Other opinions have been broached of late, and by some people received.

This town was the scene of one of the severe contests which occurred during the unhappy civil disturbances in the year 1798; and in 1806, O'Neill, member of the last general election (of 1832), Antrim gives the title of Earl to the family of Macdonnell.

Antwerp, called by the natives Antwerpen, by the Spaniards Amberes, and by the French Anvers, is situated on low ground on the right bank of the Scheldë, 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, nearly due north of Brussels, the capital of Belgium, about 9 miles south-west of Antwerp. The market is at 10 feet. For the two miles in front of the city of Antwerp the depth at low water is from 32 to 42 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 1668. The houses are generally of a sandstone called kraaiestein, brought from Boom, a few miles south of Antwerp. This still magnificent, and once still more splendid, town, has a number of large 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 451 feet, and even 482 feet. One of the two spires originally designed, only one is finished. By the kindness of a friend, we are enabled to rectify the height of the spire of Antwerp cathedral, which must be reduced to 366 feet at the outside; consequently it is lower than the spire of Salisbury cathedral, if the height of this latter is correct, and the spire of York Minster. The height of the Antwerp spire was made with a mountain-barometer by Jones, and were repeated in order to insure accuracy. Being warned by this example, we will not again make a mistake to search for the spire of the cathedral. With a small telescope, objects may be seen pretty clearly from the spire of the cathedral for 40 miles round.

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Antwerp contains a great military arsenal, dock-yards, and an extensive rope-walk. The citadel is a regular pentagon, surrounded by a wet ditch 96 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 employments are described as sedentary, and some of the apartments 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 individuals, at their own expense, a Madonna with the child Jesus at the corner of the city, in the market, and in the Attique, gilded, in glazing colours, and the latter with a gilded glory round his head. Napoleon swept away these testimonials of superstition, in which he perhaps showed less policy than the Protestant king of the Netherlands, who presented the Hôtel de Ville, or Town House, is a large and handsome building, with four of 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 equal in beauty to the Hôtel de Ville 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 Town, the great imperial palace, built by Napoleon, in the Meer, which is the residence of the minister plenipotentiary, and the new quay and the great basin of Antwerp were begun by Buonaparte, when he intended to make this city one of his strong naval stations. The area of the great basin is 17,120 acres, and it is usual to see 250 vessels having, or preparing to leave the basin. The area of the great basin are two careening docks, made during the empire of Napoleon for repairing the ships of war constructed 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, to beautify the place, 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, which was the birth-place of Jordaens, Rubens, Vandyke, the Teniers, and of Quintin Massys, who, as the story goes, was changed by love from a blacksmith into a painter, still possesses a number of the illustrious artists in several good collections of paintings. The geographer Abraham Orelius was a native of Antwerp. It has also an Athenaeum, a botanical garden, public library, and an academy of the fine arts.

The country of the province of Antwerp is still considerable, though far below what it was in the fifteenth and sixteenth centuries, when at one period it had a population of 200,000, and 2000 vessels annually entered its port. Its population in 1790 was 113, according to the census made in 1811; 995 ships entered its port in 1829; 690 in 1830; and 392 in 1831. A corresponding decrease took place in the number of vessels that cleared out of Antwerp from 1829 to 1831 inclusive.

The city is divided into two parts, by the canal with Mechlin, Louvain, Brussels, and with Ghent by the Scheldë. Its chief fabrics are thread, tape, linen, oaths, silks, sugar-refining, calico-printing, and diamond cutting. They use the French coined at Antwerp, and make a good deal of the French coin in the city. There is a bank, 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.

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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 Ambivariet of Caesar, which is probably a corrupted name, did not live on the Schelde, 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 un

worthy 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 1579 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 Schelde was closed, and this, added to other calamities, destroyed the prosperity of the city. The navigation of the Schelde was opened at the time of the French occupation of Antwerp, which took place in 1792. In 1793 the French evacuated

ANTWERP, one of the eight provinces of the kingdom of Belgium, is bounded on the north by the Brabant, by Limburg on the East, on the south by S. Brabant, and on the west by East Flanders and part of Zeeland. The Schelde 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 1812,

<table>
<thead>
<tr>
<th>Year</th>
<th>Increase of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1803</td>
<td>693</td>
</tr>
<tr>
<td>1804</td>
<td>670</td>
</tr>
<tr>
<td>1805</td>
<td>650</td>
</tr>
<tr>
<td>1806</td>
<td>630</td>
</tr>
<tr>
<td>1807</td>
<td>610</td>
</tr>
<tr>
<td>1808</td>
<td>590</td>
</tr>
<tr>
<td>1809</td>
<td>570</td>
</tr>
<tr>
<td>1810</td>
<td>550</td>
</tr>
<tr>
<td>1811</td>
<td>530</td>
</tr>
<tr>
<td>1812</td>
<td>510</td>
</tr>
</tbody>
</table>

The following statistical facts are from the tables of Vander Meulen (Etablissement Géographique de Bruxelles, fondé par Ph. Vander Meulen 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 1/4 of the whole.

Population in 1831.

<table>
<thead>
<tr>
<th>City</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>122,370</td>
</tr>
<tr>
<td></td>
<td>225,220</td>
</tr>
<tr>
<td></td>
<td>347,590</td>
</tr>
</tbody>
</table>

Education.

<table>
<thead>
<tr>
<th>Children in communal schools</th>
<th>Children in private schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Male</td>
</tr>
<tr>
<td>11,617</td>
<td>8,557</td>
</tr>
<tr>
<td></td>
<td>26,006</td>
</tr>
</tbody>
</table>

Therefore one in every thirteen inhabitants is in the schools, nearly.

T
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 Scheldt, which receives on the right bank the Rupel at Bruges and the Leie at Mechlin, and the Rupel at Mechlin, and the Leie at Brussels. The province is divided, as it were, into smaller and smaller Nethe, the Dyke on which Mechlin stands, and the Senne which runs by Brussels. As this region belongs to the great delta of the Rhine, it partakes of the character of a maritime province; and the extent of rice-fields 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 often much less.

Breda exhibits the general productivity of the Low Countries, but this province contains, perhaps, a larger portion of hest and barren land than any of them except Limbourg, or we may say N. Brabant, as a great part of the morass of Pea is given to N. Brabant by the treaty of London, Nov. 1831. A part of the barren Kempenland or Campine belongs to the east part of Antwerp. Between Breda in N. Brabant and Antwerp the country is described as flat, sandy, as 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 river of Bishop Bosso, and the diocese of Benghazi. Between Antwerp and Mechlin (which is near the southern limit of the province) the country is well cultivated. The inclosures made by dikes, dykes, and trees, are kept in good order; some are level, but the whole is divided into squares by dykes. Good crops of wheat, rape, and carrots line the road. The houses are strong 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 stones of the broom after three years' growth furnish fuel for the kitchen or the oven, and are also used in burning bricks; the ground also is found to be in very excellent condition after the broom is cut down, and secures the farmer a large crop of winter grain. The richest grass lands, extend along the Schelde as far down as Zvntviet, and to Bergen-op-Zoom in N. Brabant. These Polders, 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, Liege, Turnhout, Ghoeil, and Boom. The language of the mass of the people is Flemish, 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 the province of Austrian Netherlands. From 1811 it became part of the United Kingdom of the Netherlands. In 1830 it became a province of the new kingdom of Belgium.

ANUBIS, an Egyptian deity, represented with the head of a fox, dog, or jackal, and a human body. In some Egyptian remains we observe him standing by a bier, on which a mummy is lying. Anubis has the son of Isis and Nephthys, the wife of Typhon, and sister of Osiris. He appears to have been considered in one sense as the conductor and guardian of departed souls, and in this respect his character much resembles those of the ancients of the Greeks, and Mercurius of the Romans. Other resemblances are suggested between this Egyptian deity and Hermes, (the god with the golden wand, χρυσφορός,) by the supposition that the element Anubis, in Anubis, has the same signification as the Copit note (see Copit version, Matt. ii. 17.) signifying gold. (See Jablonsky's Pantheon, Anubis.) For the phonetic name of Anubis see son of Isis, see Good's Egyptian Monograms, p. 219.

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, when the French map which Bell held in his hands, for 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 study of French geography was not sufficient to be the object of his special predilection. After leaving college, he became acquainted with several, learned men of his time, and particularly with the Abbe de Longueuville, a learned Jesuit who had a considerable influence. The young man was set about drawing several maps of France and its various provinces, for the Abbe's work; Description géographique et historique de la France ancienne et moderne. At the age of twenty-two, he was appointed one of the King's geographers. Shortly after, his map of the world 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 1740. He made it chiefly upon a close investigation of the antient 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 suffered the sheets of his Atlas, to which he was a contributor, and containing many mistakes, came to him, and asked if they were correct; he replied that they were, and that they were correct. 

He was born on January 17, 1709, as is stated in the preface to his Geographical Atlas, published in Paris in 1743. His map of the kingdom of Turkey shows the differences between his and Sanson's maps, and having reduced the area of Italy by several thousand square leagues. He drew several maps of sacred geography, namely, Scclesis Africana, 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 Barbier du Boulogne in his Annales de la Géographie. The Description de son Eloge par M. Dacier, Paris, 1802. He published one hundred and four maps on antient, and one hundred and six on modern geography. He wrote about forty works, including several memoirs, which are inserted in the Recueil de l'Académie des Inscriptions et Belles Lettres. The following are the most important among his works, all published at Paris, Analyse géographique de l'Italie, 1744, 4to., already mentioned; Dissertation sur l'Etendue de l'ancienne France, 1745, 4to.; Notice de l'ancienne Gaulle, tirée des Monumens Romains, 4to.; a work much and deservedly esteemed, in which the author, however, confines himself to the provinces of Gaul, and by his map he added: Élaborations géographiques sur l'ancienne Gaulle, 1743, 12mo.; Mémoires sur l'Egypte ancienne et moderne, suivi d'une Description du Golfe Arabique, 1766, 4to. Mr. Wells, in his Annals of Geography, describes how the Jesuits, under D'Anville's direction, visited Egypt, to make a survey of the country. The expedition was under the direction of Mr. Longueuville, and was accompanied by D'Anville, who was the leader, and the chief of the French court. The expedition was under the direction of Mr. Longueuille, and was accompanied by D'Anville, who was the leader, and the chief of the French court. The expedition was under the direction of Mr. Longueuille, and was accompanied by D'Anville, who was the leader, and the chief of the French court. The expedition was under the direction of Mr. Longueuille, and was accompanied by D'Anville, who was the leader, and the chief of the French court.
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 works. In his M. C. he also shows in his Voyage dans la Macdonaye. [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 of 1800 miles, while the true distance of this isthmus is less than 300 miles. In a whole 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 was still, in some points, the authority on which our present delineation of the map of Anvari, and several important, 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, that we cannot yet positively say 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 of Paris before he was sent by the Ministry to make 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 the minds of the many learned persons by him who had, in 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 the was something of an egoist that he had found the 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 avoided in our literary maps.

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, (Diog. 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 still adheres to the language of the ancients, and his discussion of the position of a place would sometimes hardy lead us to expect the precision which we find in his maps. We believe that D'Anville was occasionally more inclined to flattery than to truth; and that he might sometimes have been led by motives other than those which prompted him. In 1733 the French Academy of Sciences established a prize for the most striking manufactures at the end of six years, and the same year he succeeded to the vacant place of first geographer to the King. In 1777 he published his Considérations sur l'Études et les Compositions que demande la composition des Ouvraign Geographiques, 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 constitution, naturally delicate, became now worse, and he died, at a station, 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. He left only two daughters. There are two more works translated or compiled in English from D'Anville, besides the 'Compendium' already mentioned, namely A Complete Body of Geography, which contains, including Geographical, Veterus Notus, 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.

Khawerani. He received his education in the college of Mansur, at Tus. A visit of the Seljukide sultan Sanjar to Tus furnished him the first opportunity of making himself known by a poem in praise of the sultan, which is by oriental critics considered one of the best produced; the greater part of it was fond of poetry, enlited him among his suite, and bestowed honours and ample rewards upon him. Anvari followed the sultan to Merw, then the residence of the Seljukide. Here his health broke down, and he was not fortunate in his predictions, by one of which he made himself so ridiculous that he retired from Merw to Balkh, where he died in the year 1297 of the Hegira. (A.D. 1399-1400.) Manuscript copies of this poem, or collection of his works, are frequently met with. It consists chiefly of kafidas, or long poems, mostly panegyrical, and of ghazales, or shorter lyric effusions. In the East, the kafidas of Anvari are admired in preference to his ghazals; to our own taste, the latter are more agreeable; in the latter part of Anvari is simple and comparatively easy, while his kafidas abound in metaphors and conceived historical allusions, which render many of them unintelligible without the aid of a commentary. It deserves to be remarked, that the language of Anvari, though he is one of the earlier Persian poets, is as full of Arabic expressions as that of almost any subsequent writer; whereas, in the Shahnameh of Firdusi, who lived only a little more than a hundred and fifty years after Anvari, it does not abdurate purity. It is unlikely that the spoken language should have undergone so striking a change within so short a period; and we are inclined to think that Firdusi, to preserve the national dignity of his people, and to perpetuate the history, studiously avoided all Arabic expressions which might, at his time, have crept into the Persian language.

ANWEILER, a town in the former duchy of Deux Pois, and now in the circle of the Rhine, forming part of the kingdom of Bavaria; it is built on the Queich, six miles distant from Landau, and has 2200 inhabitants, who subsist chiefly from the profits of their paper-mills. The ruins of the castle of Trifols, where Richard, Coeur-de-Lion, was kept prisoner in the year 1192, may be seen in the vicinity of this place.

ANXUR. [See TERRACINA.]

ANYTUS. [See Socrates.]

ANZIN, a village in the immediate neighbourhood of Valenciennes (department of Nord) and the seat of the most extensive collieries in France. The coal was discovered in 1734, by the Viscount Desaudrion. The working of these mines is thought to have been attended with greater difficulties than of any other in Europe. The pits amount to forty all together, and sixteen of these are of great depth; some are as much as 300 metres, or nearly 1000 feet; and some authorities of Diable-d'or de Laon. The distance from the mines amounts to 16,000, and the annual produce is about 4,000,000 of quintals (of 108 lbs. avoidupsia). Comparing the above statements with those given in the Dictionnaire Geographique de la France, (1804,) it appears that the working of these mines has prodigiously increased; for at the last mentioned period only 1500 workmen were employed. The population of the village was then 3196; it is now about 4000. (Mali Brun; Balb; Dict. Geog.)

ANZUN, a large island, or rather a collection of islands, in the Caspian sea, near the entrance of the river Araxes. It is about 12° 15' lat. N. and 59° 55' long. E. 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 shores rise in many parts with remarkable boldness,
and is broken by two open bays. Rocky reefs extend from its extremities far into the sea; and from the south-western to the north-western point it is bounded by a reef which is two miles wide. This part of the island presents 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; among them is the principal volcano, which is the top 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 trees, chiefly 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 does not hesitate to give them 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 being oppressive even in July.

Rice is raised, but not in large quantities. A kind of yam is much more cultivated; and forms the principal food of the inhabitants. Yams, papayas, and sweet potatoes, abound in the kitchen-gardens. The fruits consist principally of papaya, of which a great number, containing hundreds of seeds, are gathered and eaten. The area-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.

The domestic cattle are of the same kind as in the town; and persons of rank travel in rudely constructed palankins. 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 a considerable number of guinea-fowls 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 abound everywhere along the shore. Whales are often seen to visit the island, and are often killed by the inhabitants of this island. Cows are found on the islands 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 neighboring islands, they defray the charges of it by voluntary contributions, and declare war in their own name, and claim to have the whole of them as their own booty and captives. As the succession to the title and authority of sultan is not fixed by unalterable laws, but requires the confirmation of the chiefs of the chief tribes, the government is liable to 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 Matsamado, 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 Daman, which is ten miles from the interior of the island. The trade of this island is very inconsiderable. 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 expects the merchandise received from the Europeans returning from Bombay, which it exchanges for elephants' teeth, rice, cotton, and other productions. (Sir William Jones: Capt. Williamson: and Horsburgh's Directory for Zanzibar, page 105.)

**AORTA**, a Greek word (αceph). The aorta is the great vessel from which all the arteries of the body which carry red blood derive their origin. It arises from the upper part of the body in the base of the ventricles of the heart. Its origin is directly 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 vertebra 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 towards the body of the third vertebra of the spine. It lies here in the intervertebral canal and forms a transverse arch of the aorta. From the third vertebra of the back, where its arch terminates, it proceeds in a straight course downwards through the chest, immediately in front of the arch of the aorta. At the point where it passes through the diaphragm, (see *Diaphragm*), it passes from the chest into the abdomen. All this part of the vessel, namely, that extending between the termination of the arch of the aorta and the diaphragm is denominated the *descendent* or *straight portion* of the 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 vertebra of the lumbar; 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 is denominated the common iliac arteries.

The three main 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 are the inferior or abdominal aorta, which 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, those parts of the abdomen; and the ilio 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 reflex current of blood from the vessel into the heart.

The aorta is subject to numerous and important diseases, as inflammation, aneurism, obsolescence, &c. (See *Carditis*, *Aneurism*, *Obsolescence*, &c.)

**AOSTA**; the duchy of, one of the five divisions of Piedmont, or rather, speaking more accurately and 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 Baites. This river, from its source in the Graian Alps, runs first eastwards for about thirty-five miles, and then turns abruptly southwards below Chastillon, flowing in the same direction to the village of St. Martin, where it enters the province of Verzasca, its way to the Po. Many smaller valleys open on the main valley, which they drain. As it passes through the mountain streams which flow from the Upper Alpes into the Dora. The principal are on the north side, the Val Lesa, which begins at St. Martin on the Dora and continues to the town of Verres, the Vitriom, and the Peinyes; and on the south side, the Val Challent, called also Val d'Ayas, beginning at the town of Verres, the Vitriom of the Romans, and stretching likewise northwards to the glaciers of the same range; Val Tournanche, which begins at Chastillon 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 Visp in the Valais; Val Pellina, which extends north-east of the city of Aosta, along the base of Mont Pelvoux and Mont Corna Cervin to the Col d'Owen, over which there is another, nearly 8000 feet high, into the Valais; the Val du Buter, 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, the Dora Pelvoux, and Mont Blanc, the main valley branches out into several high and narrow gorges: of these the Val d'Entrevues contains the village and the baths of Cormeyron, from whence passes northwards to the Col d'Aigle into the Engadine; called also Allée Blanche, 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 has its source in the little lake of Bass de la Seigne, continuing 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 Grammont, covered with perpetual snow, divides the Val de la Tisule from the Alfé Blanche. The other valleys that branch out of the main south of the Dora are: Val Griaunche, which leads from the village of the same name, shared the St Bernard passage; and, in a lofty group of Alps that project eastward of the Courmayeur range between the Little St Bernard and Iserean; Val Rognon, which leads in a parallel direction; Val Savoia Vecchia, or Savoianche, leading from Vintimilla and from the north-east of the Dora, and Mont Forence, extending from Aosta to Mont Socal, an offset from the great chain of Mont Iserean, which incloses the province of Aosta on the south. The valley of the river Oree in the province of Turin; and, lastly, Val Cambresan, 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 and butter, cheese, which, however, 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 highest rank have their houses; they 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 tenant farmers. A considerable transit trade is carried on between Switzerland and Italy by the St. Bernard, which is the most direct communication between Bern and Turin. The vine thrives on the lower heights; it is a southern plant, and the vineyards of the valley of the Dora are, especially those of Cham, Cogne, and Carema; they are not inferior to those of Montferrat; and there is some good muscadel 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 fir 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, and hears the shrill cicadas, and feels the sun as hot as that of Naples.

The rivers Dora and the other streams afford excellent trout-fishing. The duchy of Aosta is rich in iron, copper, and lead ore. There are iron works at St. Vincent, near Chail, at Monjore, at St. Marcel, at Grasse, at Cogne, La Tulle, &c. There is manganese in the Val de Chalvign, as the French call him, in the parish of his name. The hills are covered with the 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 Evançon, which flows through the valley of Chalvign, and Saussure says that some of the peasants in his time gathered them in a considerable quantity out of the sands.

The people of these secluded valleys are an honest, quiet, and a modest people. The ladies are different from the Piedmontese, but resembling rather the romanesca costumes of Savoy and western Switzerland. Most of them, however, understand French, and speak it well enough for common purposes: Italian is 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 black, lined with white, and ornamented at the top and bottom with the same colours, buckles to their shoes, and huge cocked-hats. The women wear black or white caps, fastened under the chin, which serve partly to conceal the goitre, or wens, with which many of them are more or less afflicted. This is a misfortune peculiar to the Aosta district, where the mountains, of the lowest mountains, and the valleys, of the last part of the old 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,
in this instance, they are all synonymous terms,—contains 73 communes, forming seven monasties, or districts, under one
monarch. The province as a whole is 8,683 square miles
large, and its population, according to the census of 1826, was
64,640 inhabitants. The length of the province from east to west is 65 miles, and its greatest breadth is 30 miles; but the
great inequalities of the ground add largely to the difficulty of its
survey. Of the 198 towns, the road to Turin, stands a single triumphal arch of Roman
architecture; it is built of a kind of pudding-stone, and the
marble with which it was cased having been removed, no
inscription or ornament remains, except fragments of the
frieze and the pillars, in which the arch is pleasantly situated
at an opening made by the meeting of several valleys, and
in a fertile country. It is nearly 3000 feet above the level
of the sea, and is 56 miles N. by W. of Turin and 65 miles
S. of Genoa. The soil, composed of 45% lat, 25% chalk, 25%
sand, Archbishop of Canterbury under William Rufus and
Henry I., 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 Archdeacon
of the cathedral of Aosta.

APANAGE. (Apamagium, Apamantium) the provision of
lands or feudal superiorities assigned by the kings of
France for the maintenance of their younger sons.

The western European or English name assigned was called
the apanage, and he was regarded by the antient law of
that country as the true proprietor of all the seignories
dependent on the apanage, to whom the fecundity (fruit) of all
subordinate towns within the domain was due, as to the
lord of the 'dominant fief.'

Under the first two races of kings, the children of the
decadent 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 Capeta, 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 branches of the family.

Towards the close of the thirteenth century the rights of the
apanage were still further circumscribed, and at length it
became an established rule, which greatly tended to
condescend the royal authority in that kingdom, that, upon the
failure of the lineal heirs male, the apanage should revert to
the crown.

The period at which this species of provision was first in-
trived into the law of France is a 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-
panage; Durand, Traité des fiefs; and Renault's Hist. de France. Anno 1283.)

By a law of 22d November, 1790, it was enacted, that in
future no apanage real should be granted by the crown, but
that the young princes should receive from the crown
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 apamagiques was
granted to them, the amount of which was to be ascer-
tained by the committee of the royal revenues.

'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
formation of a true monarchical system. Yet, although
with 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.'

The word means that the lesser fiefs through the operation of
the Salic law, which made their inheritance of the crown
less remote contingency, the princes of the blood-royal
in France were at all times (for the remark is applicable
long after Louis X.) a distinct and formidable class of
aristocracy, whose position was maintained by the
reigning monarch, and, in general, to the people. (Middle Ages,
vol. i. p. 121, 3d 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 felspar. In colour it passes from white, through
various shades of yellow, brown, and purple; at the
apex it possesses 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
the fluoride of phosphorus and lime. It is occasionally
replaced by its isomorphous element chlorine. Its constitu-
tion may be expressed by 3 (3Ca + P4H) + (C4F + Fe). (C4F +)

This mineral occurs in the primitive rocks, and is found in the tin 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 belonging to the
phosphates and quartz, near Logrosan, in Estramadura in Spain.

APLOME. (See Garnet.)

APE, (Pithecoidea), in zoology, a genus of quadrumanous
mammals, which, though of inferior size and shape, possess,
reaches 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
offen, from which the verb offen appears to have come; this
is, perhaps, more probable than to suppose that offen comes
from offen. The name exists, with very slight variation, in all
the modern languages of Teutonic origin; as offn in Eng-
lish, offen in German, ap in Dutch, of; these, also, are the
names of the species of the genus, to which the animal 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; thus we say that an orang 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
indifferently to the same animal, yet the significations have
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
certainly do not express the zoological relations which sub-
sist 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 of the Pithecidea comprehends all the
mammals which have the tail 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-
ccludes certain tailless baboons and monkeys, comprehends,
the other hand, the true monkeys (Callitrichidae), the apes,
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
the true monkeys, which form the only family of this gen-
us, the only animals, approach most nearly to the
human species in organisation: indeed, as far as can be

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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 at the same time render the characters and mode 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 long inferior struts of the arms, which are the thighbones; the knees are turned outwards, and the feet are articulated at the ankle in such a manner that their soles turn inwards so as to face or be opposed to one another. By these means the apes are enabled to embrace or grasp the objects of any size or shape. Moreover, if they be compared with quadrumanes of the old continents, is found in some species only of the real apes, and absent in others: this is the possession of callousities, which are naked callous parts of the arms, locks, upon which the violent and rapid movements which they habitually execute. Illiger 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 callosities; 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 true quadrumanes. But the same singular modification of the locomotive organs; their manner of life also is precisely the same: both equally take up their habitation in the thickest and most solitary forests, inhabit the same countries, and live upon the same food.

The 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, anterior finger, is completely opposable 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 they are very precisely the habit of the terrestrial animals. One part of their organization renders them intermediate between the bats and ordinary mammals; another, makes them the connecting link between man and the quadrumana. The great length of the extremities, and the equal length of the arms, 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 habitat equally correspond with this intermediate structure. They are more perfectly adapted 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 habitually get their food; and, in the same manner, the extremities, compared with those behind, of which they are connected by a wing, and the power and velocity which can only be compared to actual flight. On the other hand, when compelled by circumstances to traverse any part of the earth's surface, their pace, properly speaking, is neither that of a biped nor of a quadruped: they do not walk upright like a man, nor do they walk upon all fours like the lower animals. The length of their arms prevents them from adopting either of these modes of progression in its simple form, but 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 and powerful arms themselves, they can raise themselves upon 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, when an advance is to be made, it is accomplished by resting the weight of the body upon the hand-clasped fingers and then swinging the hinder extremities forward, precisely as a man on crutches. In their native forests the extreme length of their fore-arms is turned to the greatest advantage: here it acts upon the principles of the rope-dancer's balancing pole, and completely secures their equilibrium even with the most precarious footing. Thus it is that travellers have seen the apes posed at the very extremity of the slender stems of the bamboo, waving their long arms from side to side, with more ease and elegance than any other animal.

Another circumstance in the structure of the apes, in which they differ from most other quadrumana, has considerable influence upon their habits; this is the entire want of a tail. As regards respect and influence of position, it always indicates a corresponding function, and though its absence is not confined to this group of quadrumanes, yet a long tail would seriously embarrass the movements of animals deprived of it. In this respect other respects are extended 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 man. But another character of still greater importance distinguishes them from the rest of the quadrumana, viz., the want of cheek-pouches. These are sockets 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 Semnopithoci, alone of the other monkeys of the old world, resemble the apes in this respect, and hence arise some of the most striking resemblances which exist between these two genera presented in other respects they are sufficiently distinguished from one another, by the long tails of the Semnopithoci, not to mention their extremities of nearly equal length, and the greater length of the canine teeth. The nature of the influence which the possession of these cheek-pouches exerts upon the characters and economy of animals will be explained under the articles Monkey, Baboon, &c.; it is here sufficient to observe that they are wanting in the apes. One other character of great importance is the absence of the angle of the mouth, which in all the quadrumana of the old continents, is found in some species only of the real apes, and absent in others: this is the possession of callousities, which are naked callous parts of the arms, locks, upon which the violent and rapid movements which they habitually execute. Illiger 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 callosities; 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 true quadrumanes. But the same singular modification of the locomotive organs; their manner of life also is precisely the same: both equally take up their habitation in the thickest and most solitary forests, inhabit the same countries, and live upon the same food.

The teeth of the apes, as indeed of all the other monkeys of the old world, are of the same number as in man: nor, as far as the incisors and molars are concerned, do they present any difference in the adult subjects; in the young, especially in the males, the canines are developed in the same relative proportion as in the carnivora; the tusks of the full-grown orang-outang are at least as large as those 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 into Europe, is a characteristic of their substance in all other respects, especially when compared with their natives lives. In the latter, that is in the adult state of our subjects, we probably arrive at the structure so closely resembles that of man, that it is only of late years, and from such trifling discrepancies as the existence or non-existence of a small intermaxillary bone, of a very small perforation in the vertebra of the os sacrum, from which anatomists have ascertained the positions of the ribs and vertebrae. Galen were performed not upon the human subject, but upon the magot, or, as it usually called, the Barbary ape; so perfectly formable are his descriptions to the structure of the human frame.

The characters and habits of the apes present differences which will be noticed in speaking of the several species. As far, however, as their general manners have been observed, they appear to be of a gentle and tractable nature, free from that petulance and mischievous curiosity which so strongly characterizes the monkeys, properly so called, very affectionate towards those who treat them kindly, solemn and deliberate in all their actions, extremely circumstantial, servile and glib in communication, but peevish and fretful when crossed or disappointed. They never walk on two legs except when they have occasion to use the fore-hands in carrying something. Nearly, or almost, the entire family of ordinary monkeys, on their hands, but stretch themselves on their sides, like human beings, and support their heads upon their hands, or by some other means supply the use of a pillow.

The remarkable variability in the organic structure of certain species of apes has been observed by Sir Stamford Raffles and M. Duvaucelle, to whose researches in this subject, we are indebted for the greater part of

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our knowledge regarding the gibbons, or that section of the genus which approaches the lower tribes of monkeys by the possession of rudimentary callosities. It consists in the connexion of the index and middle fingers of the hind hands, which are united as far as the last or hall 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 the connexion 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 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 specimen at the same time and in the neighbourhood of one another. The female of the Simia far, also described by the accurate Daubenton, and supposed by MM. Duvaucelle and Frederic Cuvier to be the same as the oonko of the former naturalist, was certainly devoid of this character, expressly as signed to the female oonko, and differed in many other respects, as will appear in the sequel. If, therefore, we admit 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 more union of the fingers is concerned, though it is certainly a remarkable circumstance in the organisation 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 kangaroos, pottoros, koalas, phalangers, petaurists, phalangers, and phalangomorphs, possess the same formation, and it is well known that the entire order of incisors or paring 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 Chimpanze (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 the rank of the orang-outang; Cuvier's preference of the latter species arises simply from the greater development of the region of the brain, and the comparative height of the forehead, as exhibited in the very young, which is individually 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 chimpanze 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 Indian congener. These circumstances probably produce 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 we are very scanty informed even in their native forests; and we are not aware that the full grown chimpanze exists in any museum. Our information is, consequently, derived either from the observation of various absurd drawings or from the reports of travellers, who have described it at second hand, and, therefore, to be admitted with caution.

The head of the chimpanze, even in the young individual, is large, and is surmounted above with a rotting forehead and a prominent bony ridge or crest on each side of the eye. This character, in this respect, is certainly inferior to the young orang-outang, which exhibits a remarkable elevation of forehead, and a rotundity of the cranium much greater than even in the human infant, but its mental capacity does not correspond with these external appearances, and the great development of the face and muzzle degrade it to a close approximation with the lower animals. The face of the chimpanze, on the contrary, is not relatively more prolonged, in proportion to the capacity of the cranium, than that of the human subject; the proportions of its different parts also more closely assimilate it to the human face, and the mouth, even in the adult animal appears to want the enormous canine teeth which characterize the Indian species. The mouth itself is wide, the ears remarkably large, the nose flat, and the arms and legs in about the same proportion as in man; the fore-fingers not quite touching the knees when the animal stands upright. In the orang-outang they nearly touch the ground, in similar circumstances, and the ears of the latter species are remarkable for their very small size and deformed appearance. The body of the chimpanze is covered with long, coarse, black hair, thickest on the head, shoulders, and back, but thinly furnished on the breast and belly; the face is of a dark brown colour, and, like the ears, naked: the cheeks, however, are furnished with long black whiskers. Finally, the hair on the fore-arms is long and directed back towards the elbows, meeting that of the arms which is directed downwards in the usual manner, and forming a small ruff about the joint.

African travellers assure us that the adult chimpanze attains the ordinary stature of man, and is endowed with a degree of intelligence much superior to other quadrupeds. It inhabits the countries from Sierra Leone to the southern confines of Angola, perhaps even to the Gambia to Cape Negro. Chimpanze is said to be its name about Sierra Leone, but farther south it is called smitten and pongo, according to Batek and Bosman. Buf fen and his copiers have strangely confounded the habits, and even the external form and description of the mandril, a large species of baboon inhabiting the same countries, and called mandril, barris, &c., by the natives, with those of the chimpanze. It is of importance to bear in this circumstance in mind, in reading common works on natural history, as nothing is more productive of error than the confusion thus introduced into the history of individual A P E

THE CHIMPANZE.
species, by forming a purely fictitious being, out of two or more really 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 chimpanzee as a separate 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 generally distinct from man himself. That the stories of the pygmies, cynocephali, and other strange and deformed people, supposed by the antients 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 pygmy, 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 ancient geography. [See Travellers.]

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, never preventing 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, Piccadilly, in company with a young orang-outang, 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 attracting his attention. The orang-outang, 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 his companion in quickness and observation. On one occasion, when these animals were 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 spoiled child, and perceived 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. Upon seeing his plate restored, he took care to prevent the repetition of the joke by holding it firmly with one hand, while he fed himself with the other.

2. The Orang-Outang (P. Sylurus, Lin.), the most celebrated of all the apes, is a native 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 Peninsulas, but the authorities upon which these latter habitats rest, are by no means unquestionable. Though exhibiting in early youth a roundness 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 petulance and temper of the lower orders of quadrumanous mammals, the orang-outang in its adult state is even remarkable for the firmness of its retiring 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, at 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, deformed 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 chimpanzee. 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 status is by no means so convenient for this species as for the chimpanzee. 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 chimpanzee, this species is destitute of callosities; the muzzle is considerably prolonged, the mouth large and ill-formed, the lips thin and protuberant, 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 cut 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 hind 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 species distinct, as some writers would have us believe.

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 several species have been introduced into England, Holland, France, and Portugal. In youth it is principally remarkable for its gentle and affectionate disposition, but the cold and moister 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 a more favourable, because more natural, circumstances.

'\textit{When Dr. Abel, \textit{on} the 15th of July, was \textit{in} a tamariam 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 branching out at once from the nest-head, he would wrap himself up in a sail. Sometimes I \textit{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; but he failed in it, and would not sign it. If all the sails happened to be set, he would hunt about for some other covering, and either steal one of the sailors' jackets, or empty a hammock of its blankets. His favourite amusement in Java was in swinging from the branches with his legs and arms, and with the force of his body and the acceleration of his weight, he would return to the main-mast head, where he had \textit{disappeared.}'}

Dr. Abel's account of the man-like expression of his countenance, and his piteous 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.'

\textbf{[The Siamang.]}  

3. The Siamang (\textit{P. syndactyplus}, Raffles) is an interesting species of ape discovered in Sumatra by the combined researches of Dr. Sir Raffles, Diard, and Duvaucelle. It is the largest of the division of gibbons, or apes distinguished by the possession of small rudimentary callouses, and in this respect, as well as in its intellectual acquirements, is considerably inferior in the scale of natural beings to the chimpanze and orang-outang. Its skull is small and depressed; its
face naked and black, a few red hairs only marking the forehead and obin; 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 jaw. They are very little pigs, with only a slight hair-bondage on the chin almost 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 belly. They have a particular affection in the night, in which 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 this part of the body, are easily recognised by their naked breasts and bellies. There is a peculiar little tuft of hair always present behind the ears. These 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, which is distended with air when the animal cries, and in that state resembles an enormous goitre. It is in all respects similar to that already described in the orang-outang, and undoubtedly assists in swelling the volume of the voice, and producing those astounding cries, which, according to M. Duvaucelle's 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 siamang, like the orang-outang, has the hair of the head directed forwards, and is apt to shed the fur on the forehead, as in the human species, and that of the fore-arm directed upwards to the elbow; at the wrist of the human, which grows in the contrary direction, it forms a little tuft of downy, soft, and oily hair. Whether, as a part of this 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-pit, 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 the large number of our dear forest of whom we can say, that we cannot 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 neighbourhood of Bengcoolen, 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 invincible, 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, stuns, when they do not strike the forehead; it is the music of the Malay, but to the inhabitants of the town, who are unaccustomed to it, it is a most insupportable annoyance. By way of compensation, they keep a profound silence during the day; when they sleep or rest, they conceal themselves in each other's arms. These animals are slow and heavy in step. It is difficult to give a precise idea of the colours of this animal, particularly as they are liable to considerable variation on account of age and sex. The fur itself is of a softer and more woolly quality than in the other species: it is of a very dark brown colour on the head, breast, belly, and inner surface of the arms and thighs, becomes insensibly lighter on the neck and shoulders, and finally assumes a blond hue almost white, on the loins and thighs. The thighs are bare, the arms are black, the tail white, and red; and the backs of the hands and feet are very dark brown, like the belly. The female is not so hairy in front as the male, her eyebrows are less prominent, and the white whiskers on her chin are of a much lighter colour. It is likewise to M. Duvaucelle that we are indebted for the knowledge of this species, and for the only account which we possess of its habits and economy. It inhabits the same countries and localities as the siamang; but is less frequently seen, and is not so easily separated as the other species from the orang-outang, as its own species might well envy. The Malayas related a fact to me, which I doubted at first, but which I believe to be in a great measure confirmed by my own subsequent observations: it is, that the young siamangs, whilst yet too tender to be allowed to go alone, have always been carried in their own skin, by their fathers if they are males, and by their mothers if females. I have also been assured that these animals frequently become the prey of the tiger, from the same species of fancy which serpents are related to exercise over birds, squirrels, and other small animals."

Servitude, however long, seems to have no effect in modifying the characteristic defects of this ape, his stupidity, his sluggishness, and his awkwardness. It is true, that a few days suffice to make him as gentle and contented, as he was before wild and distrustful; but, constitutionally timid, he never acquires the familiarity of other apes, and even his submission appears to be rather a result of any degree of confidence or affection. He is almost equally insensible to good or bad treatment; gratitude and revenge are sentiments equally strange to him. All his senses are dull and imperfect; if he regards an object, it is almost with manifest indifference; he cannot voluntarily extend his vision. In a wood, the siamang exhibits an absence of all intellectual faculty; and if animals were to be classed according to their mental capacity, he would certainly occupy a very inferior station. Most commonly squatting on his hams, with his long arms twined round him, and his head concealed between his legs, a position which he also occupies whilst sleeping, he is seldom roused from his deep slumber, unless disturbed by the pursuit of the hunter. He utters a disagreeable cry, which in sound approaches to that of a turkey-cock, but which appears to be expressive of no sentiment, nor to declare any want, and which in reality expresses nothing: hunger itself is insufficient to excite, or divest him of his natural lethargy; he takes his food with indifference, carries it to his mouth without avidity, and sees himself deprived of it without testifying either surprise or resentment.

4. The Wouwou (P. agilis, F. Cuv.) has a bluish-black face, slightly tinged with brown in the female: the eyes are approximated, and deeply sunk in the head, owing to the prominent brows which surmount them; there is scarcely any projection of the forehead; the nose projects, and is more prominent in the males, than in the females. The nostrils and the nostrils open by large lateral slits; the chin is provided with a few hairs by way of beard, and the hairs are almost concealed by long white whiskers, which, uniting into a narrow band, run down on the cheeks and under the eyes. It is difficult to give a precise idea of the colours of this animal, particularly as they are liable to considerable variation on account of age and sex. The fur itself is of a softer and more woolly quality than in the other species: it is of a very dark brown colour on the head, breast, belly, and inner surface of the arms and thighs, becomes insensibly lighter on the neck and shoulders, and finally assumes a blond hue almost white, on the loins and thighs. The thighs are bare, the arms are black, the tail red; and the backs of the hands and feet are very dark brown, like the belly. The female is not so hairy in front as the male, her eyebrows are less prominent, and the white whiskers on her chin are of a much lighter colour. It is likewise to M. Duvaucelle that we are indebted for the knowledge of this species, and for the only account which we possess of its habits and economy. It inhabits the same countries and localities as the siamang; but is less frequently seen, and is not so easily separated as the other species from the orang-outang, as its own species might well envy. The Malayas related a fact to me, which I doubted at first, but which I believe to be in a great measure confirmed by my own subsequent observations: it is, that the young siamangs, whilst yet too tender to be allowed to go alone, have always been carried in their own skin, by their fathers if they are males, and by their mothers if females. I have also been assured that these animals frequently become the prey of the tiger, from the same species of fancy which serpents are related to exercise over birds, squirrels, and other small animals."

These apes," says M. Duvaucelle, "which live more frequently isolated in couples than in families, are the most frequent of the genera behind, with the exception of the orang-outang. Very different from the siamang in its surprising agility, the wouwou escapes like a bird, and like it can only be shot flying: scarcely has it perceived the appearance of danger, when it is already far distant. Climbing rapidly to the tops of the trees, it then seizes the most flexible branches, and..."
which no further trace remains than two light brown marks over the eyes. With this exception the head is uniformly dark; the back and shoulders is extremely 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 arms and hands is coarser, and on the Florida species is 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. With the wouwou, however, it is found 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 sack 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 replaced 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, and is probably full as tall in duration of posture, and the 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; if we judge of them by their length, they are the equal of the cheek pouches, and in other respects perfectly resembles the common apes of the gibbons family. The female is rather smaller than the male: it is known by different names in Sumatra; that of wouwou is the most common, and is more apt to imitate the voice of the animal.

5. The Ounko (P. Raffierr, Geoff.) is another species discovered, like the siamang and wouwou, during the expedition of Sir Stamford Raffles and M.M. Daud and Duvaucelle in the interior of the island of Sumatra, and named by M. Geoffroy St. Hilaire, after the first of these distinguished zoologists. This animal, which is called ounko 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 secrets. It was 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 ounko 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 ounko 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, particularly 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 narrow band of the same colour surrounding the throat, which is not noticed and dilatable 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 pendient tuft of hair, tipped with red, and hanging down nearly to the knee. The same according to M. Daubenton, 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 the siamang, and unknown to any of the other species. That of the wouwou 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 proportion of the face of these animals. The reason why the wouwou is so much larger, and in the union of 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 dark; the back and shoulders is extremely 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.

APELLES. One of the most celebrated Greek painters, is generally considered to have been a native of the little island of Cos in the Egean sea. Nearly all that we know about him, with the exception of some few scattered notices, is contained in the 10th chap. and the 35th book of Pliny's Natural History. The time of his birth is not fixed, but it is inferred that he was at the height of his reputation in O. 392, and as he painted a great many portraits of Philip, the father of Alexander, he could not be a very young man in O. 336, the time of Philip's death. He also survived Alexander, who died O. 323.

His chief master was Parnias, a Macedonian, and a distinguished artist, whose fee was very high. Apelles received instruction from him at Sicyon, a city which for some time before and after this date had a high reputation as a school of the arts, but of which we have no earliest essays we know nothing; but we are told that his diligence was unwearied, and that he never passed a day without doing something in his line of business, so 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
Protegeus the Rhodian painter, as told by Pliny, is credited to the character of both artists: indeed Apelles is much praised for the frankness and plain-dealing of his character. Another story is told of Apelles as having risen to the well known saying, that a shoemaker should not go beyond his last. Apelles placed a picture which he had finished in a public place, and concealed himself behind it. But it was noticed by the shoemaker, who observed a defect in the shoe, and the painter forthwith with corrected it. The cobbler came again the next day, and being somewhat encouraged by the success of his first revision, began to touch up his censure to the leg of the figure, when the angry painter thrust him half back from behind the picture and told the shoemaker to keep to his trade.

Apelles excelled in grace and beauty. The painter, who laboured incessantly, as we have seen, to improve his skill in the graces, used to say, that beauty was no less an art as to his colouring: he only used four colours, as we are told (Pliny). His favourite subject was the representation of Venus, the goddess of love, the female blooming in eternal beauty; and the religious system of the age favoured the taste of the painter. His great picture of Venus, which he had undertaken for the island of Cos, was left unfinished at his death. Another, the Venus Anadyomene, representing the goddess arising from the waves of the sea, was taken to Rome and placed in the temple dedicated to Julius Caesar the Dictator. The lower part was injured, and nobody could be found to restore it; but the Emperor Nero, who had a taste for art, finding that the whole picture was going to decay, had it copied by Dorythus.

Apelles painted many portraits of Alexander the Great, who, as we are told, often visited his painting room, and would not sit unless he was painted in any of his postures. But it is not present of Conon, Alexander's rambling life with this account, unless we suppose that Apelles followed him as a; a supposition not altogether improbable, if we read the account of the revellies at Susa after Alexander's return from India, and of the number of the professional artists from Greece who were brought to add to the splendour of the festival. (See Athenæus, xiii. p. 538; where Chares seems to refer these festivities to the wrong period: and Alexander.) The Macedonian king is here represented as sitting on a rock, attended by Apelles, a beautiful female, whose grace the painter transferred to his Venus Anadyomene. According to Athenæus (xiii. p. 590. Casaub.), the painter made the beautiful Phryne his model, as she was bathing in the sea at Eleusis.

Apelles painted a work on painting, which unfortunately is lost. He was accustomed to use a varnish for his pictures, which brought out the colours, and preserved them at the same time. The date of his death is unknown.

A story is told by Lucian, in his little piece ἰπό τοῦ μὲν βρώσεις παρθενῶν δίδασκελ, belongs to another, Apelles of Ephesus. (See Pliny; Winkelmann, vol. ii., &c.)

APEL/LICOR, a personage principally memorable for his connexion with the preservation of the works of Aristotle. An epitome of modern part xii., p. 22, & (Casaub.), he was a native of Teos, but went to Athens, and was admitted a citizen of that state. He was very rich, and his vanity seems to have led him to seek distinction by the assumption of the library of the works of Aristotle. Aristotle, more than a century after, says, that he was to be found Apelles, a lover of books (a lover of wisdom). Among other libraries which he purchased was that which had been collected by Aristotle many centuries before; and which, enriched as it was by the manuscripts of that philosopher himself, and of his pupil Theophrastus, had, according to the improbable story, been long altogether concealed from the world. It had been left. Strabo says, by Aristotle to Theophrastus, and by the latter to his disciple Nerus, who carried it to his native town Seosipis, in the Troad. On his death it fell into the hands of his heirs; who, not being of a literary turn, and yet aware, probably from the instructions of Nerus of the great value of the documents, acted in 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 regarded them as trophies of a capital without much regard to the rights of the owners, they concealed them in a cellar under ground. Here they remained until they were purchased by Apellinon from the descendants of the persons by whom they had been thus secured, about a century or more afterwards. They had, however, suffered much from their long entombment, and the copiists whom Apellinon employed to transcribe them were not very well qualified to restore the passages which had been rendered illegible. When Apellinon 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 Apellinon, who had just died; and this particular collection, Plutarch says, he retained as his own property. Tyrannion, the grammarian, who was a great admirer of Aristotle, contrived to ingratiate himself with Sylla's librarian, and obtained the privilege of using the manuscripts. Several publishers also took advantage of that day (68 B.C.) to publish some of the manuscripts, and did not take care to have the copies collated with the originals: this, indeed, says Strabo, is a common occurrence in books which are copied for sale, both here (in Asia) and in Italy. It was about this time that Apelles of 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 public, as he has since done. (See Balsam; also Pickering, Theophrastus. (See Balsam; also Pickering, TPAS.)) informs us that Apellinon's passion for rare manuscripts made him very unscrupulous about the means of obtaining them, and that at length he was discovered to have got into his possession the originals of many of the books. He had contrived to obtain them from the public librarians, and by means of his own copyists, had engaged the Athenians against him, that he was obliged to run away to save his life. The influence of his friends and his own wealth, however, soon obtained his return; and, having attached himself to the foot of the Peripatetic, he was received by the philosopher Athenion, whom the chances of civil confusion placed for a short time at the head of affairs, he was invested with the command of the island of Delos. In this situation he conducted himself with great incapacity; and the result was, that the Romans effected a descent upon the island, and, falling upon the garrison while they were asleep, put nearly all of them to the sword. Apellinon was fortunate enough to make his escape; and, having returned to Athens, he lived contented with the possession of his manuscripts. Sylla. Athenæus says that Apellinon embraced the opinions of the Peripatetics; and a work of his, in defence of Aristotle, is quoted in a passage of another ancient writer prefaced by Eusebius. (See Bal- salm, also Pickering, TPAS ANDRONICUS and Tyrannion, and the article ARISTOTLE.)

APENNINES, the general name for the great mountain-system of Italy. The origin and meaning of the name are lost, says Mannert, in the darkness of the early ages. But it is probable that the word contains the element signifying a head or high mountain; this word appears in the same sense in many parts of Europe that were once, or now, are inhabited by tribes of the Celtic family. The Greek historian Polybius assigns the name to Ovid, II. 15,4,10. (See Pliny; the name in the plural number; Livy and other Latin authors use MONS APENNINUS, in the singular; the geographer Strabo uses both the singular τὸ Ἀπέννινον ὄρος, and the plural, τὰ Ἀπέννινα ὄρα, from which probably comes the name of the mountains from the Alps to the extremity of Calabria. (See Strabo, p. 434. Polybius, p. 50.)

The great mountain boundary of Italy on the north and west terminates on the shores of the Mediterranean with that subdivision of the chain called the Maritime Alps. The Maritime Alps, near the foot of the Cottan 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 westward 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 only an arbitrary line of separation, in the neighbourhood of Savona, where begins the Pennines chain, 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 sources of the river Po, from which a small stream issues from 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 4° 15' lat., 5° 42' long.) the chain trends 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 Pontremoli, from which point they are thenceforward called the Apennines chain, 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, (33° 56' N. lat., 16° 5' E. long.) the farthest extremity of Italy; they consequently run through 6° 20' of latitude. The length of the chain is about 630 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 needles of the Alps, the sharp peaks of the Pyrenees, nor the broad side of cliffs of the Caucasian 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 eastward of Aquila, where Monte Corno reaches 15,837 feet. The Apennines are crossed between two points by the road leading from Genoa to Rome, 195 miles, and by the road leading from the Po valley, near Milan, to the Gulf of Taranto, 600 miles. The key to the Apennines is the Genoa, 6875 feet high. The Apennines are divided into three sections or branches, by the valleys of the Lima and the Scudo, and either branch is crossed by a main road from Rome. In the first branch, or that on the north side, between the Trave and the Po, there are two branches 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, Tarso, Grottolfo, and Secchia. The beds of all these rivers are sometimes filled with great torrents, at other times nearly dry, on account of the small quantity of snow which falls 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 course of the Genoa, nothing is 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 sea, which seems to be a barrier between Italy and the north, 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 Alessandria up the valley of the Bormida, by Acqui and Cassinasco, over the pass of the Vico, at 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 Forlunno, up the valley of the Trebbia, past the towns of Olera and Plaisance, and thence by the valley of the Magra to Aulla, 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 from Nice by Oneglia, Savona, Genoa, Chiavari, and Massa, to Lovenza.

2. The Etruscan Apennines extend from Monte Pellegrino to Monte Corno, in 12° 3' E. long., and in a direct line between Florence and Fano, a distance of about 75 miles, of which the mountains rise in a more northerly direction than the Adriatic, Monte Corno being about twenty-four miles from Rimini, on the Adriatic, and nearly a hundred from Orbetello on the west coast. The slope is rapid towards the Adriatic; in the southern part of the group, but in the northern part 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 mountain is usually thrown up in an irregular range, and trending 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 Radiofasci, 6794 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 Pistoia, 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 these mountains form a barrier between Tuscany and Latium, and in the lower part of the latter are crossed 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 Pistoia; the other from Bologna to Lajano, through the pass of Pistoia Mala, at an elevation of 3924 feet.

3. The Roman Apennines run nearly through the centre of the peninsula, from Monte Corno to Monte Velino, and in some places is almost parallel to the coast of Italy, which is along parallel to the coast of Italy, which is along these mountains, or about 188 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 Ullteriore; the one called II Gran Sasso d'Italia, of which the summit, Monte Corno, is 9251 feet above the sea; the other, Monte Velino, is 8183 feet high. Besides these, there are three other mountains of great height; namely, Monte Vettora 8135 feet, Monte Sibilia, near Ascoli, antiently Mons Sibyllarum, 7912 feet, and Monte Rieti, 7034. These are all covered with snow the greatest part of the year, for snow falls sometimes in May and September. Between Monte Sibilla and Monte Velino, there is a pass, where the road crosses the mountains, 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 diverging group of subdividing chains. The highest point, towards their northern extremity, is Monte Miletto, in the eastern part of the Terra di Lavoro, the antient Samnium, east of Venafra, which is 6744 feet high. The other principal point is Monte Matese, near its summit, snow is found nearly the whole year. From Monte Chilone, west of Troja, a great branch is thrown off from the central chain, in a north-west direction, runs out to the promontory of Gargano, Monte Gargano, in Apulia. It rises in several places into considerable elevations, the most conspicuous of which are Monte Calvo, 6925 feet high, and Monte Gargano, which is nearly 8000 feet. At this great branch is also a point off not far from Venosa, Venusia, and stretches south-east, through the districts of Bari and Otranto, and with a gradually diminishing fall terminates in the low hills filling the vale between the Monti Massicci and the Massicci, in the neighbourhood of Venosa the mountains also take a western direction, bending a little to the south, and terminating in Cape Campanello opposite the rocky island of Cupti; thus...
from Cape Campanella to Cape Leucus 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 neighbourhood of the Tyrrhenian Sea 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 49° N. lat.) and is 7075 feet high; part of the snow on its summits is visible in July. The other lofty mountains of Calabria are, Monte Sivino in Basilicata, 6000 feet; La Sila, east of Cosenza, 4932 feet; and Monte Alto, the highest point of Monte Aspro, east of the Tyrrhenian Sea. The Geographical 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 interlacing 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, that are older than the tertiary, may be referred. The lowest is an assemblage of gneiss, mica-slate, clay-slate, talc-slate, and a great variety of less perfect rocks, the beds of which are angular in their outcrops; they contain sandstones, marls, and limestone. The uppermost consists of a series of marly limestones, and a sandstone called macigno, with impressions of shells, and these strata, together with some partial deposits of puddingstone, are more or less contorted, sometimes nearly vertical, and frequently much contorted, particularly the uppermost strata. Upon these are found deposits of tertiary formation, usually in horizontal strata; but in some parts they may at times occur in 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 Apennins, from Ceva on the River Tanaro, to the Genoese coast. It is of opinion of some geologists that the detached rock of the Ligurian Apennines, 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 therefore, some caution is necessary in its use. 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 subordi-

nate to the macigno, there are extensive tracts of what Brocchi considered, but in some cases 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 Giuliano near Savona, on the eastern side of the Tyrrhenian Sea, Sienna is a variety of it, and it is found in insular hills at Piombino, Civită Vecchia, and Cape Circello, the antient Cirene promontory. Not a trace of this so called transition limestone is to be seen, except on the eastern side of the Apennins. The southern limit of the macigno is not exactly known, but it is supposed not to extend beyond the neighbourhood of Cortona.

Among the unstratified rocks of Liguria, serpentine is by far the most important. According to Pareto, it is not found in the Maritime Alps, but commences near Savona, and occupies a considerable extent of country between that town and Genoa, and as far inland as Valteggio. It is also met with in the Mediterranean side, but rises up in detached groups of hills many miles distant from each other, and Brocchi describes it as occurring as far as Orbistello, which seems to be its southern limit. It is not confined to the Mediterranean side, but rises up in places of Bobbio, Fornovo, and between Sasuolo and Modena, in the basin of Lombardy. A variety of serpentine, containing a mixture of felspar and dischal, called in the country grani-
ton, is to be seen in the Apennines, and on the heights, it 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 igneous origin, and, for some purposes of art, has a decided advantage over marble. It is esteemed very hard by some, and it is probable that the great dislocations and contortions which are observed in the stratified rocks of Liguria have been produced by the forcible injection of this rock among them, in a melted state, from the earth's interior, for the fact is repeatedly taken place, and rises up in several places, as near Reggello. Pareto considers 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 Beau-
court 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 some-
times highly inclined.

Near the southern extremity of the Ligurian Apennines there is a distinct group, called the Alpi Appennini, separated from the main range by a considerable depression. In this group are situated the celebrated marble quarries of Car-
mona, which have often worked down to the sea, and Augusta, and continue to supply many kinds for architectural pur-
poses 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 the type of primitive chalk-
stone; but it was afterwards thought by many to be of a more modern date, and the German geologist, F. Hoff-
mann, who has lately visited that part of Italy, has disco-

covered that it contains organic remains, and he assigns it to the same geological age as the oolite or Jura limestones. The highly crystalline state of the rock, and the disap-

ppearance of the greater number of the organic remains, he attributes to the extreme hardness of the rock, and to the serpentine took place. He traced the limestone uninterrupt-
dedly to where it contains numerous fossils; from that point the beds increase in inclination, and gradually change to limestone; the internal structure, and these strata, stretching 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, at the Pizzo d'Oceello, at the north-west end, 5147 feet, and at Monte d'Asino, the snow on the summit is 4000 feet, where the numerous quarries are worked. The limestone in the valley of the Frigido lies upon clay-slate, which rests upon mica-slate, and this last upon gneiss, and Mr. Hoff-
mann says it is very carefully examined, that the two latter rocks are the clay-slate altered and rendered crys-
talline by the action of heat.

After leaving Liguria, the rock of which the greater part of the Apennines is composed, and hence 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 confines, we meet for days without meeting anything to relieve the tedium of its eternal sameness. It is the sole constituent of the Apennines of Tuscany, Romagna, Fabriano, Foligno, and the Abruzzi, and stretches uninterrupt-unedly through the provinces of Basiliatia and Bari to the Adriatic sea. That extremity to the north, extending from the left bank of the Tiber until that river takes a sudden turn to the south-west, in the immediate neighbourhood of Monte Sant' Oreste, the antient Sorate, which is an outlet of the ancient terrains that extend from the Apennines, and when they are composed of the same materials as the main ridge: it rises to the height of 2140 feet. In the Cam-
pagna di Roma, a range of mountains, composed of the same limestone, is separated from the central chain by the valley of the Tevere. 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 antient city of Terracina, and rises to the highest of its group, the mountains on the south side of the Gulf of Naples, of which the island of Capri is a prolongation. In this group, Monte St. An-
dre di Castellamare rises to the height of 4686 feet, and Monte Solano, on the island of Capri, rises to the height of 4816 feet; it is seen by the right hand on the south side of the Gulf of Naples, and it appears to Tenore in his Geographie Physique du Royaume de Naples.

On the western side of the Apennines the limestone is more highly covered with trees than on the eastern side; it seldom appears 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 cover a great extent of country, and in those places, as near Reggello, there are numerous quarries; the limestone rises to the surface of the ground, in inclined
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A P E

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 set the plants. From the great beauty of organic
remains associated with it, as well as the general exuberance
and range 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. Some beds of bones and shells, and the clay that is most probably
in greater part are equivalents, in point of age, to our coile deposits.
Like most other limestone formations, they abound
in great caverns.

Calabria has thereby been little explored by geologists.
The Apennine limestone extends into it; but there are also large tracts of the country occupied by primary strata,
and a granitic ridge passes through it. which rises to the
height of several thousand feet. There are besides tertiary deposits,
to which we shall afterwards allude.

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 considered by Brocchi, who
first really detailed them, as parts of the greater, generally
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
closeness of similarity in parts of the limestones which
should lead us to assume an exact identity of age, and that
the fossils contain indisputably 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
Bormida, 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
older Pliocene period; and that the terraces of the rivers of
Naples, the calcareous strata of Otranto, and probably the
greatest 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
detritus, of a greyish-brown or blue colour, often with
lines of stratification, but sometimes thinly laminated.
They are frequently of great thickness, as in the neigh-
bourhood of Parma where some 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. The great deposits of the Bormida are, however, of
stratification, but more usually are covered with sand.
The great arenaceous deposit lies generally upon the marl, but sometimes it
is seen reposing on the Apennine limestone. It sometimes passes into sands and gravel, and at
Poggibonzi 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 with-
out 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 referable to species and families
of the Cretaceous period, but are not so abundant, and
are usually found in deep, others in shallow water, some in
rivers, others at their mouth. Many are identical with species now inhab-
iting the adjoining seas, 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-
tones of whales and other cetaceae. The skeleton of a whale
twenty-one feet long was found by Cortesi near Castel
Arguto, in the Province of Salerno, where coarse gravel
and pebbles were adhering to 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 to the bed of the sea is evident from the
March of Amiat, which is also volcanic, and 5794 feet high.
The largest of the set of lava in the central
area of the island, the so-called 'bomba', is the most conspicuous part
rising to the height of 3110 feet. The waters of the Alban
Lake fill the crater of an extinct volcano from which streams
of lava once flowed over; one of these may be traced by the
side of the Appian Way to within two miles of the gates of
Rome. 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 previously ejected cinders. The Lago Bracciano, north of Rome, is another example, covering an area of many square miles, and surrounded by hills of solid lava, which send forth numerous branches, extending streams of melted stone, into the surrounding country; and between the lake and Civita Vecchia there is a chain of coral reefs, of which the lava has burst through, and now forms vast vertical masses. Another range of hills, composed of compact lava, which branches out on every side, is in the neighbourhood of Vittoria, in the province of Monte Cimino. It is 4183 feet above the sea. The whole surface of the district we are now describing is covered with numerous products, for both the Appennine limestone and tertiary formations rise up in many places from beneath the soil, and 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 Subappennine deposits, large quantities of which have been found at the summit. The volcanic products are found high up among the sinuosities of the Appennine valleys: ascending the bed of the Teverone, stony tufts forms lofty rocks near Vico-raro, above Tivoli, and still farther, at a short distance from Subasio, at the foot of the ancient rock-walls and isolated Soracte, and it is also found in the valleys of that branch of the Appennines which terminates in the sea at Terracina. It is an important circumstance in the geologic history of Italy that the volcanic products alternate in many situations with the tertiary marine deposits, and that elephants' bones have been found at considerable depths imbedded in the tufa. Marine shells are contained in the tufa close to the western side of the summit, 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 Appennines, and far detached from the great range of volcanoes we have been speaking of, as at Telesio, between Capua and Benevento, and Mount Vultur in Apulia. We have alluded to deposits still newer than the volcanic injections; 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 soil which forms the substratum of the land, and which gives name to it, viz. Turiturium, because it was found in great abundance near the town of Tibur. All these deposits contain lacustrine shells, particularly such as frequent stagnant waters. The tufa and the volcanic ash from the summits call for comment of importance, as a means of determining the time in solution, by means of the carbonate of lime 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 travertine. 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 Appennines, •as examples of the most ancient formation; in fact, a spring has deposited a series of strata to the depth of 200 feet, and the stone is so compact as to form an excellent stone for architectural purposes. At San Filippo, the water is so highly charged with 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, a third of a mile in breadth, and 250 feet thick in some places. There are examples of formations of travertine, roughly in the form of pyramids, at Ponte Leoneano in the neighbourhood, which have supplied the materials for some of the most splendid edifices of antient and modern Rome. These fresh-water deposits appear in so many places, that they have been for a long time considered as characteristic of the whole country around Rome. Travertine, containing fresh-water land and shells, some of which are identical with the shells now common in the gardens of Rome, forms thick solid beds on the Apennines, and about the basin of the Tiber; the fresh-water deposits are found at the height of 150 feet above the Tiber on the Esquiline Hill. In many places they contain the bones of elephants, and other land animals, as in the celebrated Mons Sacer near Rome, where elephants' bones, inlaid with calcareous spar, were dug out of a gravel pit, at a depth of three yards, is covered by a bed of rounded fragments of hills, 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 coral reefs, of which the lava has burst through, and now forms vast vertical masses. Another range of hills, composed of compact lava, which branches out on every side, is in the neighbourhood of Vittoria, in the province of Monte Cimino. It is 4183 feet above the sea. The whole surface of the district we are now describing is covered with numerous products, for both the Appennine limestone and tertiary formations rise up in many places from beneath the soil, and in other places they are covered by fresh-water deposits which have been formed since the eruptions ceased.

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of which name it is comprised. It has sea-baths, a townsmen's and charity school, cotton-print works, and three poor-houses, and is defended by a castle, in which the balliff 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 unsafe in winter time. Long. 3° 30' E. lat. 55° 8' N.

APH, the wild gentian. [See CAVLY.]

APERENTS, in medicine. [See CATHARICS.]

APETALOUS plants constitute one of the divisions in Jussieu's Natural System. They comprehend all genera which are discostelous or exogenous, and which have a calyx without corolla; by some they are called monoeccous. 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, in the case of some genera, there are circumstances of a characteristic kind, which chiefly constitute the difficulty of studying plants according 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 ἀφελ, from, and ἄφιος, the sun, means that point of a planet's orbit which is farthest from the sun. Its opposite point is the PERIHELION, from ἐπι, near to, and ἄφιος, the sun, which is the nearest point to the sun.

Let S represent the sun, S A B the earth's orbit, or plane of the ecliptic, and S A parallel to the line in which the earth's equator cuts the ecliptic, from which line all heliocentric longitudes (that is, measured round the sun) are measured in the direction of the earth's motion, represented by the arrow L O D E. The earth's orbit is a circle, and SE the longest line which can be drawn through S, then E is the aphelion of the planet. If a plane SEG be drawn perpendicular to the ecliptic, the angle A S G is the heliocentric longitude of the aphelion E. The term is not used in natural science, but is occasionally referred to the student.

The supposition of the planets moving in elliptic orbits round the sun is not 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 aphelias; in Venus, on the contrary, a little less. This inequality is represented by saying that half an aphelion is all the planetae, except Venus, slowly increase in longitude, while that of Venus decreases. The apparent motion of the aphelion is greater than the real, since the line S A moves slowly backwards. [See PRECESSION.]

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 multiplied 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 S A moves forward, and S G, in the Southern Hemisphere, increased. The following table gives the heliocentric longitudes of the aphelias 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 ascertained with the same degree of accuracy as those of the old planets. All but the comets are taken from Baily's Astronomical Tables and Formule.

Old Planets, January 1, 1861—

Aphelion, Long. of Aphelion. Yearly apparent increase of Do.

Mercury 254° 21' 47" 55° 9'
Venus 435 43 46 2
Earth 279 30 5 61 8
Mars 152 23 57 65 9
Jupiter 191 8 35 57 1
Saturn 269 30 9 69 1
Herschel 347 31 16 72 5

New Planets, January 1, 1820—

Date. Name of Discoverer. Long. of Aphelion.
1835 Halley 120°
1832 Ecke 337
1832 Biela 286

The longitude of the aphelion of Halley's comet is that predicted for an apoapsis, or perihelion, of 1831.

APHIS, the plant-louse, or puceron, an extensive genus of insects, interesting to naturalists on account of their very peculiar economy, and no less so to gardeners and farmers of hops, since many species commit most destructive depredations. The instances of the hop-louse, or hop-fly, H. (A. humilis) and the bean-dolphin (A. fabae), which, as the rose, the China aster, and the various chrysanthemums, suffer from other species. During the summer of 1853, the cable and bines of hop and hemp, 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, entire and semi-glandular eyes, antennae of seven joints longer than the body, often stigmatic, sometimes thickened towards the top, the two joints at the base very short, the next very long and cylindrical. The beak (haustellum) arises from the under part of the head between the fore-legs, and descends almost perpendicularly. The wings, when developed, are four in number, but some naturalists 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. rosea, &c., are numerous, some winged and some without wings, of both sexes, so that when the first winter has been passed, the second are confined to their native plant or its vicinity.

After pairing, the mother aphis deposits what have been, by some naturalists, termed eggs, in a place suitable for their passing the winter; but different places are chosen by different species; some choose the oak, and place the eggs on an exposed twig high on the tree, others in the sheltered crevices of bark, or even under ground. Bonnet seems to be of opinion that the aphides are always viviparous and never lay eggs, what are commonly called eggs produced in autumn being a sort of cocoons, consisting of the young aphis inclosed in an envelope. From our own observations on those of the oak, we are convinced that this is the fact; but we cannot affirm, upon negative evidence, that none of the species lay real eggs.

The cocoons or eggs, whichever they may be, remain torpid during the winter (the parents having died after producing them,) and are called into life with the return of spring weather in the spring. The number of insects produced must of course correspond to the number of cocoons or eggs laid the preceding autumn, but being all ushered into active life at the same time, the simultaneous appearance has led to the popular, but erroneous notion, that they are generated by the air. Blighting weather, as it is termed, is also accused of spreading the destructive swarms over hop-gounds or bean-fields, but the rapid increase is wholly caused by their wonderful powers of multiplying.

All the aphides, it has been well ascertained, which appear in spring are exclusively females, no males being found till the autumn; and these females are endowed with
feudality almost incredible. M. Latreille says, one female during the summer months will produce about twenty-five a-day, and M. Réaumur calculated that one aphid may be found, during its life, the enormous number of 5,904,900,000 descendants. It is a curious fact that a very 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 successive generation produces a new swarm of 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 its author, Dr. Réaumur, has been accused of all contradiction by the careful experiments, suggested by Réaumur, of the French academicians, which may be seen at length in Insect Miscellany, chap. x. The result was, that nine generations were obtained without pairing in the course of three months.

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 term 'aphorism' was first made popular by the Greek Hippocrates and Boerhaave have written books entitled Aphorisms, containing medical maxims, not treated argumentatively, but laid down as certain truths. For example, 'Neither replenish nor hunger, nor 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 always safe to learn from our enemies; seldom safe to forget, even our friends.—Loren. 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 'Vulgar 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 assist them; to impose conventional and needless restrictions, 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 moreanken in her principles, multiplied and elaborated with aphorism pandantry, than the art of policy.'

Aphrodite, the goddess of love and beauty. According to Homer, she was the daughter of Zeus and Dione, or the daughter of Dione and Phoenicia, and was produced from the foam of the sea, STO CHRO (οὐρα κατακεραυνείς) by 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 Uranus. There was a celebrated picture of her rising from the sea (υχαρίστημαι), esteemed the master-piece of the Apelles. (See Apelles.) She first came to land at the island of Cythera, and thence proceeded to Cyprus. These islands were her favourite places of resort, and many of her epithets are derived from them. She was also worshiped at Ephesus, Corinth, and Ephesus, and worshiped at Ephesus with the same name. There she was married to Hephaestus (Vulcan) the god of metalurgy, and there is a well-known tale of her detection in an arm with Ares (Mars) (See Odys. vi. 256). Hermes and Poseidon (Mercury and Neptune) were also among her favoured suitors. Her amours, however, were not confined to the goddesses. For her adventures with Adonis, see that article. She also bore Æneas to Anchises, a youth of the blood royal of Troy, as is largely related in the Hymn to Apollo and the Odyssey of Homer. She appeared in marriage with Apollo and Ares on the side of the Trojans, and in attempting to protect her son Æneas, was wounded by Diomed. According to the fictions of the Æneid, she continued to live over there, and became interested in the establishment of 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 ginal attributes have nearly disappeared.

The goddess is usually represented naked, or with very scanty drapery; her peculiar attribute is the curass (ερούσα), a hide of a huge animal, cast toward the front and raised, as if to guard against any approach. The Greeks attribute to her the power of inspiring love for the person who wore it. Her favourite animals were the swan, the parrot, and the dove; her favourite plants, the rose and myrtle. The bird called炖in Greek, was probably an adrose. The Greeks adored her as the perfecion of female beauty. One picture of Apelles we have mentioned; another, which he left imperfect, was esteemed so much that no artist dared to complete it. Many representations of the goddess in sculpture, coinage, &c., are extant; among these, the celebrated statue, called the Venus de' Medici, is that with which we are most familiarized.

Aphthous, 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 after Hermogenes, because he quotes this rhetorician, and, in fact, worked upon the works of Hermogenes into a new shape, also entitled Progymnasmata. There is a curious passage in Aphthonius about Alexandria. (See De Sacy's 'Abd-Al-Arabi,' p. 182.) Aphthonius had no editor, and we believe very few readers.

Aphthonius was first printed by the elder Aldus with the other rhetoricians: Rhetores Graeci, Venice, 1608, fol. The latest edition is by J. S. Scheffer, Upsal, 1670 and 1689, 8vo., with the Progymnasmata of Theophrastus. Apian, or Apianus (Peter), an astronomer, and, we may add, astrologer, born at Leipzig, died at Ingolstadt, where he was professor of mathematics, in 1552, aged fifty-seven. His real name was Bienewitz, sometimes misspelt Binewitz. 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 some mathematical problems by a mechanical process, in his Opera Cossaeum, and is said moreover to have pointed out the cause which might be made of lunar observations in navigation. For a list of his works (which are now uninteresting), see Vossius de Scientiis Mathematicis; Montucla, Histoire des Mathématiques, vol. ii. n° 111. Hutton, 'Dictionary of the English Language,' article 'Apian;' but more particularly Kistner, Geschichte der Mathematik, vol. ii. p. 545, 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 1568, on account of his embracing the Protestant religion. He enjoyed some celebrity as an astronomer and mathematician, and died professor at Tübingen, in 1599. In the last century, it is not without much probability, that the work of his which has been preserved is a letter to the Landgrave of Hesse Cassel. (See Biographie Universelle, and the work of Teissier above cited.)

Apian, a place for keeping bee-hives, derived from the Latin apius, a bee, and formed like the word 'aviary.' The proper situation of an apiary engaged the attention of ancient bee-keepers as much as it does in modern times, and wasleft out of the fanciful part of the story in the bees given by Columella and Virgil are as good now as when they were written.

As to the aspect of the apiary, Virgil says.—

A station must be founded.
To guitar and impending—Georgic 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 that well-peopled hives kept dry, will thrive in most situations. Wildman, again, tells
us, that the apiary should face between the south and west, and in a place neither too hot nor too much exposed to the cold, I have ever since decided, as the mouth of the port to the west in spring, being taken that they enjoy the afternoon sun; the morning sun is extremely dangerous during the colder months, when its glare often terrifies these industrious insects, and dries up the mints; whereas, when the bees being then in the shade, 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 the bee-house, and the winged honey from the wild flowers, enable them to pursue their labours.

Dr. Evans, in his pretty poem, gives very similar directions—

"Spread'st from the east, where no decisive dawn
Oh! on them over the dew-damp lawn;
But as on loaded wing the labourers soar,
They light them to the bee-house."—The Hymen.

Bonner stands alone in recommending an eastern 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 west.

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 espacio in front of the bee-house, from which to defend 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 springtime and goods
Verdant with moss, be near; and shallow brooks.
That pass through the meadow
The weighing banks may tempt them to avoid
Others, and the same as well, in the shade.
Ourselves, well do in ponds
The water stand, or live in hills, that are
And plants; stones, where, when the bridges rise.
They may alight, and to the summer set,
Spread their wings, as if among the eastern blast.

Or pleat's them, blown smoke, into the waves._—Trayp.

Dr. Bevan thinks an apiary would not be well situated near a great river, nor in the neighbourhood of the sea, as with the wind which whirles the hives, it下雨 they would 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, and, in default of this, pasturage must be the next choice; and garlands where the flowers are numerous and spread over fields which are sown buck-wheat, clover, or sainfoin. The expedient of transporting apiaries to distant places, so as to take advantage of the seasons when different flowers are in bloom, has been resorted to by various authors, particularly in Egypt, and along the great rivers of Europe.

M. Maillet, who was French consul in Egypt in 1852, 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 pyramidaically 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 when it is supposed that they have got in all the honey and wax that can be met with within two or three leagues around, 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 mints. The earth flowers are all productions, 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, the bees arrive at the spot where they have 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, their owners, and the names of the particular 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 Damietta, a convey of 4000 hives in their transit from Upper Egypt to the Delta.

Goldsmith, we have 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 insecurity of accidents with that the owners can get 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. It is, however, very advantageous to advantage, and yield the possessor a secure, though perhaps a moderate income.'

Dr. Bevan strongly recommends the apiary to be roofed in by erecting a bee-house, as well as that to use some building already constructed, as much preferable to an apiary out of doors, both for convenience 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 subervinent to other uses: my own serves for storing potatoes. The potato-ceillar is sunk two thirds of its depth in the earth, and the bee-house is raised upon it, having a couple of steps up to the door. The dimensions of both are seven feet six inches by six feet clear within, which affords room for five colonies.'

The piles or stories of bee-boxes are placed in the bee-house at somewhat less than two feet apart, so as to make the external faces of the walls strong enough to withstand a sunder.—(See the plate which forms the frontispiece of Dr. Bevan's work.)

On the inside of the bee-house, the boxes in the upper row stand some four table height, then the lower about eight inches above the floor. On the outside, the entrances to the upper row 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 over on the outside. Leaving the wall at those parts as thin as practicable, and letting the opening correspond in size with the outlets that are sunk in the floor-boards hereafter described. The potato-cellar is built with bricks, the bee-boxes of timber, 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 rest. The shelves are cut, the sides and ends are 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 laid over. Between the entrances, the compartments are sheltered, 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 potato-ceillar. 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 stone covering. The floor of the bee-house is boarded, and the potato-cellar is celled, the space between the ceiling and the floor above being filled up with dry sawdust.

It is but right to say, however, that Keys is altogether against placing for sale benches, and he thinks it a great deal worse to have them under cots or sheds with shelves therein one above another, on the principle recommended by Dr. Bevan, inasmuch as these afford harbour for enemies, and are inconvenient. He acknowledges himself as recom-

mends 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, would secure them; where they have been 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 APICUS.

APICUS. 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. Athenæus (p. 7, Casaub.) places him under Trajan, and did not so much as content himself with a dedication to the gratification of his own palate; he obtains credit with that author for original genius in the composition of certain cakes, honourably distinguished by the epithet 'Apoic.' Seneca says that he was alive in the time of Tiberius, and so established 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 inordinate love of food, which custom retrograded with 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 pittance utterly inadequate to keep such a body and soul together; wherefore, he took poison in preference to pining under unattainable luxuries. Pliny calls him the greatest gourmandizer that ever appeared in the world, and mentions various vagaries 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 pickling oysters (Athen. 7.); several jars of which he sent to the Emperor Trajan when Parnis. Distant as was the distance, yet they reached 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 household name. Their ramified system 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 Catillus Apicius. It is considered by critics as ancient, although not written by any of the three whom we have mentioned. Montanier republished it in London in 1705, with the title De Ostentibus et Conditimis, sicve de Arte Coquinaria. The humorous Dr. King ridiculed it in a poem, entitled The Art of Cooking. (See Stow. in Smollett.)

A PI ON, son of Poseidonius, was born in Asia, a town in Libya, seven days' journey from Thbes, probably the modern Oasis, called 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 Didymus, from whom he imbibed his fondness for the poetry of Homer. Under the emperor Claudius, who reigned A.D. 41—54, he succeeded the Grammatician Theon at Rome. When the Greek inhabitants of Alexandria endeavoured to deprive the Jews who resided there of the public baths, which is common ground by the foundation of the city, and confirmed by the Ptolemies and the Caesars, Apion was appointed to advocate their cause against the Jews. On this occasion he endeavoured to prove that the Jews did not sacrifice, by pointing out, that the Jews would neither 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. The captive, sunelled, and thenceforward became 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 essences of divinity, and thence all Jews turn their human entrails in order to pledge themselves otherwise to hate the Greeks.

Apion, with these monstrous fables, did not fully succeed against Philo, who was sent to Rome by the Jews of Alexandria. Flavius Josephus, in the embassy of the Alexandrian Jews, commenced his reply to Apion's accusation, but the Emperor Caius insultingy commanded him to leave the imperial presence. All explanations in the respect of the Jews were written by Philo said to the bystandings Jews: Be of good cheer, for Caius attacks us with words, but really he has begun to fight against God. The Emperor sent Petronius, the successor of Vitellius, 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 Judea, but was so much touched with the inretries of the Jews not to profane their sanctuary, and with their readiness rather to hazard their lives than to afford a pretext to the emperor to revoke his orders: Caius granted this revocation to his favourite Herodes Agrippa, but commanded Petronius to return for the new obdience. The news of Caligula's death was received in Syria before the latter in which 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 foil failed. (See Jos. Aret. 1. x. v. c. 8.)

Flavius Josephus wrote two books on the antiquity of the Jews against Apion after his death. In the first book Josephus relates the gross mistakes and misrepresentations of Manetho, Berosus, and many other Gentiles who had been 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 beginning of the second book, Josephus refutes especially the representations of Apion. After a particular translation of these two books to Epaphroditus, bears some resemblance to the dedications prefixed to the Gospel according to St. Luke, and the Acts, to Theophilus. (See 1713 12 [P] pages 525 and 336, ed. Breitweiser. Seneca, ed. 38. Phil. Prof. Hist. Nat. and xxxii. c. 12. Erach and Gruber; Suidas, ed. Klister, i. p. 287.)

A PI S. [See Bex.]

A pis, a sacred bull, whose station and temple were at Memphis in Egypt. He must be distinguished from Menes, the sacred bull of Heliopolis. The real or true Apis was known from among all other bulls by certain marks, which are mentioned by Herodotus and Pliny (iii. 28; viii. 45). The bull, which is commonly called a cow, is supposed to have been produced from a cow, his conception was by the descent of lighting, or the influence of the moon's beams. When the bull A pis died, or had been put to death after living the number of days, or a month, according to the (to some authorities) was a successor was diligently sought for, and, when found, was installed in his temple of 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 ascertained that it had none of the marks which characterized 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 unstamped bull could be sold or offered to the gods. This regulation was probably the raising an income by a tax on slaughtered animals. There might possibly be other reasons also. (Herod. i. 39.)

The worship of A pis 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, when he visited Memphis, sacrificed five oxen and a calf to the God, and on the occasion declared his admiration of the more political wisdom than the Persian madman Cambyses, who, 200 years before, had insulted the Egyptians by stab-
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. 897):— "Memphis contains a temple of Apis, who is the same as Osiris. The bull Apis is kept in an apartment which is regarded as the sacred house: it is white on the forehead and some other parts of the body, but in every other part black. By these marks they always decide which bull is to be the successor of Apis when he dies. In front of the apartment is an inclosure, in which there is another apartment for the bull's mother. They allow the sacred bull to come into this court or inclosure 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. (See Cuvier, Voyage fait en 1794) that he observed bulls' heads in several niches of the catacombs of Abousir: he also found a bull embalmed, and in a great chest, on which the head of the bull and the horns were, was gilded and painted. (See also Abd-Allatif, De Sacr. p. 201.)

The deity Apis was probably a symbol of the Nile (see Jablonsky, 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 Sivas, 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, as is also the cow. (See Coins of the Early Hellenistic and Roman Periods, p. 72.) The sacred bulls of Benares still walk the streets of the holy city, or stop up the road, and cannot be disturbed without all due respect. 

The Israelis to this day have maintained their idolatrous worship of the bull or cow seen from the history in Exodus, xxiii., and; at a later period, Jeroboam, who had spent some time in Egypt, set up two calves, one at Dan and the other at Bethel, and established temples and priests, professedly to worship Apis and Mnevis respectively. (See I Kings xi.; compare Hosea, chap. x.; Böhler's Alte Indien, i. 232, &c.; Jablonsky's Pantheon.)

AP' IUM is the botanical name of a genus of umbelliferous plants. The species most commonly 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 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 leaves of the cultivated species being hidden from the action of light by the soil which is heaps to, and wind being in the wild state, is so much more dispersed 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 apium erectum, in which the acridity of the cultivated of 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.

Parley, which was formerly considered a species of apium, will be noticed under PTEROBLENNIOUM.

APLOME. [See GARNET.]

APOCALYPSIS. The word apocalypsis (ἀποκάλυψις) signifies literally uncovering, uncovering, and is used in the New Testament to express exposition, or revelation of the will of God. In this sense the apostle Paul speaks of his 'preaching Christ according to the revelation (κατὰ ἀποκάλυψιν) of the mystery, which was kept secret since the world began but is now 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. xiv. 6, where we find that when the Christians assembled, every one had a psalm, a doctrine, a tongue, a revelation. In this and similar passages the gift of teaching, of interpreting, and of announcing future events is designated from the revelation (apocalypsis) of the council of God to the spirit of the receiver.

But the word apocalyptic is used in a 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, unbelief and superstition, form the apocalyptic literature. The revelations in these works communicate visions in symbolic language. The apocalypsis is a branch of the prophetic literature, 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 been composed both in the apocalyptic 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 all apocalypses (vol. ii. p. 345). Some 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 Jews retained great vigour among the Jews; but they degenerated into apocryphal imitations of earlier apocalypses. These apocryphal apocalypses of later Jews were often marked by a tendency to substitute the gospel for the historical revelation. After the first advent was necessary: because Christian apocalypses are the only true continuation of Biblical Judaism. The stream of Jewish apocalypses is lost in the sands of time.

Talmud. Some account of Jewish apocalyptic apocalypses will be given under the articles HEBREW, EEAR, PATRIARCHS, ISRAEL.

In the history of the Apocalypse, we have to consider who was the author of the work who calls himself at the conclusion of the first chapter: 'I am Jesus 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 a later writer, who, without any those to the sacred character of the development of the first chapter of the apocalyptic appendix of the gospel and the epistles of St. John, will, indeed, a strong 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 those Hebraisms.

Polycarp, bishop of Smyrna, a successor of one of those pastors to whom the seven apocalyptic letters in chap. ii. and iii. were addressed, was a disciple of St. John the apostle; and Papias, 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 Papias were highly esteemed authors. Polycarp's letters and works were published by the church in the second century, but of the writings of Papias 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 appeals to the testimony of those who had seen the face of St. John. Andrews and Arethas of Cesarea, who lived in the last quarter of the fifth century, that Papias recognized the inspiration of the Apocalypse, or an inspiration through the Saviour, 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 letters of St. John, which I mean, bear the name of the Holy Cyril, and besides these the more antient also, Papias, Irenæus, Methodius, and Hippolytus, testify to its credibility.' Arethas being later, repeats nearly the same statement in the preface to his own commentary. Papias 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.

Justinian Martyr, who lived between A.D. 140-160, and was killed at Lyons by Polycrates 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. Justinian Martyr, in his Apologies, A.D. 161, Ps. lxix. 4, to support his doctrines about the millennium, and adds, that John the apostle, in the Apocalypse, likewise prophesied, that the believers in Christ should dwell in Jerusalem 1000 years before the general resurrection; but that this statement might take place after.

Melito, bishop of Sardis, 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 devil 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 had it, testifies that Theophilus took some proofs (παραπροφανεία) from the Apocalypse. Theophilus seems also to use apocalyptic language in his work (Ad Autolycum, ii. 38): "the demon (devil) is also called dragon (Iπίανος)." 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 Prefects, which was written in the name of the Alexandrine bishop at Ephesus, the second century) quoted the Apocalypse against the Montanists themselves, although these heretics derived their errors especially from this part of the New Testament.

But the most important testimony in favour of the Apocalypse is that of Irenaeus, who discloses bishop of Lyons A.D. 192. Irenaeus, in his work against heretics, quotes long passages from the Apocalypse of John, whom he calls expressly the 'disciple of Jesus' and 'the recipient of the revelation.' This pseudonymous character was in the fifth century generally recognised. Irenaeus 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. Irenaeus must have confessed 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 Irenaeus was born in Asia Minor where the Apocalypse was published; and he grew up in that city during the Montanist movement, when he knew the friendly circle of St. John, and the accounts which were in vogue among his disciples. Irenaeus had a very extensive acquaintance with the most distinguished Christians of his time, and a lively interest in the religious differences and theological debates of the second century; consequently, we have reason to say, that Irenaeus was a qualified witness. There can be no doubt that he believed the Apocalypse was written by John. Irenaeus 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 were informed of the arrival of the Asian Christians suffered under Marcus Aurelius, A.D. 177, proves likewise that the Apocalypse was then much read and generally recognised in Gaul and Asia. Irenaeus was presbyter at Lyons when this letter (see Eusebi Hist. Eccl. v. 1-3) was written; and it is probable, that Irenaeus, who was 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. Apologists, orators, and philosophers, among other theological questions, that concerning the authenticity of the Apocalypse. (See Montanists, Tertullian, in his Montanistical writings, constantly appeals to the Apocalypse.)

It is very important that the spiritualizing Origen not only mentions the Apocalypse as being written by John, (Comment. in Ec. Joannis ed. Lommatsch, tom. i. l.6.) but says very decidedly in his Commentary that John, who referred on the breast of Jesus, wrote the Apocalypse. Origen classified the books then used by Christians into genuina, spurious, and of uncertain authority, and numbers the Apocalypse among the genuine canonical books.

The inspiration of this biblical book was fixed in the third 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 publications, a sufficient reason for doubting the apocryphal authority of the Apocalypse, or for the rejection of a text from a sect called the Alogoi, that asserted that the Apocalypse was an untestimmonial and irrational fabrication of Cerinthus, it maintained its authority to the middle of the fourth century. Had not this fact and these views been fixed, it would have been necessary to investigate the evidence, the merits of the evidence, and the textual evidence, of the Pauline epistles. Hence we perceive that the Apocalypse, although wanting in the Peshito, was recognized among the theologians of the Syrian churches. (Compare Lengerke de Ephraemi Syri Arte Hermeneutica, p. 5-9.)

During the fourth century the Apocalypse was used in the oriental church by Athanasius, Basilius Magnus, Gregorius Nazianzenus, Eusebius, and Theophilus of Alexandria.

But Cyrilus 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 apocryphal publications. Cyrilus 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.p. 256, Eusebius, in his Eccles. Hist. iii. 8, and John Cassian, around 265, gives a list of the books of the New Testament and the canon; and so likewise the eighty-fifth of the apocryphal canons, which belong, perhaps, to the fourth century.

Gregorius Nazianzenus, says, in his verses on the genuine books of the inspired Scripture, after having named 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 Gregory quotes, 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 endeavours of the Montanists and 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 apocryphal origin of the Apocalypse continued uninterrupted to the middle of the third century, except by the opposition of the Alogoi. But Dionysius, a disciple of Origen, and bishop of Alexandria, who died A.D. 265, 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 Erasmus, as we shall presently mention. Indeed, every later expositor has repeated the same arguments.

The synod of Toledo, A.D. 633, 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," with which these dead bishops were of one mind in the work, saying, 'the authority of many councils, and the decrees of the Roman bishops, prescribe that it is of John the Evangelist, and appoint that it is to be received among the Divine Scriptures.' (Ital. Test., cit. 54.)" If, however, we consider the obvious opinion which continued undisturbed during the middle ages. Tauler of Seville, who died 636, described in his work, De Officiis Ecclesiasticis, the New Testament canon exactly as the church considered it henceforth to be established and closed.
According to Idaecho, the Apocalypse concludes, as being truly apocryphal, the whole canon. But it is remarkable, that the Decretum Aquinatisnum by Charlemagne, A.D. 789, cap. 20, decrees, that according to the synod of Laido, the Apocalypse, is not to be read in the churches. The canon of Laido, which is included, in which the Apocalypse is omitted. Corpus Juris Germ. ed. Walter, tom. ii. p. 1, p. 77, seq. But it appears from Augustus' Denkwürdigkeiten aus der Christlichen Archäologie, b. vi. p. 112, etc., that the Apocalypse continued publicly to be read, in the Western church.

During the middle ages, the antithetical sects, as well as orthodox divines, appealed to the canonical authority of the Apocalypse, and they differenced others, in their writings, but with the Reformation began another period in the history of the Apocalypse.

Erasmus (in Annotationibus in Novum Testamentum, 1516) reminded his contemporaries of the former doubts, and repeated them more fully in the edition of 1527. He states that from the title Johannes Theologus, the frequent 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 ascribe the Revelations not to John the Evangelist, if the general consent, and especially the authority of the church, did not already settle the genuineness of the visions; nevertheless he relates, apparently with predilection, the opinions of Dionysius, and the uncertainty of Eusebius whether it belonged to the Homologomena (the admitted), or non-Homologomena (the unadmitted).

What Erasmus had cautiously whispered into the ears of the learned, Carlstadt and Luther proclaimed boldly to the people. Carlstadt, in his book Welche Bücher Biblisch Sant, 1520, p. 4, divides the New Testament into three classes, the first of which contains the Epistle 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, that he never received it in the days of Hieronymus by all Christians; secondly, the title is not Apocalypsis of John the Apostle, but of John the Theologian. Thirdly, its style and manner differ from those of John the Apostle. But, says Carlstadt, 'I will 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. 1522, Luther writes: 'In this book of the Revelation I leave every one to his convictions, because, I will not bring to its view the 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 Apostle deals not in visions of the clear and glorious, as do John Paul, and Christ himself in the Gospel. It belittles the apostolic office to speak clearly, without imagery, about Christ and his doing. But there is no prophet in the Old Testament, nor, as far as I can see, in the New; who, without 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 in preference to other holy books, which are much more important, and that he commands and threatens God would take him whosoever would take anything from the Apocalypse; and again, that they should be blessed who believe in them. Now, this is not only 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 it, though St. Ignatius, with his light-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 book). Finally, everybody may think of it what his own will; why should not he accommodate itself to this book, and is sufficient cause for me not highly 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 xii), 'Ye shall be my witnesses, therefore I will the apostles to those books which give me Christ clearly and purely.' This preface of Luther was repeated in all editions until A.D. 1634.

The opinions of the reformers 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 Apocalypse was not considered as subsidiary sources of information. (Compare Oeder, Christlich freie Untersuchung, p. 51, 313; Hartwig's Apologie der Apocalypse, th. iii. p. 35, 48; Storr's Neu Apostolische, p. 1, seq.; and especially Bloch's Einleitung zu den Briefen an die Hebräer, p. 449, etc.)

In the disputation 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 had no reference to it in their interpretation, the Apocalypse was among them; but Zwingli 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 testimonies from the books of Tobit, Baruch, Maccabees, and of the Apocalypse; to whom Oecolampadius and Zwingli replied, that the Protetants did not absolutely reject the Apocrypha, 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 Zwingli's Werke von Schuler und Schultheiss, 2 b. i. Atho. p. 87, 169, etc.) Thus it appears that Zwingli, Oecolampadius, and Bucer, who was the most learned of them, was not so inclined at the Reformation and his followers in their estimates of the Apocalypse.

The reformers of Geneva, Calvin and Beza, seem to be more favourable to the Apocalypse. They quote it often without mentioning that it is a canonical or an apocryphal book of the New Testament. Calvin uses, in his Institutio Religionis Christianae, the Apocalypse as canonical and apostolical, but does not interpret it in his Commentaries, and thus obtained the often-echoed praise of Scaliger: 'Calvin was never more right than in the Apocalypse,' he defends, in his Prolegomena to the New Testament, its authenticity against Erasmus, but adds, that if it were not of St. John, he would ascribe it to St. Mark, on account of its similarity to that author. On the other hand, the Apocalypse was sanctioned as genuine in the Conclusio Helvetica Posterior, the Thirty-nine Articles of the Church of England, the Confessio Gilitica, and Conf. Belgica, and zealously expounded by Theophilus Bombastri (Expositio Apocalypsi, Basle, 1549, p. 46) and by Arntz (in his Apocalypsis, 1549, and Heinrich Bullinger, who defends it against Erasmus and Luther (Conf. Sermones sur l'Apocalypse, Geneva, 1658). Hyperius (in his Methodus Theologiæ, Basle, 1574, p. 45) says of his view 'that I speak in conclusion. He had been doubted by some, but he declares it to be canonical on the authority of the most antient fathers. So the theory and practice of the so-called reformed (Calvinistic) church were, in the seventeenth century, decidedly opposed to those of the Lutherans.

The Socinians leaned more towards the reformed than to the Lutheran view. Faustus Socinus (De Auctoritate Scripturæ, op. i.) denies the Apocalypse to be genuine. 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 Discours, Historical and Critical, on the Revelation ascribed to St. John. It is now well known that when nobody knew what it was, 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 it, though St. Ignatius, with his light-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 book). Finally, everybody may think of it what his own wish; why should not he accommodate itself to this book, and is sufficient cause for me not highly 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 xii), 'Ye shall be my witnesses, therefore I will the apostles to those books which give me Christ clearly and purely.' This preface of Luther was repeated in all editions until A.D. 1634.

The opinions of the reformers influenced the Lutheran
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 Ceder, Semler, and some other philologists. Here and there, however, the learned, 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 want of taste, when they denied the esthetic value of the Apocrypha, and thus, without being orthodocrat, Eichhorn facilitated a decision favourable to orthodoxy. Herder observed, that every Christian poet who had a spark of real poesy enjoyed the Apocrypha; that the best hymns of the New Testament are written, Jewish, or Christian, in the kingdom of God. They are crowned with apocalyptic flowers; that Dante, Petrarch, and Milton were imitators of the Apocrypha.

The Apocrypha neither possess the plastic beauty of the antique, nor the picturesque beauty of our 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 Apocrypha, the Works of the Old Testament, the New Testament, the Writings of the Old Testament, and the Writings 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 Ἡπείρος ἀποκρυφή, considers the state to be an exact transcript of individual man, so St. John, taking yet a higher step, tells us in the Apocrypha that similar events, which happen in the life of individuals, shall also take place in the life 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 teems with prophecies, and finally declares, that in the apocryphal writings more obscurely indicated, 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 the Lord will only operate in open conformation 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, on earth as in heaven.

APOCYPTHIC KNIGHTS (Cavalleri dell' Apocalisse) were a secret society, formed a.d. 1593, professedly for the defence of the Roman Catholic church against Antichrist. Among these there was the Apocryphus, an Italian knight, Gabrio, the son of a merchant at Brescia. When, on Palm Sunday, 1563, in the church of St. Peter at Rome, the antiphony of Ps. xxiv was sung: "Quis est iste regis gloria?" "Who is that king of glory?" Agostino Gabrio stepped forward with a drawn sword among the ecclesiastics, crying out, "Ego sum regis gloria: "I am king of glory." In a similar manner he disturbed public worship in the church of St. Salvator, and was, therefore, confined in a madhouse. A few years later, the same knight, in writing a book of 600 pages, was again, for the first time, suppressed by the Inquisition against his order; by this tribunal the order was suppressed in 1594, and the knights confined in prison. About eighty knights, most of whom were of noble families, and were left without a living at their side, even during menstrual 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 terraqueus globe. The tail of the star represented the sword seen by St. John in the Apocalypse. This order had been accused of an intended rebellion against the papal government and the higher ranks. Agostino Gabrio, called marquis of the Holy Trinity, intended to introduce polygons, and his knights were 10,000 virgins 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 Tenzel's Monatrichte, 1694, p. 377, and of 1697, p. 883, &c.; and Gruber's Entry.)

APOCRYPHA (Ἀπόκρυφα ἃβδον) are such books as contain secrets and are kept in secret, from ἄποκρυπτειν, to conceal; in the term referred to those writings of the Gnostics and other sects which contained the knowledge of those mysteries which were communicated to their partisans only. These books are now known under the name of pseudopigraphi, that is, 'books with false titles,' as the books of Adam, Henoch, 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 version of the Old Testament, from whence they were transferred into the Vulgate and many other 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, and the other additions to 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 follow the Vulgate are interposed with the other writings which are admitted by all Christians to be canonical. The Bibles published by Protestants on the Continent place separately—the additions to Zedrus; the book of Tobit; Judith; rest of Esther; The Song of Solomon; of Noah; the Book of Jeremiah; the Song of the Three Children; Susanna; Bel and the Dragon; the Prayer of Manasseh; the books of the Maccabees. These works, which are principally called the Apocrypha, will be noticed in separate articles. About the year 1826, 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 circulated 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 apocryphists had in any way swayed the minds of the British, in the Codex Pseudepigraphus Veteris Testamenti, and the Codex Apocryphus Novi Testamenti, and more completely by Thilo in the Codex Apocryphus Novi Testamenti, Lipiste, 1829. Most of the apocryphal additions to the New Testament have been collected and published in an English translation by Home.

APOCYNACEAE, a natural order of plants, belonging to the monopetalous subdivision of the dicotyledons, classed among the Rosaeae. Several species are abundant in this order, and are extensively used. The order is characterized by its peculiarly symmetrical, the segments of the corolla all twisted one way, like a Catherine-wheel, five distinct stamens, a superior ovary which, when ripening, divides into two parts, which diverge from each other at right angles and by their 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 upon the human body is more or less violent. A few of these, the horsemint (Zanthoxylum piperitum) and the Nux vomica (see Strachinos) are remarkable instances. Notwithstanding this, some of the species are not wholesome; as the hya-hya, or milk-tree (Choerospondias axillaris), and the Fruits of this genus are highly esteemed in Borneo as a medicine, but are not at all wholesome; as the hya-hya, or milk-trees (Choerospondias axillaris), and the Fruits of this genus are highly esteemed in Borneo as a medicine, but are not at all wholesome.
should be administered with very great caution, until it has been satisfactorily ascertained that they may be employed without danger. The order Apocynaceae is only distinguishable from Asclepiadaceae by the stamens being distinct from the filaments, which are covered 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 ventral fins, but not sexed, by Bathy. Aside from those which besides possessing this character, are likewise malacoepitrous. In the latter sense, the apodal fishes compose a small natural family, almost restricted to the great genus Murinae, of which the common eel offers a good and famous example.

APOGE'E, from απ, from, and γε', the earth, an astronomic 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 APELLEION, 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: at the quarters it is decreasing. But the increase, on the one hand, and the decrease, on the other, both of which are opposed to the sun's movement, as the apogee approaches perigeus, are equal, and therefore the sun moves round the celestial sphere with uniform velocity, and its average distance from the earth varies very little, and 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, with respect to any place. For example, when we find that in January, 1834, the moon is in apogee at fourteen days eighteen hours (meaning eighteen hours after noon on the 14th, or six in the morning of 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.

APOLEDA, a town in the grand duchy of Saxe-Weimar-Eisenach, about eight miles north of the University of Jena, and seven of that of Erfurt. It was in the right half of the line of succession. It has a manufactory of woollens and kerseymere, and a very large stock of stockings, of which it produces about thirty,000 dozen pairs a year; linens, bandy, and spirits, are also made in the town. It has two foundries for bells.

Population, 32,333.

APOLLINARIS, C. Sulpicius, a grammarian who taught under the reign of the Antonines in the second century, at Rome. Helvius Pertinax was his most famous disciple, who afterwards defended the name of the right. It has a manufactory of woollens and kerseymere, and a very large stock of stockings, of which it produces about thirty,000 dozen pairs a year; linens, bandy, and spirits, are also made in the town. It has two foundries for bells.

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APOLLINARIS, or APOLINARIUS (Ἀπολλιναρίου), a native of Alexandria, taught grammar at Bybys, a town on the coast of Phoenicia, and afterwards in Laodicea of the same country. Apollinaris married and became presbyter of his church. His son, likewise called Apollinaris, was one of the greatest of all the Christian poets and translators. 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 both Emperor Constantine and the bishop of Constantinople. They attended the lectures of Epiphanius the sophist, who taught at Laodicea, and afterwards in Athens. On this account, and especially because they were present when Epiphanius recited a poem in which he abused the Christians, they were accused of heresy by the Arians, bishop of Laodicea; but again, on doing penance, admitted into church-fellowship. Georgios, the successor of Theodotus, a.d. 356, being an Arian, banished them, either because they were friends of Helvius Pertinax, 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 forbad the Christians to interpret the Greek classics, the Apollinaris, father and son, composed imitations for the use of schools. The father wrote a grammar for Christians. Sozocrates (Hist. Eccles. iii. 16) attributes to the father some grammatical poems and tragedies, found in the old manuscripts of the Old Testament; but Sozomenus (Hist. Eccles. v. 18) ascribes these productions to the son, who transformed also the New Testament into the manner and style of Ptolemaic dialogue. As far as the detailed history of their production is known, it appears that the words were read again, and the imitations of Apollinaris forgot.

The younger Apollinaris is mentioned (in Athanas. Ep. ad Antiochenos, tom. i.; Opp. ed. Montfaucon, vol. ii. p. 276) as ordaining Vitalis bishop of Laodicea. Apollinaris was bishop of the Arians in that city. He was esteemed, and had an epistolar correspondence with Athanasius, Basilus Magnus, and other great men of that age, who continued to speak respectfully of his merits, even after he was suspended on account of his adherence to the Nicene Creed, and was esteemed, especially by polemical and exegetical writings; for instance, by his work on Truth, against the Emperor Julian and the heathen philosophers. Apollinaris's thirty books against Porphyrius, against the prophets, historians, Marcellus, and others, were highly esteemed. Hieronymus himself, during his residence at Antioch, a.d. 373 and 374, enjoyed the exegetical instructions of Apollinaris, then bishop of the neighbouring Laodicea. The interpretations of Apollinaris on the New Testament, not int. on account of his adherence to the Nicene Creed, 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 its name, De Spiritu Sancto, it appears to be one of the hymns and psalms which were often sung in Christian congregations, and much admired. In the year 1552 was published at Paris, a Metaphysica Psalmorum of Apollinaris, and reprinted by Simony at Heidelberg, in 1566; this, and the tragedy on the suffering of Christ, in the Works of Gregorius Nazianzenus, were ascribed to Apollinaris, but appear to some critics to be unworthy of his talents.

In the latter part of his life, Apollinaris, who had strenuously contended for the Nicene Creed and the doctrine of the Virginity, 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 (σωφρονος) incorrupt, but not (τέφρως) insculpt. His disciples, who were very numerous, were called Apollinarists. His heresy became generally known a.d. 371. The accu- sations of Sozocrates, Sozomenos, and Theodoret, against the character of Apollinaris, and the low notions which are said to have led him to embrace his peculiar views, were 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 accused; and at a council held at Carthage, a.d. 397, his doctrine was fully avoided on this occasion. Nevertheless this condemnation induced Apollinaris to form a separate congregation, over which he ordained the presbyter Vitalis as bishop. Before the Apollinarians are also called Vitalians. They are also called Dipyrene, an epithet by which they were accused of dividing the nature of Christ into two parts.

Before the death of Apollinaris, which happened between a.d. 389—392, the Apollinarians formed in Syria and the adjacent countries several separate congregations, having their own bishops. After his death, the Apollinarists were divided into two parties, one of which, under Polemo, or Pelmus, and Timotheus, pretended that the divinity and humanity of Christ were united in one body of God, and the doctrine of the human was consequently, that the flesh was to be worshipped as well as the logos; these were called Polemians and Synomistae, and also euykotolites (εὐκοτολιτες), flesh-worshippers; in retaliation, they called the orthodox antihropololites, or men-worshippers, who were the original discipline of Apollinaris, were called Valentinians.

By imperial command, the public worship of the Apollinarists was impeded a.d. 386 and 397, and a.d. 428 in all the provinces; and they were forced to separate from their own bishops. After his death, the Apollinarists were divided into two parties, one of which, under Polemo, or Pelmus, and Timotheus, pretended that the divinity and humanity of Christ were united in one body of God, and the doctrine of the human was consequently, that the flesh was to be worshipped as well as the logos; these were called Polemians and Synomistae, and also euykotolites (εὐκοτολιτες), flesh-worshippers; in retaliation, they called the orthodox antihropololites, or men-worshippers, who were the original discipline of Apollinaris, were called Valentinians.

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APOLLO, one of the principal gods of the Greecian hea- ven, the sun-god, also named the divine mouth with the phallic organ, or of 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
of different extraction, the son of Hyperion and Theia.

(Thesp. xviii. 371: see also the adventures of Ulysses in the island of Thrinakia, where the oxen of the sun, not of Apollo, are always spoken of.) According to Hesiodus, (ii. 349) the blessed maiden is the daughter of Phoebus and Leto. He it is who, when the time of travail drew near, wandered through the eastern parts of the earth, where the swan, said to be the offspring of Jupiter, had, according to the oracle of the Delphic Pythia, been made fastened round his neck, and hung over the extended left arm. The left hand and the right fore-arm were lost, and were restored by Giovanni Angelo da Montorsoli, a Fleming. 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 serpent's head is placed behind the left hand. The head 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 uncuring bow," The god of life, and poetry, and light, The son in human limbs arrayed, and bow And dipped in his own tears the shaft The shaft has just been shot—the arrow bright With an immortal vengeance in his eye And mostful beautiful disdain, and might, And majesty, flash their full lightnings by, Developing in that one place the Deity—"

Childe Harold, iv. 161.

(See also the Homeric Hymn to Apollo, v. 357, &c.; and Paus. Mag. vol. i. p. 243.)

APOLLODORUS, a celebrated grammarian of Athens, of whom an account is given by Suidas. He was a pupil of Aристarchus. Of his voluminous writings, only three books of his Bibliotheca, a mythological work, have come down to us. He wrote on Greek mythology, or the history of the gods, from the creation of the world (Deus), bearing either the lyre, or his peculiar weapon, the bow. In later times he usurped the presidency of the art, and was thereby called the greater 'Escauliatus 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, Tomoes, Patara, Claros, &c.; and from those 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 his use of the bow. As a poet, he is known for his beautiful passages in the Iliad and the Odyssey. He, too, was a poet, and has been compared to Homer and Hesiod, and to those later writers assigned to those deities the presidency over the two great luminaries, only revived the original belief which had fallen into disuse. But must supports 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 Helius and Selene he regards as deities of a later age); that the attributes of Apollo, his golden-sword, 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); these and other arguments show that Apollo naturally be given to the sun-god, whose eye surveys every thing, and whose beams penetrate every where; and no mere suitable patroness could be chosen by the hunter, who lay hidden among the mountains, as the moon-goddess, whose mild radiance guided them through the woods and lawns." (Knightley's Mythology.)

APOLLO BELVEDERE, a celebrated statue of Apollo, found at Capo d'Anno, in the ruins of Antium, about twelve miles from Rome, towards the end of the fifth century. It was purchased by Pope Julius II., before his elevation to the pontificate; and was placed by him in the Belvedere of the Vatican, whence it derives its present name. It has two figures of the Muse and the Muses, but no certain indications of the sculptor are to be traced. But it is now pretty well proved that it was made under the emperors, and probably by 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 the god in the attitude, as he draws a Sagittum, the name given to a small bow, 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 Montorsoli, a Fleming. 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 serpent's head is placed behind the left hand. The head 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 uncuring bow," The god of life, and poetry, and light, The son in human limbs arrayed, and bow And dipped in his own tears the shaft The shaft has just been shot—the arrow bright With an immortal vengeance in his eye And mostful beautiful disdain, and might, And majesty, flash their full lightnings by, Developing in that one place the Deity—"

Childe Harold, iv. 161.
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 key-boards are detached from the body of the organ, so that they may be played with while the instrument is, 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. The largest, five inches in aperture, the altissimo, 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, and enabled the orchestra to drud a sort of music, the case, and struck by a curious curiositate 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 Prometheus; Weber's to the Freischütz and Oberon; Cherubini's to Anacreon, &c., without omitting a single note of the score, and with all the forces and pianos, 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 Apollonidas was five years in building, and to an expense of about ten thousand pounds.

APOLLONIDUS Dyscolus, or Alexandrinus Mixtus, who was born at Alexandria, in the second century of the Christian era, and of whose private life we only know a few facts gleaned from Suidas and from a sketch of his life by an anonymous writer, prefixed to the greater part of the collections of his works, entitled Apollonius On Syntax. He was the son of Mnesitheus and Arisane, and is said to have been so poor that he was unable to afford money sufficient even to purchase paper. It was probably this state of poverty which had an influence on his temper, and caused him the name of Dyscolus, or the morose. This appellation was intended to distinguish him from Apollonius Rhodius, who is sometimes called Alexandrinus Major. He was the author of many works, the best of which is by Priscianus preserved, and afforded to that grammarian 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 Aldus, 1495, Venice. An improved edition was made by Sylburgius, with a Latin translation of Röm. Portus, 1590; the last is by Bekker, Berlin, 1817. At the end of the Treatise on Greek Dialects, by Mattea, Hagen, 1716, Lips., 1687, there are some extracts of the Grammar of Apollonius, which were procured from a manuscript of the Royal Library of Paris. There is also a work attributed to him, ήρωςις θυδαςις, Wonderful Stories, the best edition of which is by Mauvius, Lugd. Bat. 1620; but it is very probable that many of them which were cited could be justly considered the author. It has been published also by Teucher, Lips. 1792.

APOLLONIUS, (PERGAUS,) after Archimedes, the most celebrated of all the ancient geometers, was born at Perga in Pamphylia, while Ptolemy III. continued called Ruergetes, was king of Egypt. Ptolemy began his reign a.c. 247.

Apollonius in the zenith of his fame and power about the end of the reign of Ptolemy (IV.) Philopator, who died a.c. 225. Apollonius and Hannibal were nearly contemporary both as to birth and achievements in their different lines. Archimedes died a.c. 212, at which time Apollonius was living; it is said the latter had been his teacher.

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) repertory substantially on the works of Apollonius, and 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, in the interest of the cause. Pappus and his commentator, (about A.D. 500,) 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 any of the theorems which are attributed to them. Apollonius bore to his 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 four more to them; thus recognizing him as the author of an important portion of the Elements, to 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.

Of the many books which belong to the heart of an eminent man,—his opinions on disputed subjects,—we know but little in the case of Apollonius. Gassendi, in his life of Copernicus, mentions an opinion attributed to the latter, in which he advanced the notion 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 Astronomiae, who however cites Gassendi 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 stations of the planets, supposed to move in epicycles. Proclus, in his commentary on Euclid, mentions that Apollonius attempted to prove a proposition of a very difficult nature, 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 to prove the thing itself, than to give definition of an angle which he attributes to Apollonius, but which we confess ourselves unable to understand. Vossius cites Apollonius as the inventor of a species of loan, which he terms purob.

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 Rotationibus Sectionum, De Sections Quadratum, De Sectione Conique, De Inclinationibus, De Plano Locis, and according to Proclus, De Cochleis, and De perturbationibus Rationalibus. Most of these nesses would require circumlocution to make them more intelligible in English, and we therefore omit them as they are usually referred to. Of those, the first only is known to us, having been found in Arabo, and published in Latin by Halley in 1708, with an attempt to restore the second. But Merian, cited by Vossius, says he read, in an Arabic author, Aben Eddin, an assurance 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 these labours.

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 notion which could be gathered, to guess at the propositions which they might have contained. Such attempts gave rise to the Apollonius Gallus of Vista, the Apollonius Batavus of Snellius, and other works of Mauricio, Ghedalli, Adriano Romanus, Fermat, Schooten, Anderson, Halley, R. Simson, 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 Ascalon, above-mentioned. The three remaining books that were supposed to be lost were found in the latter part of the sixteenth 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 1658, Borelli, in his Institutions, on Arabo mathematicall, founder of the famous library at Florence, of the seven same books. It does not a little serve to illustrate the use made of public libraries, that while a person after another had for years expressed a wish to have the books translated, it was not till 1658, that such an undertaking was seriously commenced. 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 mark
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 view of the subject, which we now call it, was extended in many cases than those of the Greek. The eighth book was still wanting, and a note to the version imported by Golius informed the reader that it had never been found, either by Arabs or Greeks; but when the Oxford press, at the commencement of the last century, was employed upon the magnificent versions of the Greek geometers, which are still the best in public use, Dr. Aldrich, observing that the preliminary Lemma of Pappus, which was the seventh book, were the titles believed 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 be endeavoured 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 Lemmas 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: "we give a translation of the first four books; that of the generation of the three sections of the cone, and of the cones which are styled opposite, and their principal distinctive properties, which have been treated by its author in a very different manner from his predecessors. 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 have called equal and what unequal. 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, which they dispute, are, as is seen, circumscribed circle, on the whole of which nothing has been delivered by those who went before us. The remaining four books treat of the higher part of the science: the fifth, on maxima and minima: the sixth, on equal and similar sections: the seventh, on dioristic theorems, or theorems useful in the solution of problems; and the eighth, on the problems thus solved.

In 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 himself, that he gave an analysis of the properties of the sections, as previously it had been usual to treat only of those, the planes of which were at right angles to one of the sides of the cone; so that an ellipse could only come from an acute angled cone, and so on. Though Archimedes was aware that all the sections of any cone were of the same nature as those of the limited character above-mentioned (at least it is customary so to state), yet all testimony is against this having been known in the time of Euclid. In fact, Apollonius usually took the books of Euclid, as according to Pappus he did, he must have so changed the face of them, by generalizing the method of cutting the cone, and introducing the properties of diameters, that they must have differed widely from the original, and from one book can from another. To conclude the subject of the authorship, we remark, in reference to the charge of Heraclius above-mentioned, that the styles of Archimedes and Apollonius are very different; the latter has by no means 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 tedious in the method of obtaining them. A support of Mydorge, which I have justly discussed in a later part of the volume, viz. on the last page, implies that the fifth, sixth, and seventh books were the work of some Arab under the name of Apollonius, deserves no attention. He must have been but a foolish Arab who would have been worked by Caliph al-Mamun. But when it is considered that this work took its revenge is not told; but it must have been effective, if we may judge from the bitter reproof it procured from Callimachus. His poem entitled Iba was directed
against Apollonius, and though no fragments of it remain, we can form some opinion of its character and leading features from the *Ivia of Ovid, which is said to be an imitation of this poem. Apollonius left Alexandria, probably in the 4th century B.C., and resided at Rhodes, where he lived for many years, and was last re-
called 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 *Argo-
nautica*. In four books, containing 5835 verses, and giving a
detailed account of the wanderings of the Argonauts. This was
endeavored to be written with the greatest care; but little
much Apollonius borrowed from his predecessors Herodorus
and Epimenides, or whether he servilely copied Cleon in the
whole design of his work, as an ancient scholastic 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 poetical spirit. (See also Longinus on
the *Sublime*, xxiii.) It is easy to perceive that Apolloni-
us does not possess the qualities which constitute a
great poet: he impeded the narrative with a minute and
superficial detail of circumstances till the reader's patience
is fairly worn out. There is an affectation too of learning which
is inserted into the poem. -- Apollonius has been successful in the
attainment 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 filled his *Aeneid* (Book vii. v. 529) with noble
lines. Apollonius has borrowed his idea of Dio's love for 
Neas from this part of the poem of Apollonius.

Many learned Greeks wrote commentaries on Apolloni-
us, and the Latin poet Valerius Flacces closely imitated him in his
work, also entitled *Argonautica*. Terentius Varro translated
it into Latin: in still later times it was turned into Jambic
verse by Marianius. The first edition of this work was pub-
lished at Rome, in 1585. The following lines occur in the
translation of that poet:

That of Beck, Lips. 1797, containing the text of
Brunck with some corrections, a good Latin version,
and an excellent table of contents, is one of the best editions.
It has been translated into English by Green, Fawkes
(1797), and Preston (1803); into Italian by Flangini (Roma,
1791); into German by Bodmer (Zrich, 1779); and into French by Caussin (1797). For explanatory works, the
reader may consult Schoenemann, *Comment. de Geogr.
Arachn. Gttingen, 1782; Gerhard, *Lectiones Apolloniani,*
Lips. 1816; Weichert, *Ueber das Leben und das Gedicht
des Apollonius von Rhodus, Meissen, 1801.*

**APOLLONIUS**, a celebrated statuary, the son of Nestor
of the island of Rhodes, and of Mavonia, a *gigantomachia*
which represented Zethus and Amphion binding Diom to the
horus of a furious hulk, to asswage their mother,
Antiope, whom she had cruelly persecuted. This group,
described by Strab. (vii. 546), is supposed, with much pro-
bability, to be what is known to us under the name of the
Torso Farnese, found during the reign of Paul III. in the
ruins of the Baths of Caracalla. It must not, however, be
supposed that we see it exactly in the state in which it
was found. The lower half of the figure of Diom, the two
trunks and a leg of Zethus and Amphion, were the only
remnants of the ancient sculpture, but it is sufficient to prove
that the art was then in its highest degree of perfection.
These were here restored in the most correct 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 Piranesi, *Statiue,
Maffe;* Winkelmann, vi. i. p. 128; Mller, *Handbuch der
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Maffe;* Winkelmann, vi. i. p. 128; Mller, *Handbuch der
Archdgiol., &c.* p. 137.
He afterwards went to Crete, and finally arrived in the reign of Nero at Rome, where he and his fellows being questioned by the magistrates concerning the object of their journey, overcame their mistrust by restoring to life the dead body of a noble lady, predicting an eclipse of the sun, and confirming the prophecy by writing a letter, which prediction 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 in several provinces of that country, which rebellion was put down by 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. After a period of about twenty years, he again 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 Lampridius, cap. 29.) Afterwards he revisited Asia Minor and Rome, where he was accused by Euphrates 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 Egypt, and performed miracles, 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 Dictyuna in Corinth to be devoured by serpents. But when the temple was opened, the voices of invisible 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 books exist only in an English translation by Charles Blount, London, 1660, fol. In 1693, this translation was suppressed on account of the annotations being hostile to Christianity, and Blount committed suicide. Philostratus wrote the Greek original of one volume in Latin, which was published in 1794-8, vol. i., p. 231–362.) As the fundamental idea of mathematics is that of quantity; of jurisprudence, that of right; of aesthetics, that of the beautiful; so the fundamental idea of apologetics is that of supernatural revelation. The apologists contain a further development of one part of dogmatics or doctrine, which is called bibliography. Apologetics teach how to defend the fundamental ideas of Christianity against unbelievers: polemics teach how to attack those who, admitting the Christian revelation to be true, err in particulars.

The science of apologetics treats of the

I. Possibility of revelation.

Asia has a large number of logical refutations of those who, like John Toland, Edelmann, and Rousseau, considered the idea of revelation to be self-contradictory.

2. Theological possibility. Metaphysical refutation of those who considered the idea of supernatural revelation to be repugnant to reason, as against natural, personal, impartial justice, general love, and immutability.

3. Anthropological possibility. Refutation of those who, like Immanuel Kant, deny the ability of man to perceive the supernatural.

II. Necessity of revelation, to be demonstrated by historical and ethnographical induction, especially by the history of philosophy.

III. Reality of revelation, demonstrated by a development of the internal evidence of the peculiar Christian doctrines, and confirmed by the historical credibility of the Gospel history. Apologetics, though based upon the Gospel, constantly require a new adaptation to the times for which they are written. There are many good apologetics, but apologetics are yet in their infancy. Although they are lectured upon in the universities of Germany, they are yet a desideratum in England.

Among the societies, foundations, donations, i.e., which have an apologetic character, may be mentioned the Bampton Lectures at Oxford, Hulse's foundation of the Christian Advocate at Cambridge, the London Society for promoting Christian Knowledge, with all similar societies, the Society for the Diffusion of Christian Knowledge, etc., etc., etc.

APologiES OF THE FATHERS are writings in defence of Christianity, composed from the beginning of the second to the sixth century. The opposers of Christianity generally attacked the moral character of the Christians rather than their doctrines. The fathers of the church, with the view of refuting the doctrines of heathenism and the false accusations against the followers of Jesus, composed Apologies, which were partly addressed to all-well-informed heathens, partly written on particular occasions, and addressed to emperors in order to convince them of the injustice and folly of persecutions.

The apologies of Quadratus and Aristides are lost. Justinus Martyr describes, in two apologies, how he sought the truth in various systems of philosophy until he found it in the Gospel. In his Dialogue with the Jew Tryphon, Justinus Martyr appeals to the prophecies of the Old Testament. The apologies of Justinus, Chrysostom, and others, are lost.

Athenagoras defended the Christians against the charge of atheism, incest, infanticide, and other abominations with which they were charged. Tatianus, Theophilus of Antioch, and Hermas, proved the real inconsistency of the writings of philosophers in order to show the necessity of revelation.

After these Greek apologists of the second century followed, among the Latins, Tertullian, who, in his Apologies, eloquently asks: 'Are there any among you a reason of that hope which is in you?' (1 Pet. iii. 15.) Separate apologists have the same relation to apologetics that separate 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. In the first centuries of the Christian era, the apologists asserted that the Christian religion was the cause of famine, and earthquakes; and that Christian worship consisted in eating children, drinking human blood, committing incest, and adorning the head of an ass, or some such abominations, separate apologists were sufficiently for the refutation of these absurd charges. The name is of still later origin than the science of apologetics. The word apologetikos was universally adopted after Gottlieb J. Planck had used it. (Theological Dictionary, vol. iii. pp. 179-233.) As the fundamental idea of mathematics is that of quantity; of jurisprudence, that of right; of aesthetics, that of the beautiful; so the fundamental idea of apologetics is that of supernatural revelation. The apologists contain a further development of one part of dogmatics or doctrine, which is called bibliography. Apologetics teach how to defend the fundamental ideas of Christianity against unbelievers: polemics teach how to attack those who, admitting the Christian revelation to be true, err in particulars.

The science of apologetics treats of the
Introduces the representatives of various parties, whose arguments are overcome by the truth of the Gospel. Cyprian wrote his Apology, possibly as early as the beginning of the 1st century. The argument of the Anti-Christians is, that the Scriptures expect a future Messiah to come, the Gospel teaches that he has come. The Old Testament is an intimation of the New. The 20 books of the Old Testament are compared with the 22 of the New. The whole of the old are contradicted by the new. An appendix is added to the Apology, in which the writer illustrates his argument by the example of a fable.

**APOLGY (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 apologetic extant Greek orations.) The word ἀπολογίαν, to 'apologise,' 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 apology was 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 Baring in his Apology for the Quakers.

**APOTHETEGM (Ἀποθετήγμα), a Greek word signifying a thing spoken out, and, in its more technical sense, a pithy saying calculated to arrest the attention. Certain apophthegms are of excellent use. Cicero prettily called them salutis, 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. — Lassen. — '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 clasped in solemn times among anecdotes. The following is an example; it is one of the apophthegmata 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.' (Wyttenschab's edit., vol. 1, p. 71.)

The Lacedemonians were noted for affecting the apophthegmatic mode of speech; and Plutarch has collected their sentences also under the title of Lacomia.

**APOPHILLITE, a crystallized mineral, whose fundamental form is the square prism, fig. 1. Its most usual 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 original 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 occasion of these modifications, apophillite sometimes assumes the form in fig. 4.

The inclination of P on a is 120° 30'.

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. Its color is white or grey. The mineral possesses various degrees of transparency, and occurs even opaque. In hardness it approaches nearly to sapphire; 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:

$$8(Ca + 3S) + (K + 8S) + 16.4Q$$

and the mineral is therefore an hydrated silicate of potash and lime.

Apoplectic has been found in the mines of magnetic ironstone of Sweden and Norway; in the lead-mines of the Harz mountains; also in the cavities of several basaltic rocks, at Marienberg in Bohemia; at Foss in the Tyrol; in the island of Skye, &c. In the basalt it is usually accompanied by tridymite.

APOPLEXIA, from αποπληγία, a sudden blow, a deprivation of power and motion, &c. Morbus apoplecticus, sideratum, 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 functions of sensation and voluntary motion. [See LXXV.] 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 life continue to be 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 commonly conceived to attack so suddenly, and to kill so rapidly. What is usually called the stroke or apoplexy, is a disease which is the result 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 otherwise have been mortal. There are few other 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 affecting 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 remedies, 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 life is no longer worth possessing.

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 really 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 to carry on the intellectual operation with the usual degree of individual and the usual determination, or the fall of the prevailing idea 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 a circumstance 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 is the dullness of the senses, 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 a conviction of danger, but that giddiness often arises from other causes; thirdly, because for example, the 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 disorder stomach may coexist, and the symptoms of the latter may mask those of the former. If the giddiness be thus induced, as it often is, with a feeling like that of approaching fainting, it may be considered that there is but a single step from the actual superfusion of the paroxysm.

3. Connected with these two important symptoms are a number of subordinate sensations, which are of consideration chiefly as marking the presence of the more serious indications. The sensations in question are the ordinary companions of the first two, and are often the most prominent and distressing, and therefore serve to direct us to the more important symptoms. Such concomitant and subordinate symptoms are, frequent yawning, dulness of hearing, imperfect or disordered vision, noise in the ears, mists or sparks before the eyes, repeated sneezing, occasional hiccup, and alike.

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 slighter degrees of pain are very common than the severer, the patient usually stating that his pain is trifling. The seat of the pain is often in the forehead, and deep in the socket of the eyes, rendoring them intolerant of light; but it may also be also on the back part of the neck, or the neck, between the shoulders. In the severer states of pain it is often attended with dulness and redness of the eyes, flushing of the face, and throbbing of the arteries of the neck and head. Frequently, however, there is no degree of pain in the brain at all; and in the other instances the frame, not being taken at the presence of the other symptoms because of the inaccessibility of pain. In general, when serious blood attacks a vital organ, pain is excited, and we are thus warned of our danger; but sometimes a mortal disease involves 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 pain in the head, the inference is obvious; if there be none, the danger is 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 exciting cough. If with this loss of muscular power there be at the same time a sense of pricking or tingling over the limbs or fingers, or difficulty in voiding the urine, or distortion of the face or mouth, dropping of the eyelid, stammering, unsteadiness in the gait, and so on, the attack may be considered as having actually commenced.

If these premonitory symptoms one 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 elapse 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 practical purposes 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 violent; secondly, that in which the attack is comparatively slight at the commencement, but progressively increases in force, with the disease disordered stomach and 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
fullness of the older authors; the apoplexia fortissima of more modern writers; and the apoplexia fortissima of the French. In this form of the disease the patient is struck suddenly, there is no time for what is called auctor; the pulse is fuller, stronger, and slower than natural; the urine and faces are passed without consciousness; the skin is covered with a cold and clammy perspiration; foam flows from the mouth; the face is flushed, tumid, and sometimes entire, even livid. Death usually takes place in 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 recovery of the apoplexy, and the amount of the life even in this form of the disease; but if they fail to restore consciousness in a few hours, they commonly fall 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; there is also sometimes an effusion beneath the surface, between the brain and its case, 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. The examination which can be detected suffi-
cient to account for the attack, or for death, the consequence of it.

2. In the second form of the disease, in which the attack is more gradual and progressive, the rate of increase 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 more frequent attack of pain, accompanied by sickness and vomiting. The pain of the head is some-
times so severe that the patient sinks down under it, pale, faint, and exhausted, occasionally with a slight convulsion; but from this state of depression he recovers rapidly, still 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 prostration, the first traces of recovery being feeble, and coming on of perfect cons, 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 ossifica-
tion (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 blood and of carrying on the circulation of the blood, which possesses them to rupture.

3. The third form of the disease commences with a dis-
tinct apoplectic paroxysm, which terminates in paralysis. 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 mem-
er; 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 to pass through the patient in a wave, he swells himself by words or signs; but, at other times, the mind itself is indistinct, confused, rambling, and incoherent. Occa-
sionally in this form of the disease the apoplectic state disappears rapidly, while the paralysis remains for years. Such cases may produce slow death, until suddenly another apoplectic attack supervenes, leaving the paralysis greater than before; at other times the paralysis continues undiminished for days, months, and years, until a second, or a third, or a fourth apoplectic paroxysm at length destroys the patient. In some cases recovery from the paroxysm, the mind is always slow in re-
covering its energy, and often never regains it.

On examining the state of the brain after death from this variety of the disease, the cerebral substance is found to be enclosed in a defined cavity formed in the substance of the brain, constituting what is termed an apoplectic cell; but although this be the most ordinary form in which the blood is effused in this variety of the disease, yet there may also be a general extravasation of it, as the cause of other varieties, or mere effusion of serum; or softening of the cerebral substance, or ossifica-
tion of the membranes, or of the blood-vessels, or several of these morbid conditions may be combined.

In the first form of the disease, in which the attack commences with paralysis and terminates in a com-
plete 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 pricking, tingling, numbness, weakness, and cramp. These local ailments progressively increasing, the patient may complain of a morbid state of the whole con-
yctic state having continued for an indefinite period, an apoplectic paroxysm supervenes, often preceded and denoted by spasms or convulsions in the unparalyzed limbs. The softening of the brain is found to be general, and is progressive gradually and, if manifestly progressive in intensity, the patient at first being capable of giving a cohe-
rent answer when strongly roused, but by degrees the loss of sensation and voluntary motion increases, and another apoplectic seizure quickly superv-
ences, which proves mortal.

In some cases the morbid appearances that present them-
selves 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 soften-
ing of the cerebral substance is the result of infarction, 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 incomplete coats of the vessels, leading to a state 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 apparent to the naked eye, we are enabled to form an accurate conception of the patholo-
gical condition of the brain in apoplexy. Two of the condi-
tions 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. With-
out 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, the brain is subject to undue pressure, and, as an inevitable conse-
quence, the functions of the brain may become deranged. Any cause which quickens or which retards the circula-
tion, or which tends to increase or diminish the 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 veins, a preternatural turgescence of the veins, a slow stagnation of the blood, 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 a diminution of the veins in consequence of an impeded flow of the blood through them, the thinner portion of the blood or serum may be poured out upon the brain, which in the large vessels may remain a long time, yet is instantly destroyed by its immediate current. The 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 them may remain upon it, and there is no possibility of its being instantly destroyed. Again, tumors occasionally form in the brain, which progressively increase in magnitude, and at length exert such a degree of pressure upon it as to impede 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 ganglial nerves [see Nervs], which are distributed to them in great abundance. We may conceive that the organic nerves which preside over the nutriment 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 sufficient to account for death. We may conceive the more especially as the presence of these blood-vessels of the brain may fail in their functions to such a degree, that the blood-vessels of the brain may not only be incapable of performing their natural actions, but may actually be converted into channels of energy, and elastic coats becoming indurated, bhitly, and bony. On the other hand, these organic nerves may become progressively more naturally irritable, and consequently produce an inordinate action in the blood-vessels. And those 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 the degree of the judicial employment of remedies tending to restore the brain to a sound constitutional state, 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, when it does not lead to the conclusion of the condition, it is seldom entirely repaired, and never without much time and most judicious management. In the paroxysm the immediate danger is proportioned to the profoundness of the occurrence of the various symptoms, of the difficulty of the expiration, and the frequency and intermission of the pulse. Other unfavourable symptoms are, delirium, convulsions, paralysis, 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 judicial 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 clammy sweat, dissolution is near. On the other hand, the favourable signs are, mildness of the paroxysm, diminution of the symptoms after the exhibition of the appropriate remedies, the comparatively rapid recovery, the return of the power of voluntary motion, with a calm and soft pulse, am 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 because the secondary symptoms which happen by disease, as the long-continued operation of an exciting cause. 2. Age. It may occur in childhood and youth: it is indeed rare in the former, but it is not uncommon in the latter; and it certainly is more common in the latter than in the former. The disease may occur 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.

Conformation of the body. The large size, short neck, full cheeks, anguine and pleurisy tendency, 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 body, it cannot be doubted that the constitution of the body just described is peculiarly favourable to the formation of that pathological condition of the brain on which, as we have seen, the malady depends. 4. Mode of life. Luxurious living, smoking, and the use of sanguinary habits is a most powerful predisposing cause. 5. Suppression of accustomed evacuations, namely the suppression of the piles, or of discharges from the skin, whether from the sudden disappearance of eruptions, the result of natural disease, or the drying up of a seion or issue. 6. Mental states. Violent emotion: cases continually occur in which persons drop down suddenly in fit in a paroxysm of anger. Long-continued anxiety is almost as powerful an exciting cause as luxuriant living. It is the common opinion that the studious are more prone to this disease than other classes; but this notion is ill-founded, for the evidence is complete that moderate intellectual labour is not only in a high degree conservative of the general health, but that it has more especially an influence on the preservation of the brain on which apoplexy depends. The condition of all others must conducive to apoplexy is that in which at a somewhat advanced age the food habitually taken is large in quantity and rich in nutriment, and in those times 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. The brain having been the seat of these changes, at the slightest exciting cause is often sufficient to produce an attack.

Among the most powerful exciting causes are indigence in eating and drinking, violent emotions of mind, whatever determines the blood with undue impetus to the brain or impedes its return from it, such as great muscular exertion, dependent posture of the head, tight ligature around the neck, or case of warm bath, and the like. Both sets of causes, the precipitating and exciting, either 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 accordin 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 discriminations, 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 great as to produce 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 precedings, there are costiveness, giddiness, headache, 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 indicated. On the other hand, the countenance be pallid and sunk, the pulse full, and the skin cool, the smallest blood-letting may utterly exhaust the vital energies of a brain already greatly depressed.
and the only chance of averting death may be the judicious employment of stimulating remedies. It is in clearly pointing out distinctions like these, and in guiding to the selection of the remedy appropriate to each, that science is the salvation of life. But such too are precisely the cases in which the proper stage of the disease is missed, and without the steady co-operation of the patient. The physician duly weighing the premonitory signs may foresee the impending danger, and give warning of it, and prescribe precisely the measures fitted to arrest it. 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 remedies in the premonitory 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-concerted 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 according to each. It is only necessary to add here, that whenever a person is seized with a fit of apoplectic, he should be carried into a large room, the freest possible circulation of fresh air should be promoted around the body, which should be laid on a horizontal plane, with the head 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 a piece or surface lying between two other surfaces not in the same plane, and particularly to a slight concavity which is almost invariably found to terminate the shaft of an Ionic or Corinthian column both above and below; immediately above the uppermost fillet of the corings of mouldings called the base, and under the moulding or mouldings of the impostrechelion 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 escape; and in French, the apophyge is termed the concave. Apophyge is from a compound Greek word signifying a flying off.

A POSTERIORI. [See A Priori.]

APOSTOLIC, messengers, ambassadors, missionaries (see above), according to Luke vi. 13, those twelve disciples whom Jesus chose from the number of his followers to be his companions, and whom he commissioned to teach his doctrines, first among the Jews. Matt. x. 5; Luke ii. 12 (who are referred to in the Gentile churches) Acts xviii. 19; Mark xvi. 15). Jesus said concerning apostles, 'As my Father hath sent me, even so send I you. He breathed on them and said, Receive the Holy Ghost. Whose soever sins ye remit, they are remitted unto them, and whose soever sins ye retain, they are retained' (John xx. 21-23). The list of the apostles occurs Matt. x. 2; Mark i. 16, &c.; Luke vi. 14, &c.

The names of the apostles are called by Peter, in the names of James, the son of Zebedee, and John, his brother; Philip and Bartholomew; Thomas, and Matthew, the publican; James, the son of Alphaeus; and Lebbeus, whose surname was Thaddaeus (Matt. x. 2, &c.). The last seven (the apostles) are said by James to have betrayed him. 'After the death of James Iscrator, 120 disciples being assembled, Peter recommended the choice of another apostle. 'Of these men which have companied with us all the time that the Lord Jesus went in and out among us beginning from the baptism, and that same day that he was taken up from us, must one be ordained to be a witness with us of his resurrection. And they appointed two, Joseph, called Barnabas, who was sur- named Levi; and Judas, who was named Barsabas, who was a good man, and full of the Holy Ghost and of wisdom. And the whole multitude knew that he had been a publican, and then they were convinced that God was able to save all that he pleased.' (Acts x. 21-42). In the year 12 (Acts viii. 24) in the year 66. The fifth journey to Jeru- salem and captivity of S. Paul in the year 60. Voyage to Rome, 62. Arrival in Rome in the spring of A.D. 63.

APOSTOLIC FATHERS, are those of the Christian church who did not consider themselves during the first two centuries, and derived their Christian knowledge from personal acquaintance with the apostles. [See Clau- mens Romanus, Ignatius of Antioch, Polycarpus, Hermas, &c. in the New Testament.] APOSTOLIC, were imitators of the apostolic life mentioned by Epiphanius. (Heresi. 67.) In the middle ages they were called Cathari. Some of them indulged Manichaean speculations, and others distinguished themselves only by
their obedience to the moral doctrine of the New Testament.

The latter, called Apostle 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. 1146, in which Everwin, ecclesiastical provost of Steinfelden, exhibits 86 names of this order for the first time, who were either 없

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 the archbishop of Cologne, and defended themselves by biblical quotations. After a disputation of 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 Italy, where he lived about 1235, and secured the adherence of a considerable number of his followers, of whom Pope Nicolas IV. endeavoured to suppress by various decrees of 1286 and 1290. Nevertheless Segarelli and his adherents spread through Italy, Germany, France, and Spain. They were known by the women's as well as the men's order, and preaching especially against the corruptions of the clergy. In 1294, two brothers and two sisters were burnt alive at Praga. Segarelli abjured his heresy, but was burnt in 1300 for having relapsed. From this time Dolcino of Modena, an apostolic apoplexy, the name of which was confided to the see of Modena in 1304. He fortified, with 1400 followers, a mountain in the diocese of Novara, near the village Balmars, and plundered, for his support, the adjacent country. In 1305 another apostolic brotherhood was founded by Vercelli, and fought against the troops of the bishop, until he was compelled by famine to surrender in 1307. Dolcino and his companion Margarhenta of Trent were burnt with many of their followers. These Apostolici 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 Lavaur, 1368, mentions them for the last time.

In the apothecaries in England, as well as in the rest of Europe, 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. (Beaute, Elements of Moral Science.) The term is also used, less properly, for an address to some absent or inanimate object, as in Julius Caesar, Act iii. Sc. 1.

Public faith, then bleeding piece of earth.
That I am meet and gentle to thine ears.

It is also used to express the contraction or division of part of a word, as bor'd for borough, learnt'd 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 is frequently affected to create an air of negligence and familiarity to their style. It ought seldom to be used except in verse, and very sparingly there. The comma, 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 HERTZIC.

APOTHECARIES (COMPANY OF), one of the incorporated cities of the corporation of London. In England, in former times, it has 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 of the name of Coevalia is mentioned from Edward Longfellow, who settled a pension of sixpence a day for life, for his attendance on his Majesty some time before he lay sick in Scotland, is called in the grant, printed in Rymer's Foedera, an apothecary of London. But, at this date, and for a long time 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 that each had its proper title assigned to it by 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 or surgery, or dispensing and administering medicines,' it was enacted that no one should practise as surgeon or physician in the city, or within seven miles of it, unless he had first examined and 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 were summoned, and a college founded, evidently with the view that it should exercise a general superintendence and authority over all the branches of the profession. In 1480, the surgeons were also incorporated, and, as they continued to be till the beginning of the present century, they seemed not to be desirous of having thus established appear, however, to have very soon begun to overstep their jurisdiction. It was found necessary, in 1543, to pass an act for the toleration and protection of the numerous other practitioners who did not belong to either body, but who probably formed the ordinary professors of the healing art throughout the kingdom. In this curious statute, the former act of 1511 is declared to have been passed, amongst other things, for the avoiding of sorceries, witchcraft, and other inconveniences; and not a little censure is directed against the licensed and associated surgeons for the mercenary spirit in which they are alleged to have acted, while much praise is bestowed on some of the new practitioners for having 'given 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 a promise that the king would publish a statute, or minister 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 drapers was given. The drapers was not a name used in the city of London, as a guild, until the reign of Henry VII., when, in the year 1500, the first drapers' hall was erected. The acceptance of the name, as thus confined, may be gathered from Shakespeare's delineation of the apothecary in Romeo and Juliet (published in 1596 or 1597), as one whose business was 'selling of simples,' who kept a 'shop,' the shelves of which were filled with green earth pots, &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 distinguished themselves in dispensing and surgery, ever began to act as general practitioners.

Meanwhile, however, the apothecaries of London were incorporated by James I. on the 9th of April, 1608, and united with the Company of Grocers. They remained thus until 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 in the City of London. This is the charter which is still constituted by the corporation of the same name in 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 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 that of Birch's burlesque epic poem, entitled The Dispensary, first published in 1697. 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 disallowed. Addison, in the Specator, No. 195, 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 billeting and the sick on board ships and in the inland applications employed as expendits to make luxury consistent with health, he says, 'The apothecary is perpetually employed in counterfeiting the cook and the vender. On the other hand, Pope in his Essay on Critis,

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 1767, A Company of druggists united themselves, entitled *Pharmacopoeia Justificat*: or *the Apothecaries Vindicated from the Imputation of Ignorance, wherein is shewn that an academical education is necessary to qualify one for the practice of physic.* After the preceding opinion expressed (p. 31), "The 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 may possibly calculate, that the number of persons being 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 exclaimed against as a great and unnecessary expense entitled *An Address to the College of Physicians,* published in 1747.

It has been stated in various publications, that the order of druggists 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 entrance in the medical world, and had in the instance been led by the physicians. In certain resolutions passed by a meeting of members of the Apothecaries' Company on the 25th of November, 1815, among other causes which are asserted to have occasioned this state of things, attached to degradation of the profession, mentioned the intrusion of pretenders of every description — 'Druggists,' it is said, 'and their bled assistants, visit and administer to the sick; their shops are accommodated with what are denominated private surgeries; and, as an additional means of their being preserved from their giving evidence on questions of forensic medicine of the highest and most serious import!' But in all this the druggists really did no more than the apothecaries themselves had begun to do, a hundred years before. It does not seem, too, 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 1683, entitled *A Plea for Apothecaries/Von-Collagues* which the 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 being members of the Company. They say they feared to bestow upon them some of their privileges, had been found nearly inoperative from the omission of any means of executing its provisions, and of any penalties for their violation. In 1792, the Act of Parliament was obtained by the company, giving them the right of visiting all shops in which medicinal preparations were sold in London, within seven miles of it, and of destroying such drugs as they might find unfit for use. This act expired in 1792; 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 court 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 person as an apothecary is to be seen in London, or any other town, at a comparative period. In an Introductory Essay prefixed to the first volume of the *Transactions of the Associated Apothecaries and Surgeon Apothecaries of England and Wales* (8vo., London, 1823), in which it is admitted that antiently 'this apothecary held the same situation in society as the physician or surgeon, 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, who had been employed in writing for diseases; but very few of these existed even in London; for in the memory of a physician lately dead, there were not more, as he stated, than about half-a-dozen persons in London who kept what could be called a druggist's shop. The apothecaries had never attempted to extend their jurisdiction beyond the metropolis and its immediate neighbourhood. But in 1815, an act of parliament was passed, which placed the inspection of the public health in the hands of a body of five Court of Examiners, then increased to twelve members, the sole right of examining and licencing apothecaries throughout England and Wales. It was enacted, that after the 1st of August in that year, no person who was licensed should practise as an apothecary, it was ten guineas 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 short of the design entertained by the society, and this in opposition of the chemists and druggists rendered it necessary to introduce a clause into it exempting that class of dealers altogether from its operation.

But in 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 to the Society of Apothecaries the complete control of the professional proceedings. Every general practitioner must not only have purchased their license, but must have served a long apprenticeship with a member of the company. The price of a license to practise in London was within ten guineas, and 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 fines in several instances by the pound. The Act disposed to expend. It appears by a published list, that from the 1st August, 1816, 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 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 Society for the examination of practitioners in the course of the eight years, 10,218l. 12s. 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, 1813, 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 Physicians and Surgeons. But as a rule, very few of them 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 navy, and into the service of the East India Company; but only after they have served two years in the army, navy or any of the various services of the East India Company. 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 in the profession. Persons who had never served in the army or navy who were practitioners of medicine in England. Except in regard to experience in the compounding of medicines, it is not denied that, until very lately, the course course...
of education prescribed by the Company's Court of Examiners was of an extremely inferior description. For this we have it, that in their regulations, passed in August 1832 (the last issued, we believe), referring to the improved system which had been introduced only the preceding year, they say, 'The medical education of the apothecary was heretofore conducted in the most desultory manner. It was not the business of the court, in consequence of the want of any authority or established by usage; some subjects were attended to superficially, and others of great importance were neglected altogether.' In fact, all the attendance upon lectures, which was noted, was so disorganized that it had been often was gone through in six or at most eight months. The court admits that still 'the attendance upon lectures, but more especially upon the hospital practice, is often grossly eluded or neglected.'

The total attendance 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 hospital practice. So these courses are to be attended at least forty-five lectures; and the whole, with the hospital attendance, is to occupy two years.

Notwithstanding this reform, a strong feeling of dissatisfaction has continued to prevail in many quarters at the exclusion of some students, most of whom 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 the absence of some of the members who had been drawn on to this object by the most ardent part of the party, 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 of the Apothecaries, but to allow those who have served an apprenticeship of five years with an apothecary to be admitted to the examinations of the Scotch and Irish universities, and of the Colleges of Surgeons, to practise in England, as well as those who have the diplomas of the Apothecaries' Company.

Even in this state of the laws, I think it not too much to state 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 which created the profession. No tests are paid by 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 be examined, provided he is sufficiently qualified to practice as an apothecary.' (See A Reply, &c. p. 3.) Of twenty-four graduates and licentiates of the Scottish colleges who presented themselves for examination before the Society of Apothecaries during the twelve months ending the 25th of April, 1833, eight candidates, or one-third of the whole number, were rejected. (Reply, &c.) The whole subject of medical education, and the qualifications required in an apothecary's apprentice, is one of great and impartial investigation; and that the apprentice clause in particular demands a fresh consideration, is now a pretty general opinion. The admission of graduates from Scotland and Ireland, and of physicians admitted to general practice in England, shall at least be good proof that they are as well qualified as those who obtain the apothecaries' diploma.

The Apothecaries rank as the fifty-ninth in the list of City companies. Since 1670 the members of the society are exempted by statute from sitting on ward and parish offices. Their arms are, azure, Apollo in his glory, holding in his left hand a bow, in his right an arrow, bestriding the serpent Python; supporters, two unicorns; crest, a rhinoceros, all or; motto, Opiferque per orbem decor. They have a hall in Water-lane, Blackfriars, at which medicines are sold to the public; and where all the medicines are prepared that are used in the army and navy. They also possess a garden, to which every medical student in London who has spent one-fourth of above three acres in extent, at Chelsea, in which exotic plants are cultivated. The ground was originally devised to them, in 1673, for sixty-one years at a rent of five pounds, by Charles Cheyne, physician to the king, and afterwards granted to them in perpetuity, in 1721, by his successor Sir Hans Sloane, on condition that they should annually present to the Royal Society, at one of their public meetings, the society give every year a gold and a silver medal to the best-informed students in botany, who have attended their garden. The apprentices of members of the society are not permitted to contend with other candidates for these prizes.

APOTHEOSIS (ἐπαθησίς, a deification, literally, a god-making), the enrolment of a mortal among the Gods. The mythology of Greece is full of instances of this: it is sufficient to call to mind Memnon, Heracles, and other heroes, who received divine honors, and who, in due time, ascended to the heavens in various ways, as a suit of armor, as a statue or image, as a sacrifice, as the sacrifice of a steed. In particular, the heroes of antiquity, we hear of no deifications from the time when a republican form of government became prevalent in Greece, until the spirit of independence was broken, and the Greeks became as obsequious to kings and princes, as they had formerly been unobtrusive. There is, however, an example to the contrary recorded by Herodotus (v. 47) the people of Egeste built an Heroum to Phileippus, though he fell in battle against them, and offered sacrifices to him as Heroum himself; but it was on account of his beauty that he was deified. Alexander, according to some rather doubtful stories, not only claimed divine parentage, but a divine nature while on earth, and the compliment of deifying him almost always is paid to the princes of the various dynasties who succeeded to his empire. On the coins of the Seleucidae we often find the word 'God' (Θεός). In Rome, also, we find Romulus raised to the rank of a god; but there are no instances of Janus admitted to the same honor. The apotheosis of Tzarghin, until the empire of the Cæsars. Julius Cæsar was worshipped as a god after his murder. Augustus, while yet alive, was declared the tutelary god of all the cities of the empire, and the statues of the deified were enrolled among the numerous tenants of heaven. It is to the death and reception of Julius Cæsar into heaven, that the 5th Elegy of Virgil is by some supposed to refer.

The term Apotheosis, however, is more especially used to signify the ceremony by which the Roman emperor was
admitted, if we may use the expression, after death to divine honours. This is minutely described by Herodian (lib. iv. c. 8.), and the passage presents so curious a picture of the absurdities into which an idiotical religion betrayed its votaries, that we translate it here. 'It is the custom of the Romans to defray those of their emperors who die, leaving successors; and this rite they call apotellesis. On this occasion, a semblance of mourning, combined with religious ceremonies, was observed 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, and in the palace the image of 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 the sick persons. 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 made believe that he is dead (κατά λήμψιν τειλομένος), the noblest of the equestrian and chosen youths of the senatorial orders take 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; on one of which stands a chariot, and upon it sit the empress, and other women of high rank, who sing hymns and songs of praise (ευμενων καλιναυμος) to the deceased, in a solemn and mournful strain. Afterwards they bear the couch through the Forum Romanum, in the latter 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 images and pictures. Upon this, a similar, but smaller chariot 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 the decrees and laws; 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 citizens 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 the ascent, which is believed 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 (book 74.) of the funeral ceremonies of Ptolemais.

In conformity with this custom, it is common to see on medals struck in honour of an apothesis, an altar with fire on it, and an eagle taking its flight into the air. Several representations of real or supposed apotheses have been preserved in ancient gems and sculptured works, of which the most celebrated is the apothesis of Homer, formerly in the Colonna palace at Rome, but now in the Townley gallery of the British Museum. This monument has been illustrated by some of the most eminent of modern scholars. Montfaucon, the apostolical papal historian, has added a great volume of the supplement to his Antiquities. See a remark on the apothesis of Augustus, under ηγετε, in the article APOSTOLES.

APOTOME, in ancient Greek music (from ἀπό, from, and τόμος, to cut), the remainder of a whole tone when diminished by a limma [See LIMMA], or smaller semitone, the ratios being 2187 and 2048. The Greeks were aware that the latter could not berationally divided into two equal parts; they therefore divided it into a greater and a smaller semitone, which they called apotome 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.

APPALACCHIAN 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; but in Great Britain, it is called the Andes, or Andrid Mountains, and modern geographers in the United States have adopted the general term of the Appalachian System for the whole mass. They were called the Appa-
latches, or Appalachian Mountains, by the French, who first discovered the name, and which, being 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 there given of Alleghanies, which is preferable.

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, but in 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 the elevations which form a part of the whole are so comparatively low that the boundary may be considered in the general term of the Catsbergs; the Green Mountain, in the state of Vermont; the Highlands, eastward of the Hudson River; and the White Hills in New Hampshire. In the province of the Catsbergs, 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 6534 feet above the sea, its base being at an elevation of 1888. The summit is much below the limit of perpetual snow. Moosekill, another of the White Hills, is 4636, and Grand Monnacoc, 3234 feet. In the Green Mountains, Killington Peak is 3924 feet above the sea; in the Catsbergs, Round Top is 3834, and the High Peak 3718 feet above the tide level of the Hudson, about 18 miles distant. The Pocks of Otter, in the Blue Ridge, Virginia, are said to be 4000 feet above the sea level; though the general elevation of the Ridge and the mountains to its west, which are in height Table Mountain, in South Carolina, is supposed to be not less than 4300 feet above the sea. Canawhee Mountain in Georgia, the southern extremity of the Blue Ridge, is 1500 feet.

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 are, in a widely-extended area of about 1500 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 deflected sometimes to the east, and sometimes to the west, and sometimes they wind to and fro between the depressions in the ridges, or through deep rents in the mountains, as at Harper's Ferry, in Virginia, where the United Po-
tomac and Shenandoah cut the Blue Ridge at right angles.

Other, the Catawba River, which rises in the mountains belonging to the Appalachian system, to the Atala-
mahla of Georgia, we find a series of large rivers which, originating within the Appalachian system, or on the margin of its eastern barrier, flow into the Atlantic, and are either greater or greater still, as they run to the Atlantic, and those that flow into the gulf of Mexico, run 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 summits of the elevated ridges of the system, and the whole 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 it extends to the Gulf of Mexico. Since the Gulf of Mexico is so far as anyone can tell, a continuation of the Gulf of St. Lawrence, it is highly natural to conclude that the Appalachian system is continued as far as the Gulf of Mexico. This conclusion should be supported by the results of explorations, but it is not yet supported by them.

The eastern 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 200 miles in width, from the river to the base of the mountains, covering an area of about 10,000 square miles, under which are other than 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 red sand and disintegrated 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 unconformable and horizontal stratification. Hills, separated by valleys, several miles wide, are composed of the same horizontal strata, and formed of the same sides of the valley 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 up and filling up of the gap by a constant stream; in such a time. Further observation, however, should be made before any positive opinion is adopted about the formation of these river valleys.

At the northern parts of the Appalachian system, a considerable tract of country is occupied by primary strata, such as gneisses, mica-slate, clay-slate, and granular limestone, associated with granites, serpentines, and traps, under various aspects, underlying and penetrating the strata. Coal-sandstone and slate, and transition limestones, are, however, more abundant in this mountainous range than the primary strata. Granule-lithic 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 Catskills. 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 in some instances, the prevailing rocks, being, however, almost invariably overlaid by sandstone. Transition limestone occurs over a large area in Pennsylvania and eastern Ohio, along the north-western side of the Alleghany chain, associated with the granule-lithic slate, but generally inferior to it. It is found in Vermont alternating with granule-lithic slate, and is separated from a secondary limestone in the valley of Lake Champlain, by a formation known as the upper part of a range of hills called the Snake Mountain.

In the western part of Massachusetts, and along the eastern side on 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 in the western parts of New Jersey and Pennsylvania, and it is found in the south of Pennsylvania and Virginia. According to Maclear, it extends nearly to the south-west termination of the mountains, between the Alleghany and Tombeckie rivers. It contains many caves, some of which are of great extent, and in these caves fossil bones of various animals have been found. Armocera and conglomerate granulite are perhaps the most frequent forms in which the transition rock presents itself, but with what extent of the surface 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 near the Rappahannock in Virginia, a range of miles, which is about one mile wide, but with a remarkable degree of uniformity throughout the whole distance. The sandstones, in highly-inclined beds, prevail generally throughout the middle and eastern chains in Pennsylvania and Maryland. Near the summit of the Alleghany Mountains, the granulite passes into a red sandstone, which is not in unformable stratification, but gradually assumes a horizontal position.

In Pennsylvania, the Appalachian system is far as are the great bodies of coal, associated with sandstones and slates, which American geologists have hitherto described as belonging to the transition or granule-lithic series. The coal is usually termed anthracite by them, and seems to be of that quality which is generally called blind coal in Britain, and in some places upon the margins of the regular coal-measures consist, in several situations, as in the South Wales Coal-basin. The great Pennsylvanian coal-fields are situated in the valleys of the Susquehanna, Lackawanna, and Schuylkill rivers, the two last being afluents of the Delaware.

The natural beauties of these valleys seem destined at no distant period to be impaired by black smoking heaps, as those which under our own country disfigure the valleys of the Tyne and the West. 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 conformation of the country, there is a great resemblance to a considerable period. Further observation, however, should be made before any positive opinion is adopted about the formation of these river valleys.

The coal-region of the Lehigh River is chiefly wrought nearly by a stream called an Indian name, Machu Chunk. The coal here also forms alternating beds with sandstone and slate, 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, in some places they are fifty to sixty feet, and they are known to extend over many miles. These mines together with others on the Schuylkill 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 navigable 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 six or ten miles south of Pittsburg, in Virginia, Mr. Maclear says that there is such a deposit, from twenty to twenty-five miles long, and about ten miles wide; it is situated in an elongated basin, having a whistling freestone and slate clay with vegetable impressions alternating with the coal. It lies under pits and fields, which are of a kind of the Alleghany. Bituminous coal is abundant also in Tioga County, in the state of New York. About one mile west of the summit of the Alleghany, on the road from Philadelphia to Pittsburg, the coal-measures appear, and descending into the valley, the transition strata again emerge.

There are, in several other situations in the Appalachian system, very extensive deposits of bituminous coal; one of the most remarkable of which is in the vicinity of Pittsburgh and the Ohio, which furnishes the ironstone of Staffordshire, and, from very similar local advantages, a Birmingham for the United States has grown up at Pittsburg. A mountain group, called the Laurel Ridge, lies between Pittsburg and the Alleghany, 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. Very little limestone is found between the Alleghany, 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 a gradual upheaving of the Appalachian system, than a great and violent one. But, though the Alleghany near Pittsburg 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 uninterruptedly 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 Onondago, in New York, to Louisiana, wherever the earth has been crossed by any canal, they have been found; in some places, where the boiling 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. Salt works are established at intervals along the whole line of course of Onondago and Lucie 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 mineral springs; the much menaced hot springs, during summer months by invalids from all parts of the States. Thermal springs also occur, as in the county of Bath, in Virginia, the western boundary of which county is the Allegheny range.

No portion of the earth of equal extent possesses so many natural advantages for the advancement of civilized society, as the country between the Appalachian Mountains and the Mississippi; vast stores of coal, iron, limestone, and salt; the large interior watercourses affording the utmost facilities for the construction of canals; and a direct communication by water with the sea. It can hardly fail, in the course of a few centuries, to be covered with this a dwelling place.

The secondary formations of Europe, between the coal-measures and the chalk, seem to be of very rare occurrence all along the Atlantic slope. In New Jersey and Delaware there is a very extensive deposit of an argillaceous mud, containing gravel, but a small quantity of lime, which, from the included fossils, has been considered both by American and French geologists to be an equivalent in point of age, to the chalk of England. It reaches from 36 to 400 feet, having the ocean on the east, and being bounded by the west by primary strata, on the south by the tertiary deposits to be presently mentioned. It covers upwards of 4000 square miles, and is for the most part remarkably level. It is to be seen in many places farther south, but covered by the tertiary strata.

From the foot of the most easterly range of the Appalachian Mountains a tract of low country, of variable breadth, extends to the shores of the Atlantic. By low we do not mean flat, for the surface is diversified by hills of moderate elevation, interspersed amid widely-extended plains. Mr. Maclure, and the American geologists who wrote fifteen years ago, described this as a vast tract of alluvial land; but now we are more sure. We are informed by Dr. Prof. Hitchcock, and Mr. Conrad, that they have shown that it is composed of a series of tertiary deposits. Three distinct formations have been made out, and have been called by Dr. Prof. Hitchcock, the Lower, Middle, and Upper. The latter is distinguished from the other by including distinct species of fossil shells. The Lower contains chiefly extinct species, the Middle a mixture of extinct species with others still inhabiting the coasts of the United States; the Upper contains scarcely anything beside the remains of existing species. Following the principle of subdivision of the Tertiary deposits adopted by Mr. Lyell, the Lower formation may be Eocene, and the Middle formation may be Miocene; but the Lower may also belong to the Miocene period.

The question turns upon the relative proportions of recent and extinct species among the fossil shells contained in the beds. There seems no doubt that the Upper formation belongs to the Pleistocene period. The formations collectively, according to Mr. Conrad, form the Atlantic margin of the United States, from Sandy Hook in New Jersey to the peninsula of Florida, from whence they skirt the Gulf of Mexico, to the waters of the Mississippi. The lower tertiary is met with at the western margins of the Appalachian slope; the upper tertiary extends to the shores of the ocean. This last also occupies by far the greatest extent of surface, extending from 100 to 150 miles west from the sea. Thus we arrive at the remarkable conclusion, as has been observed by Mr. Murchison in speaking of Mr. Conrad's work on Tertiary Shells, that the vast portion of the American continent covered by the upper tertiary deposits is raised from the bottom of the ocean since the time when the existing species of molluscs occupied the adjoining seas. It is stated by Mr. Conrad that on

Fresh-water lagostrine formations have yet been discovered among the tertiary deposits of the United States. This is a remarkable fact; but as the space and materials for 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 occur far more frequently than is at present supposed. They occupy 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, such as the mastodons found in New Jersey and Northern Carolina, the megatherium in Georgia, and several species of the elephant in several places.

Among the unstratified rocks, granites, silex, and serpentsines occur abundantly in the Northern States, and in the States of the South, deposited, it is supposed, as the mountains were at a much less elevated state than they are now. The interstratified beds of salt and slate, and both are traversed by quartz veins. It is in these veins that the gold appears to exist, but almost all that is found is in the form of grains and detached lumps of various sizes in the alluvium which covers the rocks. It has been found, within these few years, in considerable quantities in the mountainous parts of the state of Georgia, not only in the alluvium, but also in veins in the rocks; usually in quartz veins, in talus slate, and veins of slate, accompanied by iron 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 a single level, and a prospect.

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 beyond 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 2,000,000 of square miles. The forests are composed 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, flowers in such luxuriance on the mountains of the United States, as to be the pride of the western 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 terminating 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 Alleghany to 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 confers, is exchanged for the livelier verdure of the broad-leaved laurel, the rhododendrons, and magnolias. (Darby's View of the United States; various Maps; Wetherill's General Atlas; and Maclure's Geology of the United States.)

Appalachicola, a river of the United States, which rises in the state of Georgia, and flows into the Gulf of Mexico. The Appalachian consists of two main branches, the Chatahooche and Flint river; and the Chatahooche itself consists of two main branches, the Chattashee and Chatashee proper. The Chattashee rises in the northern extremity of the State of South Carolina, near (32° 40' N. lat.) and in the high table-land of the Appalachian system, at an elevation of about 2000 feet. Its sources are near
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 Chickatee, after a course of 100 miles, for the most part S.W., receives, near the parallel of 34° and from the N.E., the Upper Coosa, whose course to the point of junction is shorter than that of the Chickatee.

At their junction, the river takes the name of Chattahoochee, and pursues a general southern course for 250 miles, to about 32° 40' N. lat., where it is joined on the east by the Flint River. This river system presents several peculiarities. The general course of the Chattahoochee proper, and that of the united streams for a short distance below the point of junction, is in the direction 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 Alatamaha: these two rivers flow into the Atlantic. Thus it appears that a very narrow belt of high land divides the channel of the Chattahoochee proper from the sources of the Atlantic streams just mentioned. From the junction of the Chickatee and Chattahoochee to the junction of the Flint River, no stream larger than an inconsiderable creek joins the Chattahoochee, 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° 30' N. lat.), and its upper waters have a direction exactly similar to those of the upper waters of the Alatamaha, it appears, for a part, at least, of its course, doubtless whether its waters will enter the Gulf of Florida or the Atlantic. Its general direction is S., and then S.W., in connection with the Chattahoochee; its course is estimated at about 210 miles, and its basin is narrow, not exceeding 40 miles of average breadth.

The united streams of the Chattahoochee and Flint take the name of Appalachiola, 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° 48' N. lat. The direction of this river is singularly 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 parts 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 Appalachiola is navigable for vessels up to the junction of the two great branches, and the Chattahoochee is navigable for boats almost to its mouth. The bed of the 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 Chattahoochee. (Darby's Geographical View of the United States.)

APPARATUS SCULPTORIUS, or the Sculptor's Workshop, 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 Chemios on the east, Piscis Australis on the west, and Phoenix on the south. Its principal stars are designated as follows:

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<th>Name of Star</th>
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APPAREIL (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 the phenomenon which would have been observed as a point of junction, an indistinguishable phenomenon, or the phenomenon as 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. The observed (apparent) place of a planet is always reduced to that in which it would be seen 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 a plane actually bounding the view; 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 the use of the word Apparent, in this volume, to all intents and purposes, and, in some cases, inconsistent. For example, the apparent diameter of a planet is the angle made by two lines drawn to the eye from opposite points of its disk; while the true diameter is a magnitude of a different kind, namely, the line which joins the points of the disk afterwe are not it not the linear diameter very seldom enters into the computation.

APPARENT MAGNITUDE. The angle under which any line appears at the eye, that is, the angle made by lines drawn from the eye to the opposite points of the line. [MAGNITUDE.] APPARENT MOTION. The velocity and direction in which a body appears to move, when the spectator himself is in motion, without being conscious of it. For further details see MOTION.

APPARITION. The mind affects the body: the body affects the mind, and some insight may be obtained into the disordered states of the mind, by considering the physical conditions which are necessary to sound thought. It is not true, as is commonly supposed, that the eye, and the ear, the tongue, are organs adapted to receive impressions from external objects, which impressions are transmitted from the organs by an appropriate apparatus to the brain, where they become sensations. When an object is presented to an organ of sense, it produces a change in the nerves of that organ. This change is conveyed by the nerves to the brain; a corresponding change is occasioned in the brain, and through the brain in the mind; and it is this change in the mind which is expressed by the term sensation. Ideas on the contrary are copies of sensations, renovations of prior feelings, or in general differing from sensations in being less intense.

The functions of the brain, then, are sensation, and, if the analogous term be allowed, ideation, together with the association and re-action of these two states on each other, known under the name of intellectual consciousness. What instrument by which the intellectual operation is carried on is what is termed association. It is a property of the mind to combine and unite the sensations and ideas it receives in such a manner, that, after this combination or union has once formed, if any one of those sensations and ideas be revived, the single sensation or idea so revived will immediately call up to view all the sensations and ideas that have previously been connected with it; and this power of association, as long as its action is sound, is observed to operate in a uniform and determinate manner. For example, when sound, association excites ideas in a certain order, generally in the order of sensation. Thus, if the sensations A B C D E F G H I J are impressed upon the mind in the order of those letters, B will re-excite not A, but C. Association, when sound, operates by exciting ideas with a certain degree of velocity. If the rapidity of the succession of the trains of ideas pass beyond a certain point, instead of the distinct, there is confused thought. Association, when sound, operates by exciting ideas with a certain degree of vividness. Sensation is not produced, unless the external object can be applied to the organ of sense with a certain degree of force; while, if prolonged against it, the object produces an imputus, instead of specific sensation, it excites only pain. In like manner, unless the trains of ideas recalled by association possess a certain degree of vividness, they present to the mind not the succession of immediate perception, but, on the other hand, they are too vivid, they are equally incapable of forming the elements of sound thought.
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 make use of these impressions, and in order that it may duly combine and revolve 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 of blood. The most important of its organic nerves is that which, when it is kept in a healthy condition by the organic process of nutrition, over which the system of nerves termed organic [see Nerves] presides. If these organic nerves become disordered, disease may take place in the substance of the brain, and 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 re-admitted. It is known 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. Doubtless, the brain, which is not only 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 originate in diseases of the particular parts 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 excitation 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 instruments. "After my return from a long journey," says Sir Humphry Davy, "being fatigued, I required nine quarts of nitrous oxide, having been thirty-three days without breathing any. After a short sleep of seven hours, I had made up my mind 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 constellation 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 or two, during a quietness of mind almost exactly thirty-eight 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, and spreading out from the chest to the extremities, almost instantly produced. I felt a sense of tangible extension, highly pleasurabie, in every limb; my visible impressions were dazzling, and apparently magnified. I heard distinct sounds around in the room, and was perfectly aware of my situation. The pulse 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 vividly expressive ideas. I existed in a world 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 unconscious of what was said to me. As I recovered my former condition of mind, I felt elation, and I endeavoured to recall to 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 sensations and ideation, all connected with external things was lost—a world of newly-connected and newly-modified ideas arose; 4. emotions were produced corresponding in intensity to the sensations of sensation and the vividness of ideas. My sensations were enthusiastic and sublime. I exclaimed, "Nothing exists but thoughts; the universe is composed of impressions, ideas, pleasures, and pains!"

The inhalation of miasma, 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. Febrile miasma is a depressing, nitrous oxide, a stimulating, the effect of the former on the brain ought therefore to be the reverse of the latter. Accordingly, on receiving into the lungs the febrile miasma, the pulse becomes oppressed and weak; languor and lassitude pervade the limbs; the countenance becomes pale, the surface cold; headache, stiffness, and sometimes vomiting supervene, 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 symptoms 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, chance having thrown in my way the American novel called the Water Witch. I began with interest, but the confusion of my head increasing, 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 lay upon the head and brain; and delirium came on early, and somewhat suddenly. Immediately before I became decidedly delirious, I received an invitation to the soirées given by the Duke of Sussex to the members of the Royal Society. The friend I asked to return an answer expressive of my regret that I should be unable to attend on account of illness, used, as I conceived, an expression not strictly correct: this verbal inaccuracy, I thought, was construed into wilful falsehood; the matter was brought before the Grand Jury during a quarter, when eight quarrels 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, and spreading out from the chest to the extremities, almost instantly produced. I felt a sense of tangible extension, highly pleasurable, in every limb; my visible impressions were dazzling, and apparently magnified. I heard distinct sounds around in the room, and was perfectly aware of my situation. The pulse 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 vividly expressive ideas. I existed in a world 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 unconscious of what was said to me. As I recovered my former condition of mind, I felt elation, and I endeavoured to recall to Dr. Kinglake, "Nothing exists but thoughts; the universe is composed of impressions, ideas, pleasures, and pains!"

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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 possession of me. It was I who had the 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 been guilty of the crimes, by the vivid picture of which my imagination had been disturbed. I returned home, and at once the storms and storms I encountered, evidently suggested by the descriptions in the novel I had just been reading; on the sudden subsidence of these I thought I stood before an invisible tribunal for punishment, but as yet conscious of only an eye 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 before me with extraordinary vividness; all the circumstances of place, person, dress, language, and attitude, as if 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 saw a cloud of dead dear friends, my secret open enemies, those that had long been dead, as well as those that were still living; the former cheering me by their words and tones, the latter scowling upon me and assuming menacing postures, but uttering no sound. And now I saw, and rancorously desired to shut my eyes, that over my waking sense of the, whose uncontrollable agency I was compelled to accuse myself of the crimes of her own suggesting; and while suffering the bitter anguish of self-reproach, and expecting some fearful punishment, I again saw my dearest friends, with their innocent and happy countenances, engaged in occupations with which associations of a highly pleasurable nature had been formed in my mind, but whom I could not now receive visibly of my presence, and with whom I was doomed to hold no communication at that time, out of the necessary absence, of the world had 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 beautiful, varied, and picturesque scenery. All over the sky were entered gallantly a port unknown to me, but the strand was crowded with human beings with happy faces, and still happier voices. I had returned from a long voyage, but I could not make out where I had been. I felt hungry and faint, and these figures appeared, first as individuals of my family, after having been violently dreadful and frightening. In the last three days of which time I lay in a state of total insensibility, my physicians and friends expecting every moment to be the last.

Whoever will consider carefully the mental phenomena produced by the different and opposite conditions of the brain in these two illustrative cases, the one produced by the operation of a physical agent, the other arising under the influence of disease, will meet with no difficulty in convincing the origin of spectral illusions, either with the consciousness that they are illusions, or with a temporary or permanent persuasion that they are real existences, and whether arising from external or internal causes, or from both combined.

The case of Nicolai, the celebrated bookseller of Berlin, affords a curious illustration of the long continuance of vivid spectral illusions, without the slightest belief of the real existence of the apparition. 'In a state of mind completely sound, and after the first terror was over, with perfect calmness,' says this remarkable man, 'I saw, for nearly two months, almost constantly and involuntarily, a vast number of human beings, and even certain objects, and even animals, tending to them. On a sudden, I perceived, at about the same distance of ten steps, a form like that of a deceased person,'

I pointed at it, asking my wife if she also did not see it? It was but natural that she should not see anything: my question, therefore, alarmed her very much, and she immediately sent for a physician. The phantom continued about eight minutes. I grew at length more calm, and being extremely astonished, I was taken to the Staatsklinik, which lasted about an hour. The physician ascribed the sensation of hallucination, the mental emotion, and hoped there would be no return; but the violent agitation of my mind had in some way disorders my nerves, and produced further consequences which deserve a minute description.

'At four in the afternoon, the form which I had seen in the morning, re-appeared. I was by myself when this happened, and being rather uneasy at the incident, went to my wife's room, to which I had casually observed me to have retired, which, however, at intervals disappeared, and always presented itself in a standing posture. About six o'clock there appeared also several walking figures, which had no connexion with the first. After the first day, the form of the deceased person no more appeared, but its place was supplied with many other phantasms, sometimes representing acquaintances, but mostly strangers: those whom I knew were composed of living and deceased persons, but the number of the latter was comparatively small. I observed the persons with whom I daily conversed did not appear as phantasms, these representing chiefly persons who lived at some distance from me.

These phantasms seemed equally clear and distinct at all times, and under all circumstances, both when I was by myself, and when I was in company, and as well in the day as at night, and in my own house as abroad: they were, however, less frequent when I was in the house of a friend. I was extremely afraid to shut my eyes, these phantasms would sometimes vanish entirely, though there were instances when I beheld them with my eyes closed; yet, when they disappeared on such occasions, I generally returned when I had again opened them. I conversed sometimes with my physician and my wife of the phantasms which at the moment surrounded me: they appeared more frequently walking than at rest, nor were they constantly present. They frequently did not come for months together, and then reappeared at almost any period, either singly or in company; the latter, however, being most frequently the case. I generally saw human forms of both sexes, but they usually seemed not to take the smallest notice of each other, moving as in a market-place, where all are eager to press through the crowd; at times, however, they seemed to be transacting business with each other. I also several times saw people on horseback, dogs, monkeys, etc.

My imagination possessed in general a great facility in picturing. I have, for example, sketched in my mind a number of plants for novels and plays, though I have committed very few of them to paper, because I was less solicitous to make them visible to me, than to cut out these outlines when in a cheerful state of mind I have taken a solitary walk, or when travelling I have sat in my carriage, and could only find employment in myself and my surrounding circumstances. Conspicuous objects and even now, do the different persons whom I imagine in the foundation of such a plot present themselves to me in the most lively and distinct man-
nor, their figure, their features, their manner, their dress, and their complexion, are all visible to my fancy. As long as I meditated on a fixed plan, and afterwards carried it into effect, even when I was interrupted and when I must begin it all over again, the new scenes, all the new persons observed by me, stood 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 themselves, change, and vanish. In the year 1722, I was afflicted 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 this critical period of trouble, I found myself 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 set in 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. But if 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 one another. A large number of these pictures presented 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, if on this occasion I could not see 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 a Treatise on Spirits and Apparitions, who was a man of high powers of observation and sagacity. This bodyless, this bodily, 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 the air, 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, and with the mind of a net-work apron 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 an end to my observation, and 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 spirit 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 somewhat for sleeping, which he did; and called me up, and brought me a letter, 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 fireside, 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—if told them I had done the part of a Christian, in husband and wife, and the duty of a father and brother from my bed, took a cane, and knocked at the ceiling of my chamber; a near relation of mine, lying then over me, who presently rose and came down to me, about two o'clock in the morning, and this time, I am assured, the spirit did not return 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 comfortably. 

I continued with them 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 mental reproduction of past impressions. I remember, in Dr. Ferriar, ‘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 military demonstration on the neighbouring downs, I could not go into a dark room, the whole scene was before my eyes with a brilliancy equal to what it had possessed in daylight, 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 renovation of past impressions, however these impressions have been impressed, and whatever their nature, the immediate excursive cause of the renovation being often some external object acting upon the senses or upon the imagination under circumstances favourable to the illusion.'
Whereupon she knocked up her maid, called for her clothes, and when she was dressed she went into her closet, and came not out again till nine, and then brought with her a letter, written in an ugly deed, having horns on his head, fer in his mouth, and a tail in his back. She brought things 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 'baagh.'

What wondrous and so hideous these phantom forms 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 withstand! What wonder that the disgusting vision, breathing so much love and life, two, immediately expired.

In this case, a spectral illusion occurring in a tender and susceptible frame, produced such a powerful impression upon the imagination, as absolutely to destroy life. The contrast to this is the case of the sturdy assailler of the church of St. Andrew Aldersgate, whom the arch-fiend, from the arch-fend himself, and whom he treated with a cool contempt, which must have astonished his Satanic majesty. The devil, in a light night, stood by his bedside. The assessor looked awhile, whether he would say or do anything; and then said, 'If thou hast nothing to do, I have;' and so turned himself to sleep.

There are many cases on record which directly prove that there is a close and true rigidity in the existence of a certain form and 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 apperession of frightful spectres, and who kept a diary of the incidents with which 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 appear 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 hills, valleys, and fields appeared before 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 glows; that, after a time, these figures changed entirely, and consisted of books, parchments, or papers, containing printed matter. The writer adds, 'I was now so well 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 or appeared upside down. The intelligent and pious observer, in his process of philosophy, and yet as in his nature and aspect, horses, dogs, and birds: the illusions of superstitious minds consist of angels or devils, which assume all sorts of fantastic shapes. Remigius, who wrote a treatise on in, and stated the reason why he had selected for that purpose, 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 faced, with sunk but shining eyes, they afforded much fright, or made their hands hairy, with claws; their feet horrid and dven. A devil would appear like an angel, seated in a fiery chariot; or riding on an infernal dragon, and carrying in his right hand a vipher; or assuming a lion's head, a goose's feet, and a horse's tail; or putting on a raven's head, and mounted on a strong wolf, with innumerable other fantastic shapes of a similar description. These mysterious and frightful images were presented to the minds of the people, 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 doors, and were fixed on the wainscots of the churches of them; there was not a hill nor a valley, not 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 Burton, '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 Registrul Scott, 'have so terrified them with an ugly deed, having horns on his head, fer in his mouth, and a tail in his back. They murmured 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 'baagh.'

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 melancholic tendency of that period, the occupation of 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, connected with the names and events of the former 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 has not heard 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 apparitions without observing, that the manner in which these phantoms have vanished before the light of knowledge affords a striking illustration of the blessings which descend even to the least of the people from the diffusion of the sound principles of philosophy. The controversy 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, a torment to men in the condition of the good small, that of the evil countless; and though of 'soft and uncompounded essence, they might have come in what shape they chose, 'dilated or condensed, bright or obscure,' yet they did assume 'forms forbidden,' such as 'relire to chaos, and with light commit:' and their visitations were much more often accompanied with 'blasts from hell' than 'airs from heaven.' They produced powerful emotions, for the most part painful and of pernicious tendency. The inflammatoires of first class, the phantoms of 'wings of holy spirit,' and 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 couch of sickness, in minds delirious 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 retributions. 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 penitence; and if, as guardian angels, they hovered about the pillow of the dying, they were the messengers of 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

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prosecuting the mind, they took off the attention from the observation of nature, and deprived it both of the power and of the resources which discover the true solution of those technical, 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 human heart, and fitted it for the promotion of the fallacious account of the sources of calamity and suffering. In the hands of the priest and the tyrant, they were potent to delude and ensnare; and they did their work faithfully. The author was not, and must indeed reflect upon the past. In the former, there will always be sufficient to fear, and in the latter, enough to regret, without the stimulant of fictitious terror, or the imputation of imaginary guilt. As long as the human frame can suffer, and is subject to the delusions of the human heart, it will require some other light which can pour upon it, 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 his 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 here been made by the author of the present paper, to the advantage of the proprietors. See also An 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 Philosophical Source, by Samuel Fillis, 1802.

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 Errors.

The 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 Court of Chancery, 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 judicial decisions with 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 idleness.

A step in the courts 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 admiralty, and from the 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 that of the archbishop; the archbishop the appeal of right lay to the king in council before the Reformation; yet appeals to the Pope were in fact of common occurrence until the reign of Henry VIII., by whom the court of Rome was entirely suppressed. Hence the archbishop appointed to hear the case by himself. 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 altering the church, by which it is further provided, that the Commission of Review shall hereafter be, 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 or decrees of those justices.

APPEAL (appeal, to accuse), in the old criminal law of England, was a vindictive act 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, aimed at the destruction of the defendant, or to defeat 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 could insist upon the rigorous execution 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 a 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 mode of appeal, under the old law, was the mode of trial, 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 steps were taken in the order of their occurrence. The prosecution by the appellant 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 accepted by the appellant, unless he had some matter to allege, in what was termed a counterform, 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 then appointed by the court for the combat, 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 their same weapons, and each took a preliminary oath, of which the effect was that he had resorted to no unfair 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 appellant voluntarily yielded, and cried craven, then the defendant was acquitted of the charge, and the accuser was considered 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 are told that the combatants were to be attended within the lists by counsel, and a surgeon with his instruments. In the reign of Charles I., Lord Des, on a similar occasion, was indigued with a seat and wine for refreshment, and was further permitted to arm himself of such valuable auxiliaries as nails, hammers, files, scissors, bodkin, needle and thread. (See Rushworth’s Collections, cited in Barrington’s Observations, p. 328.) We also learn from the Queen’s Rolls, published by the Board of Trade, that some of the preliminary documents preparatory 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 V., is made use of by Shakespeare for familiarization to the readers of Shakspeare; 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 that there exist certain debatable points in our jurisprudence from Normandy, The Grand Conun-
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 there has been no vineyard for many centuries; but it is subject to the very fine at Schafberg, which slope towards the Rhineval or valley of the Rhine. Numerous herds of cattle and flocks of sheep feed on the high lands of Appenzell; the former amount in summer to 100,000 heads, and the latter number about 150,000. The inner rhoden or districts of this country. Honey and wax are also gathered plentifully. In the northern and western districts called außer rhoden, manufactures of linen and cotton cloths, muslins, damask, &c., afford employment to a great part of the inhabitants. Herisau 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 each in its turn. Both governments are purely democratic; each the language, dress, and laws are those of the people. The religious difference is but a point of honor. The ministers of the interior exercise also the high jurisdiction of the country, for the two powers, administrative and judiciary, are often blended together in these small democracies. The landman is the chief magistrate. The revenues of the state are extremely limited; those of the exterior rhoden do not ascend to 1500£. 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 officers are paid, and those that are are the deputies to the Diet, whose work is unpaid. 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 secluded districts, little visited by strangers, have retained much of the primitive Swiss simplicity of manners. The Catholic rhoden have a population of 15,000, while the Protestant rhoden reckon about 45,000. The latter administer the 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 eastern Austria for the first time met at the Diet which met at St. Gall. By degrees the abbey acquired the jurisdiction over the whole country, which was granted to it in 1222, by the Emperor Adolphus of Nassau. The abbots of it a monastery dependent on that of St. Gall, which was called Abbatiss Celina, 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 country. The inhabitants are descended from the Conimites of the abbey, considerable privileges and franchises; they elected their landamann 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, the levied fresh taxes on their butter and cheese, and committed various other acts of oppression. The Appenzellers complained, remonstrated, but to no great purpose.

The example of their neighbours in the forest cantons, who had thrown off for similar reasons the rule of Austria, encouraged them in the same. But they rose in arms, surprised the castles which the abbots had built in their country, and drove his bailiffs away. A war ensued, in which first the imperial cities of Sibau, and afterwards Austria itself took the abbots part at the
APPENZELLERS waited for their enemies in the defiles of their mountains, and repeatedly defeated them. They were also active in war work. Their frequent forays on the imperial road by which they passed into the Thirteen Forest Cantons, by the way of Schwytz and Glarus. The war lasted several years, during which the mountaineers of Appenzell invaded the other territories of the abbot, drove him away from his abbey, overran Thurgau, and finally even entered Basel, the capital of the Swiss confederation, in the Austrian states. At last peace was made, and the Appenzellers were recognized as an independent people; but it was not till the year 1513 that they were finally received into the Swiss confederation, of which they had been observed. They have since retained their simple form of government, and with the exception of the French invasion of 1798, have preserved their independence. During the late disturbances which have agitated Switzerland, the seceding Appenzeller cantons have remained quiet. (Geographisches und Historisches Lexicon der Schweiz. Cœze's Letters on Switzerland, &c.)

APPENZELL, a town, rather large village in the inner Rhone. 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. It is a very old town. Its possessor is about 3000. It has a convent of capuchins, and a monastery of nuns of the order of St. Clara. The mineral springs of Weisshald rise about two miles south of Appenzell. The air of this country is remarkably clear and pure, and the language of the inhabitants of the lake of Constance, are, in most, Appenzell enjoys a bright sun and sky. The village and district of Avis, four miles N.E. of Appenzell, are celebrated as places of health. It is impossible to come here without sharing the salubrious air of this elevated region, and to drink the whey which is brought warm every morning from the chalets or dairy's of the Alps. Avis is about 3000 feet above the level of the sea.

APPENZELL, 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 interval of two or three centuries between the dictatorship of Caesar (49 or 47 a.c.) and the time when he wrote his history, which brings us to the reign of Antonius 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 (ibero, 38; and Bell. Civ. i, 38). On the other hand, he mentions the terrible vengeances which Trajan and his generals inflicted on the Jews in the last years of his reign (Bell. Civ. i, 9). The war of Trajan was at the same time (Bell. Civ. i. 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 the important office of procurator of a provincial treasure, it appears, in the time of Antoninus Pius, as 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, beginning with Greece, the Roman provinces on the east of the war of Hannibal, which, running over so many countries, would otherwise have been ludicrously mutilated. The same motive led him to assign five books to the civil wars of Rome. The subjects of his twenty-two books are: 1. the wars of Pyrrhus and Caesar in Greece; 2. the wars of Pyrrhus and Caesar; 3. and 16. the wars against the assassination of Caesar; 15. those between Antony and Augustus; 18. 19. 20. and 21. Egypt; 22. the first century of the empire (including the reign of Vespasian), which are the best and the most useful of the afterwards histories of Tacitus, Arathus, Jusmga, chiefly in reference to Trajan. He speaks also of a history of his own life (Preface, c. 15). Of those, the sixth, seventh, eighth, the latter part of the ninth, the eleventh, twelfth, and those on the Civil Wars, still exist, besides some fragments of the others. We have purposely omitted the History of Parthia. But several extracts from it, are published in his works as part of the eleventh book, consist merely of extracts from Plutarch's Lives of Crassus and Antony, to which some interpolations of the middle ages have prefixed a short introduction. This edition of Appian's Syriam History. The spurious Parthica appears to be found in the copy of Appian belonging to Phoebus, who died in 891. The extraordinary similarity between the supposed work of Appian and the acknowledged works of Plutarch had been observed, and the same is true of Plutarch's works by a copy affixed by Schweighauser to his excellent edition. The very insertion of the Parthian history in the eleventh book with Syria is contrary to the plan of Appian's work, as the Romans had no relations with Parthia before the Mithridatic war, which is the subject of the twelfth book; and what is more decisive upon this point, he more than once in his Civil Wars (ii. 18, and v. 65) mentions his intention to treat of the Parthians in a later part of his work—The Parthian foundation of Rome (Bell. Civ. i. 7) and his death; he may be seen in the essay of the German editor. Appian's long professional residence at Rome, as well as his Roman name, afores many evidence that he had one advantage over Plutarch, as an historian, in possessing a perfect knowledge of the succeeding periods of the same name. His style is not great. His views of history are in general very superficial; and as a geographer, his ignorance is startling, when compared with the means of information which his age and the same period afforded. His view of the war (ibero, 7), he places Saguntum (Murviedro) on the north of the Iberus, an error indeed into which Polybius may have led him. The same mistake appears again in c. 16; and in c. 12 the climax of confusions is completed by the subposition that Saguntum is on the same coast as Cartagena, in the valley of the same name, c. 6. It is asserted that the Iberus (Ebro) empties itself into the Northern Ocean; in c. 1, that Spain extends 10,000 stadia in breadth, and in c. 22, that the supposition of the country at least four times as large as it really is; and that the passage from thence to Britain is made in half a day by the tide alone.

A wretched translation of Appian into Latin was published in 1572 by Caudthi, at Venice. The first edition of part of the Greek text was given at Paris in 1551 by Carolus Stephanus, with the assistance of his brother Robert. In 1554, an improved Latin translation by Gelenius was published, with the assistance of the same editor. The Spain and Hannibal were first published by H. Stephanus at Paris, in 1557. Some fragments were added by Ursinus at Antwerp, in 1582; the Illyria, by Hueschelius, at Augsburg, in 1599; and some more fragments by H. Gelenius at Breslau, in 1607. The edition of Schweighauser, Leipzig, 1785, 3 vols., 8vo. This edition contains a Latin translation, taken chiefly from that of Gelenius, and a large body of notes. A. Mai published, in 1815, a letter of Appian to Pontius in the collection of Frius letters; and he has also published three small fragments of Appian in the second volume of his Script. Vet. nova Collectio. There is a German translation by F. W. J. Dillmann, 2 vols., 8vo. Peuerbach, 1562; one in French by Claude Sceaul, fol., Lyons, 1544; another by Odet Desmares, fol., Paris, 1569; and a translation of the five books of the Civil Wars, by Combes Dounous, appeared at Paris, 1808, 3 vols., 8vo. An English translation of Appian's Rhenish History was published by Henry Bynnnam, in 1570, 4to.; and a translation by J. D. (Dryden or Davies) was published in folio, 1696.

APP Prayer, an ancient race in Italy. It was first laid down as far as the Appian Way (i.e. the Appian Way), 10 miles N. of Rome, from the loss of his sight, was called Cæcuses, in his censorship, c. 312. At a later period, it was continued as far as Brundisium. For the towns through which it passed, see ANTONINE'S ITINERARY, section II. The town which still bears the name is built of squared stones, closely fitted together without cement or iron, of various sizes, from one to five feet. There are two strata beneath; the first of rough stones cemented with mortar, the second of gravel, the whole being about three feet in depth. The
broadth of the road is about fourteen feet, so as to admit two carriages.

APPLES CLAUDIUS. [See CLAUDIUS.]

APPLE, in Botany. [See Pyrus.]

APPLE. This fruit, which, from its hardness and great size, is esteemed with its excellent flavour, is one of the most important productions of cold climates, is, in its wild state, the austere crab-apple of the hedges. At what period it first began to acquire from cultivation the sweetness and other qualities which are peculiar to cultivated fruits, is a question of some importance, or, by what accident the tendency to ornamentation 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 trees cultivated in the gardens of Achnous and of the tree which was to signify fruit; and that Homer, who had many varieties, and that it has never ceased to be an object of great interest with all northern nations.

It is a most inexplicable circumstance, that 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 above half a dozen well-marked varieties; of the former we may say, it is much 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 has increased since then by half the number.

In the beginning, varieties, it may be supposed, were produced accidentally, owing to the peculiar tendency to change that 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 propagation of all the varieties would be so rapid that they would soon take their place on account of their picturesque beauty in the botanical and topographical view: 1st. the seed from which the new variety is to be obtained should be fully formed, and 2d, it should be taken from as perfect a specimen as it may be practicable to procure; for it has been found by experience, that any debility or defect in the parent is, in fruit trees, very apt to be communicated to their offspring. No person has been more successful in experiments of this kind than Mr. Knight, the President of the Horticultural Society, who thus describes his method of procuring clones: Many varieties of the apple were collected, which had been proved to afford, in mixture with each other, the finest cider; a tree of each was then obtained by grafting upon a paradise stock, and these trees were grown in a 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 males, and generally five points, or females, which spring from the centre of the cup, or cavity of the blossom. The males stand in a circle just within the bases of the petals, or flower leaves, and are formed of slender threads, each of which terminates in a small embryo. One of these was then taken from the blossom of each of these trees, and the tips cut off so as to be of the same length, and each was more or less covered with pollen from the mother tree. As soon as the blossoms were nearly full grown, every male in each was carefully extracted, proper care being taken not to injure the points or females; and the blossoms, thus prepared, were closed again, and suffered to remain till they opened spontaneously. The blossoms of the tree which it was proposed to make the male parent of the future variety were accelerated by being brought into contact with the wall, or retarded by being detached from it, so that those were matured just at the same moment. 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 petals of the blossoms, with much consequent advantage. It will be necessary in this experiment that one variety of apple only should have been mulcitated 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 Downton 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 given way to better kinds; but, in the opinion of Mr. Knight, it is rather to be ascribed to an expenditure of their vital principles, and which at times has been unprofitable. This district, also, being of the same nature, or nearly so, as the hawthorn, has 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, and are prostrated by means of girdling or budding them upon healthy stocks, yet that in the end they will entirely disappear. This opinion is founded upon the well-known fact, that the oldest varieties of the apple, were diseased, especially the celebrated golden pippin, which was formerly the common hardy cider-apple of the Herefordshire orchards, "ut which is now only preserved with difficulty in gardens. But it must be remembered, that however serious these objections, which among 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 supposition which is rendered the more probable by the circumstance, that the golden pippin still flourishes in all its pristine vigour in the island of Madeira. It may also be considered that neglect was the cause of the disappearance of the golden pippin, and other kinds, from the cider orchards; for, as is so often the case, the trees were once allowed to fall into a state of decay, then potted and placed in the gardens, and here the propagation would carry its own debility along with it; and thus a 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, &c.)

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 good order, and raising their increase by budding. 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 varieties are the forsythia, a worm-out sort, much used for mixing with other kinds, to which it communicates strength and flavour; the red must; the hagloe crab, which, however, is only good in a dry soil, on a bank of calcareous stone, in a situation which is exposed to the sun; the yellow show apple; the orange pippin; the forest style, which is supposed to produce a stronger cider than any other, but is not a good bearer: the yellow Elliot; the Bennett; the Heswall; the New Shibden; the common Harvey; and the kent; the apricot is very hardy; and above all, the golden Harvey, or brandy apple. The specific gravity of the juice of these varieties has been stated by Mr. Knight to be as follows...
A

P

E

X

F

H

A

R


cannot

the

amputation, it will after a little while again lengthen by
means of the bud nearest its extremity, and this letter 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,
the others will be required for fruit; these, when they
become fruit spurs; the first will be treated as those from
which they sprang, the second are to be cut down to within
an inch of the bottom, which will generally cause the sur-
rounding eye to form fruit. These shoots, when not
left 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
caused to branch. The branches may have been cut
shorter

Apple-trees are trained in the form either of standards,
dwarfs, espaliers, or balconies.

No particular care is requisite in the management of
standards beyond providing them with a straight stem
six feet high, and a head consisting of three or four healthy
shoots to commence with; and afterwards keeping the
branches so pruned that they do not chase each other
in windy weather, nor overshadow each other; 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
farmer, the following may be of some use. This
seems 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 eighteen inches deep, and planted
with seedling trees of all sorts, 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, con-
sequently, enough to plant about forty extensive plantations.
Each tree 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 can be obtained, for anyone who is.
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 fruitful, and in a short time, whilst the
trees are very young. I would recommend the
Downton pippin for an experiment of this kind, in prefer-
rence to any other variety.

At the end of eight or nine years from the time when
the trees are pruned and staked, they will have covered with
their branches the whole surface of the ground, and will then
begin to injure each other, if the whole bo 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 feet
long upon each side of the trunks, such trees may be
removed with still less risk than such as are much smaller.
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 wide, and eighteen inches deep; placing the
tree in the hole, or if the tree is not large enough, the
soil that the trees be not planted deeper in the soil than they
previously grew. Each tree will require, during the first
year, a staking and a few bushes to protect it; after which,
nothing more will be wanted than the usual annual
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, that they must be preferred in

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 gene-

ally so much beyond the influence of high winds as to
be little damaged by them, and formed only of those
and their fruit is also finer than on standards. No direc-

tions 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 more, will have some advantage over the others; but 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 more superficial; 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 then allowed to grow on. These will produce the leaves (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 native or English, Chinese, or Dutch apple, which is produced from the eyes, 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, either the native or English, Chinese, or Dutch, in as circular a circle 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 a year, 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 restore the head to its former regularity; and I think this may prove an instance 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 a regard to the number of branches thus employed, that they do not crowd each other. On the contrary, they must be encouraged in the fullest extent so as to become inverted, when from the extreme 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 branch converging 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 best trained to that side of the tree. The head is raised by means 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 crop is in general better than of ordinary trees. This very 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 ever 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 admitted.

Many different methods of preserving apples have been recommended, and almost every one has some favourite plan of his own. As far as our own experience goes, the best mode is to allow the fruits, after being gathered, to lie till they are rotten, as this is evaporated, which is what is technically called sweeting; the apples should then be wiped quite dry, wrapped in tissue paper, and stowed away in jars or chests of pure silver and which has been previously dried. They may be kept so always be tasted every few days before they are wanted, and laid in dry form or some such substance; they then absorb oxygen, and acquire a little sweetness, which is necessary to their perfection.

The apple is propagated by either budding or grafting; 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 stunting the shoots, and rendering them much more fertile. The French stocks, which the 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 more, this kind of stock is recommended. It is, however, 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 having "wedges".

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 to drop. Vegetation at that season is not, as is commonly supposed, to be of so little use as to prevent it from keeping the soil in a condition to 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 Pink Apple.]
APPLEBY, a market town and borough in the county of Westmoreland; it is the centre of N.W. from London, 31 S.E. of Carlisle, 54° 35' N. lat., 2° 28' W. long. It is on the river Eden, which falls into the Solway Frith below Carlisle; and is by no means of such extent or importance as formerly. It is supposed by some that Appleby was selected for a residence, but there is at least no decisive evidence of this; and 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. 1388, 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 12s. 6d. Burrell, a small place at the distance of nearly three miles from Appleby, is also the site of a castle, but 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. 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 a river. The highway passes 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

*There is some difference in the dates assigned to the first of these
Nestor and Burne (in the "Liber benefactorum") of 1640, and of 248 of
Henry II.; but it was in this year that the fine for delivering up the place
was imposed 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, but is not of Roman origin. The principal part of the present edifice was built in 1636, by the then Earl of Thanet, in whose family it still remains. The church of St. Lawrence was nearly burnt in 1655, by the Countess 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 oehlisk. The shire-hall and new jail 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 Leut 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.)

This is on Saturday, chiefly for corn; and there are several fairs for cattle, horses, sheep, and linen-clot; especially a cattle-fair once a fortnight from Whitham-ewe to Michaelmas. The population of the borough of Appleby was, in 1831, 631, and of the township of Bondgate and Langeston, 645, together 1476; 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 disfranchised.

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 commonly, 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 less 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 that the little appoggiato notes to be performed which are not represented. Thus Handel, in his Jephtha, has written a recitative in the following manner:

\[ \text{\textbf{As written.}} \]

\[ \text{\textbf{As performed.}} \]

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 leap 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 a diminuendo, or crushing note, (from abbrev. crush, to crush, or to crush), and is to be forced and short. The appoggiatura, M. Framery observes, gives tenderness to the air; 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 gracefully and most freely performed of all. It is the 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 judgment of the performer.

APPRAISER, from apprēdere, apprēsur, or appraiser, '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 2 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 statue 48 Geo. III. c. 140, an ad valorem stamp duty is imposed upon appraisements.

APPRAISERS are persons employed to value property. By the statute 48 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 8s. 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. 147.

APPRENTICE, from apprendre, 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, 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 the word was used in some parts of the common law in the sense of the societies of the inn of court who in those days, at a time when they were likely to leave their inns and to execute the full office of an advocate, upon being called by writing to the bench, were of the nature of sergeants-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 Latin, apprensi de legem nobis or simply apprensi ad legem) 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 the bar, as outer taverners, not shortened into as we now know the barristers. (See Spelman's Gloss. ad verbum; Blackstone's Commentaries, vol. i. p. 93; vol. iii. p. 27.)

Apprenticeship appears to have been unknown to the ancients; and although it is said by the Roman authors that in Roman times 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 sprang up in conjunction with the system of associating handicraft trades in the twelfth century, the natural result, perhaps, of the combination of guilds or comunity of masters, which, for the purposes of mutual 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 them, 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 company of friezen or confederates, and as 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 number admitted to this privilege, either by the length of apprenticeship required, or more immediately by limiting the number of apprentices to 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, though in some comparatively later instances en-couraged 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 in societies of the strong demand to limit the 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 associating.

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 seem 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 master tends to shew to such a degree that 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 accovenientio. From an old form of an Italian instrument, given by Beier in his learned work De Collegiis Opticis, 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 boy who was to be bound, and not by the master himself. The latter testifying his consent to the agreement merely by being present.

In France, the trading associations prevailed to a great extent under the term of 'Communautes.' At the latter end of the seventeenth century, there were in Paris six 'Corps de Marchands,' and one hundred and twenty-nine 'Communautes,' or companies of traders, each fraternity having their own rules and laws and indentures, so little open and public. The duration of the term varied from three to eight or ten years. It was an inaccessible rule in the 'Corps de Marchand,' which was generally followed in the 'Communautes,' 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 'chef d'ouvre' of his master, and the term itself was called his 'compagnage.' He had also, before being admitted to practise the trade as master, to deliver to the 'jurande,' or wardens of the company, a specimen of his proficiency in his art, called his 'chef d'ouvre.' 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 the possession of any tool. But this was the case, for the contract of apprenticeship had ceased in France to be imperative upon the artisan, it has not fallen into disuse; and an act passed the 12th of April, 1803, prescribes the rights and duties both of master and apprentice. 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 in many ways, and has some other remarkable pecu-liarities. The companies there call it either 'Lehre' or 'imunges,' 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 the permission to a selected few to become masters or journeymen; and the elders or masters. They seem to have occasionally admitted workmen who had not served a regular apprenticeship into the lower class of members of a trade; but to have forbidden them to become masters or journeymen. It is hard to say at what time and in what regions there was introduced to the German artificers the custom of associating with foreign names such as the French 'compagnon.' Having passed through the years of his apprenticeship, called lehrjahre, satisfactorily, he becomes entitled to receive from the masters and companies of the guild a certificate. It is, or was, an old custom, and an old instrument, 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 said company, in regard to the apprenticeship of his own, or of anyone to whom he should assign him, or to whom he should entrust him.

In England, 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 apprentice-ship of five or three years sufficed.

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 settlers there, little attention was paid to their exclusive privileges; and in 1673 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. 1762, the rule also being reduced to a 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 have been more rigorously observed than Scotland. There is there a common term of apprenticeship even in the minor 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 guilds or companies of tradesmen in the Roman empire. But, there is no reference to such an institution for about 100 years after the guilds are known to have existed, apprentices being first incidentally noticed in an act (12 Rich. II. c. 3) passed in 1386. But that about this time apprenticeship had become extremely common is proved by a statute passed in 1403-6 (7 Henry IV. c. 17), 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 50s. by the year; and thus it is stated to be the scarcity of labourers in husbandry, in consequence of the custom of binding children apprentices to trades. In the act (8 Henry VI. c. 11) which repealed the statute in force, it is enacted thus. "But taking of 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 12th Henry VII. c. 1) in favour of the worsted-workers of Norfolk; and in the former.
act we find the first mention of any particular term of servitude, the custom of the worsted-sheares 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, and even in London it is said that there was no agreement for a matter of agreement between the parties to the contract. In Madox's FORMULARIA ANGLICANAS, there is an indument of apprenticeship dated in the reign of Henry IV., which is nearly in the same form as the modern instrument; and in that case the binding is to a carpenter 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 at the least was expressly required by the courts of the four inns of court, and by 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 'serve, 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. 8, which enacted that no person shall weave broad woollen cloth, 'unless he have 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 England. It is also probable that by this 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.

The London apprentices of 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 knights, baronets, gentlemen, yeomen, and tradesmen, come up from their particular places of nativity and are bound to be prentices in London.' He also mentions the 'unnecessary consequence which is amongst that immovable company.'

It may be readily 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 frequent acts of rebellion, and a succession of tumults, and some instances of serious and alarming insurrections arising among the apprentices. Thus the fatal riot in London against foreign artificers, which took place in May, 1517, and from which 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 those were taken and publicly whipped by order of the Lord Mayor. This caused a much more formidable disturbance; for 200 or 300 apprentices assembled in Trafalgar-square, and marched with drums 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 ringleaders in this riot were tried and convicted of high treason. (See COMMONWEALTH OF ENGLAND, 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 to the parliament, and they received the thanks of the Commons 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 throughout England. But it was not till after 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 1682. On this occasion they assembled themselves tumultuously together during the night, and opened the gates of the custom-house in the city. For this exploit, several of them were tried and executed for high treason.

In 1681, when Charles II. was desirous of strengthening his hands in every way against the corporation of London, he thought it necessary to endeavour to secure the favour of the apprentices, and sent them a brace of buttons for their annual dinner at Saddler's Hall, where several of his principal servants were present with a retinue. But however, were divided in opinion; for there were numerous petitions from them both for and against the measures of the court.

Subsequently to this time their union appears to have been gradually dissolved, and we do not find them again acting together in a body. After they had ceased however to form a separate class, the laws which had called them into existence, though partially repealed as to some trades, continued generally in force; nor is it probable that the period that the progress of more liberal opinions finally put an end to them. But the exclusive spirit which had dictated them was so far modified by the spirit of English liberty, that the monopolies upheld by them were never so strictly enforced, nor the evil of them so much felt in this country as on the continent. For not only were the apprentices-laws condemned by the liberal and speculative philosopher, but they found no favour in the courts of law. They were frequently repudiated by judges and legal writers; and Lord Mansfield denounced them as being 'against the natural rights of man, and contrary to the common law rights of the land.' Acting upon this view of the impolicy of the system, the courts of law extended their jurisdiction, not only as far as the statute of Elizabeth, and thus the operation of it was limited to market-towns, and to those trades which were actually in existence at the time it was passed. And although, in consequence of the doctrine of the absolute and unchangeable law, which was introduced, yet the exclusion of some manufactures, and particularly of the principal ones of Manchester and Birmingham, from the operation of the act, had probably a favourable effect in causing it to lose strength, and extend even against those who were held to be liable to it. It was proved by a mass of extremely interesting evidence produced before a committee of the House of Commons in 1814, that the provisions of the act could be, and were, carried into effect in our improved state of trade and manufactures. An alteration in the law could therefore be no longer delayed. And though the question was brought before the legislature on a petition praying that the 5th Eliz. c. 4, might be rendered more effectual, the result was the passing of an act (54 Geo. III. c. 96) by which that statute, so far as it enacts that no person shall exercise any trade without having served a seven years' apprenticeship, was repealed. Acts 54 Geo. III. c. 96, a reservation in favour of the customs and bye-laws of the city of London, and of other corporate towns, but in general the necessity of apprenticeship, as a means of access to particular trades, is abolished, and a perfect liberty, in that respect, is given.

Apprenticeship, though no longer absolutely necessary, still continues to be the usual mode of learning a trade, and as such is recognised by law; it may therefore be useful to mention, in a summary manner, some of the leading provisions of the law upon the subject. By the common law, an infant, or person under the age of twenty-one years, being unable to contract any obligation except for his benefit, cannot bind himself or his apprentices so as to entitle his master to an action of covenant for departing his service, or other breaches of the indenture. The statute of 6 Eliz. c. 4, s. 42 and 43, enacts that every person bound by indenture according to the statute, although within the age of twenty-one years, shall have the same right to be joined as a contracting party in the indenture, and engaging for the faithful discharge of the agreement. But by the custom of London, an infant, unmarried and above the age of fourteen, may also take part in the operation of the custom of London, and it is said that, by force of the custom, the master may have such remedy against him as if he were of full age, and consequently an action of covenant. Any person under the age of twenty-one years is not capable to be bound appren- ticeship, if so required by any householder using half a plough-lead in tillage. The same act also provides that the binding must be by
indenture, so that binding by deed-poll, or by an agreement to execute an indenture, or a parol binding, have been held not to constitute an apprenticeship; though, by statute 31 Geo. II. c. 11, a binding by deed not indentured will enable a person so bound to be proceeded against for the term agreed to by the master and apprentice.

By statute of 43 Eliz. c. 8, confirmed by 8 and 9 Wm. III. c. 50, and by subsequent acts, the churchwardens and overseers of a parish, with the assent of two justices of the peace, may authorize any paupers appearing to be about 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 theeel court of admiral. Partial agreements may also be bought (2d and 3d 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 46 Geo. II. c. 139, for the purpose of punishing and disincenting such men as shall be bound to proper masters, and securing them from ill-treatment. A settlement is gained 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 the city of London, it may not be assigned over.

Parish apprentices may also, (32 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 thereto, 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 for maintenance, 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 apprentice-fee is not made payable.

The indenture is subject to be enforced 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, 5 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 instant, with the use of the apprentice which they may reasonably require.

A master may by law moderately chastise his apprentice for misbehaviour. He cannot, of his own accord, discharge him. But if he have any complaint against him, or the apprentice be guilty of any other breach of the indenture, 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.

In London, in cases where misconduct by the master towards the apprentice, or by the apprentice towards the master, either party may summon the other before the chamberlain, who has power to adjudge between them, and, upon the disobedience or refractory conduct of either party, may commit either of them to prison, or order the master either to pay a sum of money to the apprentice, or to enter another person's service. But, however, in many cases, 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 apprentice, but also on that 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 require in the more common mechanical trades the same length of apprenticeship as in the finer and more difficult arts, is most manifestly unequal 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 are removed by the apprenticeship 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 felt, as the apprentices are being being before the house of years, and are thereupon to be discharged. But such an objection is, I apprehend, removed, if no one of these is practised and insisted in the question.

APPROACHES, the general term given to the trenches, excavated by the besieger, 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. The approach may consist of covering masses only, formed either with earth in bags, with fascines, stuffed gabions, wool-packs, or bales of coloon.

APPROVER. By our ancient law, where a person 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 circumstances of the apprehension. 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 apprehension, and the approver, by a simple process thereupon issued to apprehend and try the approver, viz. the persons whom the approver had impeached as the partners of his crime.

As the approver, in revealing his accomplices, released 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 conceived that an accusation, made under such circumstances, was entitled to all the benefits which 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 allowed 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 that the approver was an accomplice, 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 by parliament; and the present provision is to allow an approver a bill of indictment, which may be used to obtain 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 9 Hake. Crown Law, ch. 24.)

APPROXIMATION, from the Latin, signifies a drawn 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 stated to be nearer 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 imperfection arises through error of the senses, or the insufficiency of the instrument. In credit, that the effects 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 what is usually styled the approximate solution of problems.

It may be stated as a general fact, that there are very few mathematical processes, except those of pure geometry, which give absolutely correct determinations, in which the answer obtained is neither far less nor is nearer than the conditions of the question. But flat is not in the
processes themselves, but in the problems which it is neces-
sary 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 magnitude, 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 roughest character, which the most arbitrary
idea is. It is only by laying down the postulate that any line or angle can be assigned inde-
pendently of all mechanical methods, that geometry becomes
a science of absolute exactness. In arithmetical, on the con-
tingent, the very first notion of numbers throws a theoretical
difficulty in the way. We can imagine a line to grow 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
numerical fraction of a foot. This question reduces itself
to the following. Let A D be
\[
\begin{array}{c}
A \ \ \ \ B \ \ \ \ C \\
\end{array}
\]

greater than A B (one foot), and less than A C (two feet); if
B C be successively divided into two equal parts, three equal
parts, and so on, without limit, does it follow that some one or other of the subdivisions must of necessity
fall upon the point D, previously taken at hazard? If we
appear to the evidence of the senses, we should certainly
answer in the affirmative, for, though the finest comasses
were 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 minute solids, while the mathematical point has not
the smallest extent, and we find the affirmative answer does not appear self-evident; for even
though the continuation of the points of subdivision is unlimited, the number of points which can be taken in the line is also
unlimited. But we can demonstrably 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 C 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.
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 \( a \) and \( a + h \), giving \( f(a) \) and \( f(a + h) \), it may be proved that

\[
f(a + h) = f(a) + h f'(a) + \frac{h^2}{2} f''(a + \theta h) \quad (A),
\]

where \( \theta \) is a fraction less than unity, or \( \theta h \) is less than \( h \). This rule only admits of exception where \( f \) is such that either \( f'x \) becomes very large, or \( f'x \) very small, for some value of \( x \) lying between \( a \) and \( a + h \); and since in approximations \( h \) is a very small quantity, this will rarely happen, and when it does happen, the results of an attempt to approximate 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 \( x^2 - 2x - 5 = 0 \) to find or approximate to a value of \( x \), which makes \( x^2 - 2x - 5 = 0 \). 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 2:1, for if \( x = 2 \), then \( x^2 - 2x - 5 = -1 \); if \( x = 2:1 \), it is less than 5, 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 \( f(a + h) = 0 \), if we take the small term

\[
\frac{1}{2} h \ f''(a + \theta h)
\]

denominator of the fraction, which gives

\[
h = - \frac{f(a)}{f'(a)}
\]

for an approximate value of \( h \), so that the new value of \( x \) obtained from the step just made is

\[
a = a - \frac{f(a)}{f'(a)}
\]

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 \( a = 2:1 \),

\[
f_a = a^2 - 2a - 5 = -061,
\]

\[
f'_a = 3a - 2 = 11:23,
\]

\[
h = - \frac{f_a}{f'_a} = -0.054 \quad \text{nearly}.
\]

\[
x = a + h = 2:0945 \quad \text{nearly}
\]

Trying this value in \( x^2 - 2x - 5 \), we find it -005, nearly; less than the tenth part of its preceding value. With 2:0945 for \( a \), the process must be now repeated.

The degree of approximation thus obtained may be estimated 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, \( f'(a) \) the second, and so on, then \( h \) will be of the same order as \( f(a) \), unless \( f'(a) \) be also of that order, which is one of the excepted cases. Hence, in reality, if \( \theta h \), we reject only quantities of the first order from the term \( f''(a + \theta h) \), or of the second from \( \frac{1}{2} h f''(a + \theta h) \), or of the third from the whole fraction, since \( f(a) \) is of the first order. This will appear from the development of the second side of (B) by common division. Thus rejecting \( \theta h \), and developing

\[
f'_a \frac{1}{2} f''(a + \theta h) \quad \text{as far as terms of the second order, we have}
\]

\[
h = \frac{f(a)}{f'(a)} \left( \frac{1}{2} f''(a + \theta h) \right) \quad \text{or nearly}
\]

and its ratio to its preceding value \( f_a \) is

\[
\frac{1}{2} \left( \frac{f'(a)}{f'(a)} \right) ^2
\]

whence \( 1 \frac{f'(a)}{f'(a)} \) represents roughly the greatest part of itself, by which the correction \( f'_a \) may be erroneous, the sign indicating whether it is too small or too great. In the preceding example, where \( a = 2:1 \), and where

\[
f'_a = 3a - 2 = 11:23,
\]

\[
f'_a = 6a = 12:6
\]

the preceding fraction is roughly \( \frac{1}{2} \), so that the correction 0055 may possibly be one thirty-second of itself too great, or about 0002 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 places is obtained at the end of any one of the above approximations, it is, roughly speaking, doubled by the next; since the second term of the preceding development of \( h \), being

\[
\frac{1}{2} \left( \frac{f'(a)}{f'(a)} \right) ^2
\]

is of the same order as the square of \( h \), or of the same order as

\[
\frac{f'(a)}{f'(a)}
\]

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 approximating.

Various methods of approximation are found in the Hindu Algebra; but, as far as we can find, Viesa 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 before. Hutton, in his History of Algebra, (see his Tracts,) attributes this extension to Stivinus, 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 algebraical 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 an prece 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 bore among the Romans, Armeniaca, 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 Eastern Greeks call the apricot Parrhokes, which is nearly the same as the Arabic name Berkehch; secondly, that vast quantities of this fruit are actually dried in the Oases and brought to Egypt, where they are...
called *Mash-mash*; and thirdly, that the early period of the year when its blossoms unfold, is indicated. These are the reasons which render the apricot, in the warmest climate to the latter observation, it seems to be completely at variance with facts, for the earliest of trees in leafing are the Tartarian honeysuckle and the sanguine hawthorn, which are both found wild in the Crimea. It is quite impossible to demonstrate, from any published evidence, that it is really found wild in Armenia. The following note with which we have been favoured by Mr. Royle, the distinguished botanist and traveller of the *Hobart Town* and *Mountains of and Cashmere*, may throw some light on the matter:—The apricot is frequently found in the hills between the Ganges and the Jumna, apparently wild, as well as the walnut, peach, and pomegranate. The two latter are often found on the highest point of the hill, and one might have supposed that they took root away from villages and covering the sides of hills; but the latter having been formerly much more populous than they now are, many sites of villages and cultivation are concealed and overgrown with vegetation, so that it is difficult to recognise them. The apricot is so generally planted round villages, that there are few without them, the fruit being eaten fresh and also dried, while a very fine oil is expressed from the kernel. My collectors in visiting Cashmere said that the apricot was generally held in extraordinary, a perfect apple. The dried apricot is brought in considerable quantities from Cashmere into India, and called *Khoit-banee*. I am myself rather inclined to think the Cashubul mountain the source of many of our wild apricots, which are still among others a plant of great value.

As a domestic fruit tree in the climate of England, the apricot is a plant of less importance than many others; the early season at which it blossoms causes it to be peculiarly valuable, and at a crop, or a small fruit is very precarious. It is, however, very much cultivated; and it is therefore necessary that we should say something of its varieties and of the mode of managing it. Apricots in this country are produced either upon open standard trees, or upon walls with a western aspect; 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 standards, namely, the Breda and the Brussels; the former is a small yellowish-brown unspotted kind, the latter a larger, more com- 16. The name Apricots, given to this fruit, is derived from the Latin *Apricus*, or sun- kissed. 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 it is best that the fruit thus obtained is far superior to any other, as it combines 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 *All Berthbach*, the Arabic name of the *Mish-mish* variety, from which it is probable that the alberge is not materially different: this sort is too tender for England.

The Italian naturalist says, "The apricot tree is suitable to any soil, if there be but two things to look for, the soil and the climate." These are 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 stem 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 arise from the main stem from the seed are to be examined in May, and all that are superfluous amputated; the stoutest entirely, the weakest only reduced to the length of an inch or two, when they will often become flower- buds.

No stocks for apricots should ever be employed except the muscad plum and the common plum for clayey, or loamy, or sandy soil; and the seedling apricot itself for soils that are watered. And plants called the Brompton stock, are so unsuitable to the constitution of the apricot, as to be short-lived and worthless.

Besides the true variety, there are occasionally seen in the gardens of persons of a sound judgment, apricots one being *Prunus discus-carpaea*, and the other *Prunus Sibirica*, neither of which is at all worth the trouble of cultivating: they are small, dark purple, acid fruits, and mere objects of curiosity.

APRIL, the Egyptian king, the son of Psmamius, (Herod. ii. 161,) otherwise called Psmuthius; he was the eighth king of the twenty-sixth dynasty, (Eusebius,) or the seventh according to Athenaeus. His name is also written *Pharsammonius*. He is supposed to be the son of the last king of Egypt known in the绳excil. to the name of Pharaoh Hophra. (Jeremiah xlix. 30.) Apricus succeeded his father B.C. 598, and reigned twenty-five years. Early in his reign (B.C. 585) Jerusalem was plundered by Nebuchadnezzar; after which a great number of the inhabitants were sent to the captivity in Babylon. (Ezra ii. 63.)

The fact is thus detailed by the testimony of a popular horticulturist, the tenth of the residence of the Egyptian king. Aprices, 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 Aprices about B.C. 585, or 586. (See Amasis.) He was buried in the tomb near the great temple of Athesna at Sais, where his ancestors of the Saitite dynasty were interred (Herod. ii. 169.)

APRIL, the fourth month of the year, consists of thirty days, which is a number divisible by the number of letters in the Greek word *Apries*, Numia Pompilia deprived of it 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 this month. The name is connected in every language with *Apricus*, or sun-blessed. The Babylonians called it *Ooster* or *Eastern Month*. In this month the sun travels through parts of the signs of Aries and Taurus, that is to say, of those parts of the ecliptic which astronomers designate by those names. In the real motion of the sun among the constellations is through parts of Pisces and Aries. (See Precision, Zodiac.)

APRIL CEREMONIES. The custom of making fools on the first of April is a practice well known in England, France, Sweden, and probably in other countries of Europe; and it is believed to be connected with an immemorial custom among the Hindoos held near the same period in India, toward the end of March, called the Holi Festival, and annually celebrated with great mirth and profusion. It is equally popular in all classes, and are sent on errands and expeditions which end in disappointment, and cause a laugh at the expense of the person sent. (See Asiatic Res. vol. ii. p. 384.)

The origin of this custom is not known, but it is thought to be of Chinese, or even Greek, origin. In China, the first day of each month, or even the first day of each year, and the first day of each season, is observed as a day of peculiar consecration. On the former, though Bellinger, in his Etymology of French Proverbs, considers that it may possibly have an allusion to the mockery of our Saviour, about this time, by the Jews: a conjecture which is in some degree paralleled, if not corroborated, by the custom of Lent and the Easter holidays. In England, the first of April is usually termed *All Fool's Day*, and the person imposed upon, an April Fool. In France this person is called a "Raison d'Être," i.e. a mackerel, or silly fish. In Scotland, "an April Gowk." Maurice, *Indian Antig.*, vol. i. p. 71, speaks of the Huli Festival as the celebration of the period of the vernal equinox.

A PRIUS'RI and A POSTERIORI; two logical terms, signifying, literally, "from a thing before," and "from a thing after." They are applied to distinguish between two different methods of reasoning, the first, *d priori*, in which the conclusion is the first; the second, *d posteriori*, in which the thing to be proved is examined, and made the source out of which the reasoning is taken. It may readily be seen that these are rather terms of common conversation and writing, than of logic, properly so called; so that they are seldom noticed by writers on that science. The use of them is in such a manner, as to be applicable to almost any reasoning; but it is hard to define them very strictly would be either to make *d priori* reasoning to be altogether impossible, or to throw insuper-

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able difficulties in the way of finding where it ends and the other begins. In common language, we reason *apriori* when we infer the existence of a God from the general difficulties in the supposition of the existence of what we theorize. We reason *aposteriori* when we infer the same from marks of intelligent contrivance in this particular creation with which we are acquainted.

A *priori* reasoning, however, frequently used in a sense which implies "previous to any special examination." As when a sentence begins with "a priori" we should think, &c. &c. which in most cases will be found to mean noth-thing more than an expression of opinion, in which the speaker founds his mind or belongs to, when he had only heard the proposition, and before he had investigated it.

All *apriori* reasoning is dubious, to say the least: in but very few cases, if any, are we able to say we know sufficient qualities, and even then we have no argument safe. The whole mass of school learning, the greater part of which was overthrown by the inductive philosophy, was based upon *apriori* 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. Co- lumbus went to look for the continent of America, in con- sequence of its being supposed there. This is *apriori* reasoning. So far he was right: but had he con- tented himself with writing a quarto volume to prove the existence of the new continent, by reasons which were only stronger, though to make it right to look for more, some less ima-
ginative *aposteriori* reasoner would have been the real discoverer.

**APSIDES,** a Greek term, used to signify those points of a planet's orbit in which it is moving at right angles to the line drawn to the primary. The points are also those of greatest and least distance from the primary. [See Apogee and Perigee for the moon and sun; Apelion and Peri-
heilion for the earth or a planet.]

Apt is a town in France, the capital of an arrondissement in the department of Vaucluse, about nine leagues (twenty-two miles) E. of Avignon according to Reichard's Itinerary, but considerably more (above thirty miles) by measurement on the best maps*. It is a very anticent 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 ori-
gin, but it does not appear to have had an amphitheatre.

Apt is on the south bank of the Canezon or Calanze, 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 St. Agnes, in Languedoc. The trade of the town is in dried fruits, especially plums. The inhabitants manufacture wax candles, which are in con-
siderable repute, woolen stuffs, hats, and leather; they also spin cotton and silk. The neighbourhood furnishes olive of excellent quality, and almost every thing that is exported according to Mauret Bin is 3433. 48° 57' N. lat., 5° 25' E. leng.

The arrondissement of Apt contains 500 square miles, and above 300 inhabitants per square mile. The towns and villages are all interesting, and afford a present for the lover of argument safe.

**APTERAL,** 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 Greek compound term, signifying 'not having a wing' or 'within the periphery,' and was applied to a temple having prostyles, or porticoes of columns projecting from its fronts or ends, but of which the columns do not ex-
end laterally, and run along the flanks from one end to the other. They were often printed as *Peripteral, or Peripiteron.* The Pantheon of Agina, a plan of which will be found with the article *Agina,* vol. i. p. 141, is peripteral; but if the outer columns of the front, with the peristyle of the walks, the temple would then be *apoteral,* as it would be also amphiprostyle. The parallelogrammic temples of the Romans were for the most part simply apical prostyles, and their arrange-
ment has been much more followed in modern works than that of the Greek. This is because the Roman temple is less, but it is still very beautiful. Our modern churches which have porticoes, *are* those of the Greek.”

* Nine leagues and three-quarters of twenty-five to the degree (equal to
twenty-seven English miles). (Dict. Geog. de la France.)

though some of them are professedly on the Greek model, are, nevertheless, generally, illustrations of the apical ar-
range ment, and of those of that of St. Paneras in London may be best considered as an example.

**APULEIUS (LUCIUS)** was a Roman Epicurean philosopher. He lived in the second century, and was born at Madaura in Africa. He studied first at Carthage, then at Athens, and afterwards at Rome, where he acquired the Latin language. He was not without the help of a master. He was of Punic race, and his name Apollo, means in Latin, a god. Apuleius was a man of great learning, with a somewhat inquisitive disposition, especially on religious subjects; and to gratify this curiosity, he travelled extensively, and sought to obtain initiation in the various mysteries, as they were practised in various parts of the world. He was a skilled writer on religious and philosophical sects were veiling. Having spent nearly his whole fortune on these journeys, he returned to Rome, and was admitted as a priest in the service of Oasir. He practised at Roma for some time as an advocate, and then returned to seek his fortune in Africa. He was a man of great learning. Here he met with distinguished success: but he set him-

* * *
Italy in the time of the Romans. Its limits were on the east and north the Adriatic Sea, on the north-west the river Fronto, or perhaps the Tiberus, which divided it from the Apulia, on the west the sea, on the north the Messapia on the north-west and Messapia on the south-east. It does not appear that the Romans ever considered the Messapian peninsula, now called Terra d'Ornato, as part of Apulia. In remotest ages, the whole of this part of Italy was included in the ancient kingdom of the Lucani (Herod. iv. 99.), and was inhabited by the Dauni, the Peucetii or Pediculi, the Messapians, and the Salontini, who were all said to be descendants of Greek or Pelasgic colonies. The original Apulians were protectors of the Opici or Oschi. (Nashur's Hist. of Rome, vol. i.)

According to Strabo (vi. p. 283), the Peucetii extended along the coast from Brundatum to Barium, a distance of about 120 miles; north of the Peucetii were the Dauni, and then the Apuli, extending to the southern confines of the Peucetii. Strabo adds, that in this time the names of the Peucetii and Dauni were not in use among the natives, and that it was difficult to fix the ancient limits of these people. Roman Apulia, in its extended sense, included the countries of the Apuli, the Dauni, and the Peucetii. The islands of Diomedes, now called Tremiti, belonged also to it. The principal towns of Apulia were Teanum, Luceria, Asculum, Arpia, Assisa, Salapia, and Epipactos, in Egnatia, and Venusia, the birth-place of Horace. This country suffered greatly during the second Punic war, when some of its towns sided with Hannibal and others with Rome. The whole finally became subject to the Roman sway. After this, not a town of Apulia was long disintegrated between the Goths, the Byzantine emperors, the Longobards, and the Saracens. The Normans conquered Apulia in the eleventh century, and the Norman kings of Sicily styled themselves dukes of Apulia and princes of Capua. These two names included the whole of their continental dominions. When afterwards the monarchy was divided into two kingdoms, namely, Sicily ultra pharum, and Sicily a pharum, the latter vaguely called the kingdom of Naples, the name of Apulia was definitely limited to one of the four divisions of the continental kingdom, consisting of the Apulia of the Romans and the Messapian peninsula. [See Apulia.]

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, between the 11th and 16th 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 25°. At first it runs to the north, but by degrees declines to the south, and, after passing through 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 3500 miles to the 12th. From this source its waters are increased by two tributaries, the Calcamayo and the Villcamayo. The former joins it from the west, having gathered, in its course of about 160 miles, the waters of many small rivers, which descend from the western range of the Cordilleras in transverse valleys. The Villcamayo 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 rising upwards of 220 miles. Near 12° 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 Huallagua 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 does not attain the 12th degree of lat. It is surrounded by a 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 west, having on its right a large branch which descends till it meets, in 10° 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 juncture 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 Llaguep. The whole course of the Apurimac may amount to nearly 500 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 the shallowness of the waters, 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-wings, after the fashion of wickerwork. Our authorities 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 creeves 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 10000 feet above the level of the sea, no tropical productions can be raised on them, but they produce the grums of Europe, especially wheat and barley, and our fruits, as also great quantity of papa. 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 lower valley of the Xauxa and Apurimac; and the Indian grass, the gardens are cultivated with 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 o Tarma, Ayacucho o Guamanga, and Cusco. Its superior cultivation is doubtless not only to its being much more fertile than the country 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 descendents of the ancient Peruvians, and contains many towns of importance, among which we may mention Tarma, Guanaco Velica, and Guamanga, in the valley of the Xauxa, and Cusco, the ancient residence of the Peruvian monarchs, in the valley of the Villcamayo. (Alcedo's Dictionary. Humboldt's and Maw's Travels.)

APUS, ( Constellation.) from the Greek ἀπομένω, without feet, used to signify the bird of Paradise, the aves indicus of the ancients, called Aruca, by the Incas. 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 Australis, and Cameleon. Its principal stars are designated as follows:

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<th>Character</th>
<th>No. in Catalogue of</th>
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<td>β</td>
<td>1351</td>
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AQUA FORTIS. [See Nitric Acid.]

AQUA-REGIA. [See Chlorine.]

AQUARIUS, (Constellation,) the Water-bearer, one of the twelve zodiacal constellations. Its Greek name is Αυρατος, the Water-pourer. In the Indian zodiac it is simply a water-jug, the name of which, according to Le- vantin, is Gouram. In this country, as in many other Euro- Indian, it is a male figure holding two urns, from which the water flows. The mythology of the Greeks refers the Water-bearer in different places to the fables of Deucalion, Ganymedes, Aristaeus, and Cecrops. Its prehistoric origin, however, is unknown; and indeed, this is the case with many other Egyptian, it is a male figure holding two urns, from which the water flows. The mythology of the Greeks refers the Water-bearer in different places to the fables of Deucalion, Ganymedes, Aristaeus, and Cecrops. Its prehistoric origin, however, is unknown; and indeed, this is the case with many other
of the Nile took place: Legentil, who advocates the latter, imagines that they represent the rainy season which is absolutelty necessary to the growth of the grain. 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, and when so forcibly drawn, the truck between these two shoulder stars is on the meridian at 12, 6, 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 PRECISION). The latter is the part of the ecliptic which begins at the horn of the constellation Capricornus and ends in the middle of the body of that of Aquarius, comprising the zodiacal elements of longitude between 300° and 330°, 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., which have no parentheses or letter, are as marked by Flamsteed: those inclosed 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, the physical habits of the animals, as to make their outward form 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 been disposed to make it the primary basis of their system. ‘Animals, says Aristotle (Hist. h. i. c. 1), ‘may be distributed into different classes according to their manner of living, their organs, their character, and their size; and all the species according to their manner of living, their actions, and their character, are divided into terrestrial and aquatic. The aquatic are divided into two classes; the one, as is the case with many fishes, pass all their life in the water; the other, breathe air, and find their food in it; and 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 fly, and others, like the water serpent, have no feet. ... Aquatic animals inhabit seas, lakes, marshes, and rivers.’ These principles of classification have been the sole object of all 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 no inquiry which can engage the attention of the zoologist more than the fruitful consequences of the rest, or, as it may be termed, the organic structure 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 nurture their young in that element. All their organization, even to the most minute circumstance, is rigidly adapted to these purposes. The external apparatus of progressive motion 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 equilibrium, 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 real organ of progression in both cases is the body itself, which is prolonged and attuned towards the tail, compressed on the sides, and provided with extremely powerful muscles, with which, by alternately striking the water in front, it propels itself forward with a force and velocity unexampled in any other class of animated beings. It is upon this principle that we often see a boat urged forwards by means of a single oar in the stern. The great majority of these animals are not only not able to maintain a course in the water, but are entirely wanting to go where they please, and preserve its external form and function, but it is of the greatest importance to the student of zoology to remark that the next step is the higher development of the previous, and that the cavities, and even the spaces within the organs, are subjected to the same process of modification. Aquatic animals are surrounded by water, and are consequently furnished with an apparatus for extracting 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 having the tail broad horizontally, it is broad in a vertical direction, which enables them to turn with astonishing rapidity, and is no impediment, but rather an assistant to their forward movements. But the case is different in the cetaceous tribes: these animals, though residing entirely in the water, breathe air by means of lungs like other animals, and are consequently obliged to come continually to the surface. For this purpose they are provided with a powerful cartilaginous tail, flattened horizontally, by which moving upwards or downwards as the occasion may require, 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 comparatively slow in changing their depths; and if they wished to ascend, the air they breathed, being the most dense in the surface of the ocean, 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 altered from that vertical to an oblique, the object of nature is accomplished, and the air-breathing ceta-
ocious animals are adapted to all the circumstances of an aquatic life. Another beautiful adaptation is observed in the majority of the 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 so different that the elements which are exactly the most unsuited for the other. In the one case, the body being much heavier than the surrounding medium, requires to be supported, or raised above the surface of the land; and as many of 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 the element in which it floats, or the length of the extremities would be only an impediment to the progress of the animal, and consequently they are, in such cases, entirely wanting, or reduced to a rudimentary form, at least in perfectly aquatic animals. The feet of these different animals, and as they are intermediate in habits, so are they likewise intermediate in structure between these two extremes; 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 in this case, is not in all cases equal 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 toes of each of their limbs being united by an expanded web or membrane, which gives the paw a broad oat-like form, and thus converts it into a convenient instrument of swimming, at the same time that it securely interfaces 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 Natatores, comprising the ducks, swans, pelicans, gulls, ducks, etc., among the birds; and the crocodiles, alligators, 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 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 approximates 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, as far as the elbows and knees respectively, leaving upon the ground a kind of 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 the form of fins than the preceding. The web and webs of the feet in these animals have the bones of the palms and feet similar to that of ordinary land quadrupeds, only much shorter and more flattened, and the hind-legs are thrown backwards in the same direction as the tail. Still these are extreme cases; as a general rule the animals enable walking or creeping on dry land; but the numerous tribes of cetaceous animals which can execute no kind of motion whatever out of the water, have the bones of the anterior extremities flattened and united together like the stones of a mosaic pavement, whilst the posterior members are entirely wanting. The same is the case with the seals, or, as they are more properly called, turtles, when compared with those which frequent fresh water and land, the extremities of the former are modified more nearly to that of fins than of feet, and their aquatic habits consequently predominate over their terrestrial.

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 in 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 the posterior limbs placed more nearly 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 anterior members are often united to form a kind of fin, the first are, properly speaking, web-footed, the second fin-footed. [See Amphibia.]

AQUATIC PLANTS, in horticulture, are those which are naturally in depth of water, and are generally distinguished by the cultivator from the 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 three or four feet below the surface of a pond, so that the boxes lie upon, or among the mud at the bottom.

But for those which demand the protection of the stove or green-house, some additional precautions appear requisite. The plants are first to be transplanted to land; but the temperature is such as to deprive them in some measure of the repose 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 Exton Hall, given in the Transactions of the Horticultural Society.

December, 1826, 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 within the greenhouse. The plants 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 the following soils,—in the bottom, four inches of strong clay made solid; above this, six inches of light mellow loam, and at the top, an inch or two of sand to keep the water clear. The cisterns, which are made of Yorkshire flag, are of the following dimensions,—3 feet long, 1 foot 8 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 not be kept pure. The temperature was kept under 80° and in sunshine often above 100° Fahrenheit. No air was admitted at the lights immediately above the plants. As the plants increased in growth, they put out many runners, which were pinched off close to the tubers. When the roots reached the clay, the leaves got very strong, raising themselves on the sides of the cisterns.

The Nympheas odorata, and N. odorata, under similar treatment, produced abundance of flowers. The first of these flowers appeared in the beginning of July, and the 13th 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 turpentine was put into small pots as before stated. The last was done this day (December 11, 1827).

The Nelumbium speciosum, in a glazed pot, with similar treated 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 periodical rest and rapid growth under a high temperature, but little light and the season of the year.

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. 24.

AQUATINTA ENGRAVING. The word aquatinta (stained) by which is implied that this mode of engraving is an imitation of water-colour or India-ink drawing. The inventor, a German artist named Le Prince, was born at Metz in 1723. His method was to sift the common black resin, when tied up very loosely in a muslin bag, and being shaken over the plate, the surface was partly covered with the powdery resin, affixed with the air. 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, usually a minute thickness 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 meagre 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 quality spirits of wine (as oil), and then pouring the mixture over the plate, the quantity of resin determining the coarseness or fineness of the grain. When the plate is large, it is necessary to have a broad and shallow tin pan (with a spout at one corner) in which the plate is laid inclining from the upper edge, so that the superfluous 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 wine be put in the plate, and it should be used 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 adhered to the plate, and then formed with the aid of crystalization of the grain: before a ground is laid, the plates are 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 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 laid; one of the artists may be instructed for this purpose, or another by mixing a little of the strong ground with sufficient spirits of wine. The modern aquatinters have another advantage over their predecessors in using a composition for varnishing the forms of leaves of plants, of other objects, where the trouble of surrounding the forms by a varnish would be too great. This composition is made of moist sugar or treacle added to the same bulk of whitening, and ground well on a slab with a little water; a very small proportion of gum Arabic or cambric may be added. 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 make the spirits of wine off all the composition, and the varnish which had 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 ground for trials. The acid is applied in the usual manner, that the acid has been on the plate, by taking off a small portion of the strip with spirits of turpentine, clearing the place well, and then rubbing in with a finger a little powdered white lead. After this process is repeated, the plate now ready for the actual and comparative strength of tints. It is only by these trials that the aquatints knows what he is doing, for the acid varies so greatly with the weather, that what might be considered very weak in a cool morning, becomes very strong towards the evening, and vice versa. For this and other obvious reasons, 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 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 varnish, 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 acid is allowed to work 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 burgundy pitch, half a pound of bees wax, and a little rosin, to the glass full of water, when made in 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 spot 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 water, being very brisk; the last only is to be allowed to run 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 mixtures of the operation, then a sheet of good woollen 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 is
need not be added, that a single grain of sand or any other hard substance under the rubber will ruin the whole work. Gradients in skies, &c. are sometimes made in this manner, though more generally by pouring the acid on slowly, beginning with one of the best varnishes. If some portions of the varnish will become so hard, that the common method will not stir them; in this case a little of the oil of spike lavender applied with the finger is quite certain to produce the effect. The plate is now covered all over with spirits of turpentine and sent to the printer to prove, after which it is to be exceedingly well cleaned with turpentine, &c., and another ground laid; this should be done in such a manner as to make the grims fall exactly on the granulations of the former one, and it is called making the ground much stronger than was used before. Fortunately, the liquid ground has a natural tendency to granulate upon the same places as before, and when the acid is again applied it will act in the same interstices as before, and only wants a little care to make it answer. The process for the second ground 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 hurnish, 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 hard it is made non-tinted 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 capable of the greatest beauties, as a means of effecting chiaroscuro. We do not propose to become an expert in the art, or to attempt even to become a dilettante. The name is of Greek origin, and means 'about time'; and, as we are in the month of April, there is a hint too distant to the new year, which we have acquired the name of. "Aqua della Tofana," in small glass phials with this inscription, "Manna of St. Nicholas of Bar's, 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 690 persons. The dose of her poison was from four to six drops: yet, though, in this respect her complicity was not to be doubted, her complicity was not to be doubted, 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 made a morbid 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 to the naked eye, with its great distinction as to its 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 or diluting his apprehension. AQUEDUCT, or AQUEDUCT (aque ductus), as it was formerly more correctly written, is composed of two Latin words, aqua, in the genitive case aquae, 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, both public and private. Any application to 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 regularly, but slightly descending current across valleys and over plains, on 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, in which it is called making the ground much stronger than was used before. Fortunately, the liquid ground has a natural tendency to granulate upon the same places as before, and when the acid is again applied it will act in the same interstices as before, and only wants a little care to make it answer. The process for the second ground 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 hurnish, 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 hard it is made non-tinted down, according to the quantity of colour left in the plate.

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of course in every case occupied by artificial channels winding along the sides of hills and mountains; and long tunnels carried the streams through these natural barriers when occasion required, but nevertheless the arched duct led the streams across the deep valleys, and the aqueducted finding it necessary to carry it undisturbed over hills the wide plain to the doors of the eternal city.

These metropolitan aqueducts were of various lengths, according to the direction in which they came, but in one of them the series of arches is calculated at nearly 7000, 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 ancient Rome than the remains of these splendid works, which radiate, in almost every direction, from the central structure of the city. In all of them, the aqueducts are built in ancient times, whose simplicity and unbroken continuity produce a degree of grandeur unmatched by the more laborious and more-pretending works within the walls.

Sexxtus Julius Frontinus, who was inspector of the aqueducts of Rome under the Emperor Nerva, has left a treatise on this subject, which contains much curious information. (See Frontinus.) Some of the most remarkable aqueducts belong to the Neronian era. According to the glorious city to which they belong, or the individuals whose name they bear. The modes in use, both in ancient and modern times, for distributing 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 ancient aqueducts, which have undergone repairs and restorations, the most important being that of the papal reformer, Sextus V., from whose conventional name of brother Felix (Fra Felice) one of the streams so delivered is called the Aquo Felice.

Aqueducts have been constructed in modern times, and of those which have been mentioned are that of Caserta in the kingdom of Naples, of Maintenon near Versailles in France, and of Benevent, called Agossi Etores, near Lione in Portugal.

AQUILA, אָקִילָה, or Akibah 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 Tabea, as disciple and successor of rabbi Gamaliel, and one of the most famous doctors of the Mishnah. The Jews assert that things which were unknown to Moses were revealed unto him. According to Josephus, the most ancient temple of the Mishnah originated from the verbal and written-instructions of Akibah. According to Zakat, the whole of the Mishnah came from Akibah, who lived 120 years. When he was forty years, he was ordered by the patriarch of Shina, in whose service he lived as a business. She promised to marry him if he became a rabbi. Akibah studied forty years with great zeal, and had 24,000 disciples, among whom was Rabbi Judah the Great, the Christian Philo. He joined the pseudo-Messias, Bar Cochba (Coziba), who raised disturbances in Judea. There were 500,000 disciples, and of them Akibah was killed by iron combs, with which his skin was taken off. Akibah was buried in Tiberias, where his tomb is annually visited by his admirers between Easter and Pentecost. The book Zerar (The Eagle), which some ascribe to Adam, and others attribute to Akibah, is the chief book of cabalistic doctrines. The two last editions of this famous book are of 445 and 1544, with a supplement, the Apocrypha, by a German, 1642, 4; and lately, by Frinton de Meyer at Frankfurt on the Main, with a German translation, 1832, 4to.

AQUILA (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 Draconis, and through a Lyrae, passes through a bright star of the first magnitude, a Aquilae, cutting off 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. It is true, the Aquilae stars are here given, as in preceding constellations. The number inclined in a parenthesis is that of Piazzi.
A QUélé/Gla, literally the Watergatherer, because the leaves collect water in their hollow, is a small genus of plants, commonly called Columbinæ, belonging to the crow-foot tribe, of which several species are cultivated in gardens.

They are grown from seed, to which they are the most nearly related, by the enclosed manner in which the seeds are 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 it is commonly cultivated. The other species are not usually cultivated in America. They are all acid plants, but so much inferior in vernalence to acomine, that no attention has been paid to their qualities.

AQUILIA, a town of the antient 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 Veneti, and the bulwark of Italy on the side of Etruriae and Pannonia. It was built on the Tiber or one western bank of the river Sontius, now Isonzo, in a low and fertile plain, watered by numerous rivers. It was of great trade, for, although several miles distant from the coast of the Adriatic, vessels could reach it through canals which had been dug to conduct the water of the Illyrian rivers near it. Its walls were twelve miles in extent, and the city was adorned with an amphitheatre and other splendid buildings. The Via Annia, a continuation of the Flavian road from Aequile to Aquileia, Augustus, Tiberius, and other emperors occasionally resided in this city. The poet Cornelius Gallus was born here. Aquileia distinguished itself for its fidelity to Rome. When the Thracian Maximinus, 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 Aquileia boldly opposed his passage, and sustained the troops of the emperor for a long time, during which the city was besieged and nearly taken by the defence of the town. The soldiers of Maximinus, disheartened by this unexpected resistance, and the delay thereby occasioned to their intended march upon Rome, revolted and killed Maximinus and his son, a.D. 241. The Roman senate, relieved of its fears, voted thanks to the Aquileans.

Aquileia, from its situation, was exposed to the first attacks of Alaric and the other barbarians who successively invaded Italy from the north-east. The famous Attila at last stormed it, after an obstinate defence, pillaged and destroyed it by fire, after butchering the greater part of its inhabitants, in the year 493. Some of those who escaped took refuge in the neighbouring island of Grado, where they were received and entertained by the Veneti, and afterwards resided there in peace. It was about the same epoch that many fugitives from various towns destroyed by Attila escaped to the islets in the lagoons, where afterwards Venice was built. Aquileia, in the year 493, Theodoric and his Gothia defeated the plains of Aquileia Obersche, king of Italy. Aquileia was afterwards restored by Narses, the general of Justinian, but it never recovered its former splendour. The see of Aquileia was one of the oldest in Italy; its first recorded bishop, Hieronymus, was said to have lived in the time of Maximinus. There is also a tradition that St. Mark the evangelist was the first bishop of Aquileia, and that he wrote there his Gospel, a MS. of which, pretended to be an autograph of the Evangelist, was transferred to the library of Venice in the 13th century, and deposited in the treasure-room of the church of St. Mark. During the first three centuries the chronology of the bishops of Aquileia exhibits several chasms, but from the beginning of the fourth the records of that see proceed with little interruption. Towards the end of the 5th century, it was made a metropolis see, about the same time as Milan. Its jurisdiction extended first over Istriia, and lastly over the whole of Venetia, and even as far as Como, and the bishops of Aquileia were called bishops of the whole of Roman. It was a see of great rank, and continued for several centuries, during which it was often two bishop sees for the same one, one orthodox at Grado, and the other schismatic at Aquileia. It was then that the
nepatropolitans of Aquileia assumed the title of patriarchs, which was used in the Greek Church, and had been adopted by the Goths and other Arians. When the Longobards invaded Italy under their king Alboin, the patriarchs of Venice and Aquileia were often in personal opposition to the Lombard viceroy. In the subsequent wars between the Longobards and the Greeks, and afterwards the Franks, many families emigrated from Aquileia to Venice. Charlemagne and his successors bestowed privileges on the sea of Aquileia, which had already been recommended with that of Rome; and Otho II. gave it the castle of Udine and other estates in the March of Frioul (Forum Juli); and Conrad II. and his successor Henry III. enlarged still more the dominions of the see, but the whole of Frioul was eventually subjected to the patriarch a sovereign prince, and a great feudatory of the empire, with power of coinage money, raising troops, &c. Rome had acknowledged his title of patriarch, which was a singular possession of the western church. Pope John XIX. qualified the see of Aquileia as being second in rank to that of Rome, and above all other episcopal sees in Italy. Pope, who was patriarch about that time, restored the walls of Aquileia, and built a magnificent temple, with a lofty tower, which he dedicated to the Virgin Mary, making provision for fifty priests to officiate in it. This was to Aquileia a period of revived prosperity. But the wars between Frederic II. and the popes, and the factions of the Greeks and Venetians, disturbed the peace of Frioul; and these, added to the growing unhealthiness of Aquileia, occasioned by the stagnant waters around, induced the patriarchs, in the thirteenth century, to remove their residence to Udine, a town which then rose on the decline of that of Aquileia. From Frioul became later, and by degrees dwindled away to a mere unhealthy village. The patriarchs, however, continued to govern the country of Frioul as independent princes, and to exercise their spiritual jurisdiction over the numerous dioceses subject to them. They were frequently at variance with their neighbours, the Venetians, the Paduans, the dukes of Carinthia, the counts of Gorizia, and the dukes of Austria, and sometimes all their own subjects, and to the great prejudice of the see of Udine, which then became the metropolis.
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 edi-
tions of the work of St. Thomas which Aquinas alludes
the reason that he was at Rome in 1570, in seventeen
volumes, folio. Various of his treatises have also been re-
peatedly printed separately. Of the whole the most famous
is his Summa Theologiae, which held the highest
His Commentary on the Four Books of Peter Lombard (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
and so many of these works that they have been referred to
in the period of the Middle Ages only, translated into the
Arabic. A good many of the works
which have been attributed to Aquinas are now admitted to be
spurious; and doubts have even been entertained as to whether
the Summa Theologiae is really his. Of the theo-
logical opinions which 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 the
recorded admission of those who have assumed his own
name, 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 are
remarkable. He is said to have written the music of several
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
is past when she could say, Silver or gold have I none—
'Yes, 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 money
ascribed to him, and even one in which he is said to have
aided at 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 de-
cisive argument! The Manicheans could never answer it!'
Reminded of where he was by the prior of the Dominicans,
who was also present, he asked pardon of the king; when
his majesty expressed himself only anxious to get hold of the
unanswerable argument against the Manicheans, and,
calling in a secretary, had it taken down absolutely.
belais alludes to another anecdote of this kind. (See Panta-
grelu. liv. iii. chap. 2, and the note of Duchat on the pas-
sage.) The titles of Aquinas, in the list of the scholastic
deciples of St. Thomas, are the Doctor Angelicus and
Doctor Schools. (See a few remarks on Aquinas in the notes to the
translation of Richard de Bury's Philobiblon. Lond. 1832.)
AQUI'NO, an ancient but long since decayed town in the
province of Terceira, in the island of the same name, in the
dept. of Portugal. 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 Pertinax,
was 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
Catalonia, an event which occurred in the year Frederic II. of
Suabia. The chroniclers of the following cen-
turies 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 a native of Aquinum. In the fourteenth and fifteenth
Secca in the neighbourhhood. At present Aquino contains
hardly a thousand inhabitants; the ground is covered with
ruins of buildings of various ages and styles, among which are
not a few remains of aqueducts, a kind of 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 portion of the frieze with triglyphs and pateras.
consecrated about a.d. 255 by St. C. & C. of
H. 60 in breadth. An old ruinous church, which is
still called Ili Vescovato, (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 mixed
style of Corinthian and Tuscan order. At the foot of this
between the arch, and, after supplying a neighbouring mill,
rises to join the Liris. A native of the place, the nephew
of the Canonico Bianchi, has collected copies of all the in-
habitants. Aquino lies six miles west of the town of San Ger-
mano, the ancient Cassinum, in a plain between the rivers
Melis and Liris, bounded on the north-east by the mountain
on which the monastery of Monte Cassino is built. The air
is healthful; the vultures are collected in the three miles
distant, enjoys a better air. (See Monti
CA:R0.
AQUITAN'IA, one of the great divisions of ancient Gaul.
The limits of Aquitania are stated by Caesar to have been
in the river Garumna, which was the limit of the
Garumna divided it from Celtic Gaul. The original Aqui-
tanians are supposed to have been of Iberian race, distinct
from the Celta. Caesar did not go into Aquitania, but his
lieutenant, the younger Crassus, made an incursion into it.
The country, however, was not finally subdued for about
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.
 mentioning the division of Gaul, the limits of Aquitania were extended north-
wards as far as the river Ligeris (the modern Loire), and eastwards to the Mount Cebenna, which formed the limits of the
Narbonensis province. By this extension, Aquitania attained its largest extent, being west of the
Gaul, such as the Santonens, Pictorins, Bituriges, Arverni, Lemovices, &c. In the following sub-
divisions of Gaul under the later emperors, we find the Aquitania of
Augustus divided into three provinces, viz., the Novempopula-
rians, which comprised the greater part of the original Aqui-
tania, between the Garumna, the Pyrenees, and the Ocean;
its principal towns were Clunibus, afterwards Augusta,
Beneharnum, Hurro, Aques Tarbelli: the Aquitanians prima
larger, and which contained the modern Garumna, and afterwards
received none of the Romans. The Aqui-
tania 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
after Poitiers a.d. 507, and killed their king Alaric II. Aqui-
tania then became part of the monarchy of the Franks; but
under the weak successors of Clovis was again divided.
Another, younger son of
Cotostius II. We find in the beginning of the eighth century,
Eudes, duke of Aquitania, and a descendant of Charibert,
Duke of the Franks, who took part in the war against
Alcuinus, and afterwards in the war against the
Burgundians; Eudes, as 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 Tours and Poitiers a.d. 732. In 766,
Waifer, Eudes's successor, was attacked by Pepin, who
conquered the whole of Aquitania and reunited it to the
French monarchy. But Aquitania had undergone another change
in its southern limits. The Vascons, a Spanish people,
finding themselves hard pressed by the Visigoths, crossed the
Pyrenees and settled in the southern part of Aquitania,
which from them took the name of Vascencia or Gascony,
which it has retained ever since, whilst the more northern
part of the province retained the name of Gascony, and afterwards by corruption, Guinene. The Vascons were
conquered by Pepin and Charlemagne, but revolted again,
and formed an independent state, having their dukes, until
the eleventh century, when they became united to the
royal house of France; and having been firmly established Charlemagne,
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 Aqui-
tania, was sold to him by her father, and married him,
seem to have been childless; but, being childless, was
instituted by him, she next married Henry, duke of Normandy,
afterwards Henry II. of England, who thus became
possessed of Guineene, Poitou, Gascogne, Anjou, in short, of the
whole Aquitania in its most extensive form. The last
Aquitania, which comprised the Guineene and the other districts
above-mentioned, and took Bordeaux in 1451-2, and reunited the
whole to France. The name of Guineene 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 it; and after 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, is sometimes used to denote the entire southern heavens. It is the 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. (Macrocercus, Vultur) [See Macaw.]

ARABESQUE. This term is applied to an heterogeneous mode, or branch, of sculpture 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 specimens which we have to notice, were derived. 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 dogmas of their religious code, however, forbidding 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, though it is different from 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 almost equal. As they have become so general as to be applied to the fanciful enrichments found on the walls in the ruins of Herculaneum and Pompeii, as well as to others of the same and earlier date, which were formed and forgotten long before the sons of Ishmael learned to draw. The most celebrated Arabesques of modern times are those with which Raphael ornamented the piers and pilasters of the arched gallery of the palace of the Vatican, which bears his name. This gallery, or these 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 ceiling, though, indeed, but one of the three sides exhibits the designs of the great artist himself.

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 become asprodigious, 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 sketch of the natural, political, and moral condition of Arabia, and of its inhabitants. Further information concerning particular points connected with each of these departments will be found by turning to the names of the capital or chief places, such as Mecca, KORAN, MOHAMMED, ARABS, &c.

The entire surface of Arabia is calculated to be about four times that of France. It is considered as pertaining to Asia, though from its position 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 Persian Gulf, is said to be estimated at about 800 English miles. It is situated between 12° and 30° N. lat., 32° and 59° E. long., partly within, and partly to the north of the tropical region: the treaty of Cairo divided it into two parts. 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 prolongation of its coast to the E. through the straits of Oromuz; Cape Aden, near the south-west angle of the peninsula, is discovered between fifteen and twenty leagues off sea, as a steep and lofty rock; Bab-el-Mandeb, or the Gateway of Tears, thedegree of longitude 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, on the western extreme of which the Old Testament is supposed to have been written.

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, is singular, is used as the common name of the Arabic nation; its plural, ar'dabl', is restricted to signify the wandering, nomadic tribes of the Arabs of the desert. Be 'l-el-Ar'ab, i.e., the land of the Arab or the Eastern Peninsula of the Arabs), are the usual native designations of the country: besides these, we may also notice the Persian appellation of Arabistin, by which name Arabia is often called among the Persians and their neighbours.

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 desert tribe, to which Y'sarab, the son of Ka'b, the father of the ancient Arabs, gave his name. But the real existence of an individual referred to by the name of Y'sarab, like that of several others of the primoral forefathers mentioned, which are not indigenous to Arabia, may give rise to some doubts, as of many of the reputed founders of states in ancient Greece. The very form of the name Y'sarab shows a peculiarity, observable also in several other names according to the sound, peculiar to the Semitic or Arab tribes, which, in our opinion, characterizes it as a verbal derivative, formed at a subsequent period, in allusion to a former event, the remembrance of which might be preserved by tradition. We are inclined to trace the word Arab to the same verb, from which this name Y'sarab is evidently derived, namely, to the Hebrew verb arab, 'to test or go down (as the sun)'. According to this etymology, the name Arab implies 'the nation or country situated towards sunset,' i.e., westward from the Euphrates, and from the regions which were probably the earliest seats of the Semitic tribes.

In support of this derivation, it may not be irrelevant here to observe, that in the old as well as in the New Testament, the names of the Arabs are employed of the inhabitants of isolated tribes in the northern part of what we now call Arabia appear to be meant. (See, e.g. Jerem. xxv. 24; Ezek. xxvi. 21; Galat. i. 17.) Others have deduced the name Arab from the Heb. y'sar, 'a barren place or desert,' which, in several passages of the earliest parts of the Old Testament, is used as the designation of the dry, arid region east of the Jordan and the Dead Sea, and as south as the Persian Gulf.

Greek and Roman Christian writers have confounded the Arabian tribes from Mecca to the Euphrates under the name of the Saracens, the import of which term, as appears from its etymology (see Alphabet, 'Eastern'), is 'Eastern Nations.' We do not hesitate to adopt this interpretation, notwithstanding the absurdity of it.

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Polyemy (pointed out by Gibbon), who expressly mentions the western and southern position of the Sassanians.

The name of Arabia, in its proper sense, comprehends the peninsula as far as the Taurus, which runs from the northern extremity of the Gulf of Akaba 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 isthmus, reaching in a westerly direction to the Caspian Sea, and in an easterly direction to the eastern extremity of the Gulf of Oman. Arabia is bounded on the west by the entire coast of the Arabian Sea, on the north by the Persian Gulf, on the east by the Caspian Sea, and on the south by the Persian Gulf.

Some of the ancients have extended the limits of Arabia considerably to the north of the isthmus just defined. Ptolemy (Arabia) as well as the Arabs, says Xerophontin, as far as Mesopotamia, nearly as far as the frontiers of Armenia. 

The high-land.

In the south of Arabia there is a low-land, limited on the west by the Gulf, and on the north by the Persian Gulf, with the coast of Persia to the north of the isthmus of Taurus. This low-land is called the Gulf of Akaba, and is included in the boundaries of Arabia of the Persians and the Arabs.

The geography of Arabia is very confused, and the names of many of its provinces are still in dispute. The name of the country, however, is generally understood to mean the peninsula of Arabia.

The geography of Arabia is very confused, and the names of many of its provinces are still in dispute. The name of the country, however, is generally understood to mean the peninsula of Arabia.

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 encircling the Persian Gulf on the west, the Arabian Gulf on the south, and the Gulf of Oman on the east.

The region of Arabia is divided into three parts: the peninsula, the mountainous tract, and the low-land.

The peninsula of Arabia is the most elevated part of the country, being surrounded by the Persian Gulf on the north, the Arabian Gulf on the east, and the Gulf of Aden on the south. It is composed of a series of mountains, which rise to a great height, and are separated by deep valleys.

The mountainous tract of Arabia is a series of mountains, which rise to a great height, and are separated by deep valleys. The highest of these mountains is Jebel Musa, which is said to be rise to a height of 10,000 feet.

The low-land of Arabia is a series of depressions, which are filled with water, and are called lakes. The largest of these lakes is the Lake of Madi, which is said to be 50 miles in circumference.

The climate of Arabia is extremely hot in the summer, and extremely cold in the winter. The summer is hot and dry, and the winter is cold and rainy.

The soil of Arabia is generally sandy, and is not very productive. The vegetation is generally sparse, and consists chiefly of thorns and shrubs.

The principal products of Arabia are dates, figs, and dates. The dates are said to be the sweetest in the world, and are exported to many parts of the world.

The inhabitants of Arabia are chiefly Arabs, who are divided into many tribes. The most important of these tribes are the Bedouins, who are noted for their bravery and their independence.

The commerce of Arabia is chiefly in dates, figs, and dates, which are exported to many parts of the world. The trade is carried on by the Bedouins, who are noted for their bravery and their independence.

The education of Arabia is very limited, and is carried on by the Bedouins, who are noted for their bravery and their independence. The most important of these tribes are the Bedouins, who are noted for their bravery and their independence.

The religion of Arabia is chiefly Moslem, which is carried on by the Bedouins, who are noted for their bravery and their independence. The most important of these tribes are the Bedouins, who are noted for their bravery and their independence.

The government of Arabia is chiefly a theocratic government, which is carried on by the Bedouins, who are noted for their bravery and their independence. The most important of these tribes are the Bedouins, who are noted for their bravery and
exuded by the leaves of different kinds of trees, chiefly the 
Leysyrum aphyzium of Linneus. Grapes are cultivated on
some parts of Arabia, though in the Koman wine is for-
bidden to the Mussalmans. In Yemen, where some pains
are bestowed upon agriculture, Niebuhr saw excellent wheat,
Turkey corn, or maize, dura, barley, beans, lentils, tobacco,
7stown; and the cotton-tree is also cultivated here. Muh$i
indigo is grown about Zebid. Niebuhr says that he saw
no oas in Arabia: the horses are fed on barley, and the
asses on beans. The time of the harvest varies. At Muscat,
weat and barley being reaped before the rains begin in the high-land, near Sana, the time of the har-
vest for barley is about the middle of July.

Arabia is rich in indigenous trees; the aacacac, from
which the gum Arabic is obtained, the diba or nightingale,
and the sweet clover-tree deserve to be particularly
noticed. Forests appear to be rare. In the barren tracts of
the country, the Beduins sometimes supply the deficiency
of fuel by the dried dung of the camel.

Among the animals, Arabia was celebrated for its wealth
in precious metals; yet, according to the accounts of modern
travellers, Arabia possesses at present no mines either of
gold or silver. Iron mines are noticed by Niebuhr as exist-
ing in the territory of Sanaa; but the iron is of little value,
according to him, very productive, and large quantities of
lead are exported from Muscat.

On the sands of Arabia and Syria, the camel, the ship of
the desert, is forced to stand on its back legs. It is an
invaluable treasure. Like the Beduins themselves, it learns
from early youth to endure hunger, thirst, and fatigue. It
performs journeys of 300 to 400 hours without requiring to
drink otherwise than once or twice in the month, and se-
ven or eight hours is sufficient for its food. It carries a weight
of a thousand pounds and upwards, without being unloaded for
weeks. A hint from its leader directs its motions; a song renews its strength. Its hair is so
infactuated into cloaks for grains 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 dis-
tinct breeds distinguished according to their appearance.
The beduufi, 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 fuskel or Arabdes, is distinguished by its beauty. The Beduins,
by preference, ride these animals, using for their stirrups and reins, those which are cut
from the ears of the camel. They use their horses for riding only. The best horses are bred in the desert border-
ing on Syria; they are here educated in the encamp-
ments of the Beduins with a careful tenderness which trains
them to habits of attachment to their master. The lead mares; in fact, and for their speed, that they are valued,
more than for their size or beauty.

There is also in Arabia a spirited kind of ass, which is
used for riding and for military services. These are called fuskal or Lannah. The Arabian oxen
and cows are distinguished by a hump upon the shoulders. Ho-
rocto (ili 113) mentions two kinds of sheep with long tails
as being indigenous in Arabia. The rock-goat, the fox, the
panther, and many other animals peculiar to Europe live in the
Deserts, there are said to be in the peninsula. 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 oases. The woods of
Yemen and Aden are inhabited by troops of monkeys. The
lion, from the frequent allusions to it in ancient Arabic
poetry, and from the number of names which the language has
in which the lion is the most 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 hawk. The carrion-vulture
frequents the coasts, and the terraces of the oases;
the ostrich and other birds valued for their plumage
live in the deserts. Tame fowls, peacocks, and different
varieties of pigeon, are frequent in Yemen. Along the coast of
the Red Sea, pelicans and various kinds of sea-fowl are
frequented.

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. Niebuhr states that they are strung
on a spit, and sold in the markets of all the Arabian towns from Bah-el-Mandeb to Basra.

The sea, on the eastern coast of Oman, is so abundant in
fish, that not only ass, 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 universally known. The reefs on
which pearl-shell is found, are generally found from the
Bahrein islands to very near the promontory of Julfar. The
northern extremity, near the isles Kark and Bahrein, is
distinguished as particularly rich in pearls. The pearl-
fisheries in this part of the Persian Gulf are alluded to by
Arrian.—(Periplus Mar. Rurc. c. 9.)

Divisions of Arabia.—Arabia has been variously divided
at different times, and by different authors. Strabo (vi.
c. 4) divides the country into the Western Part of the
Desert Arabia, 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 introduced by Niebuhr; he called the
peninsula, as far as the isthmus already described; Arabia
Petrea, so named from Petra, the ancient capital of the
Nabatheans, 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 de-
sert, 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 Aura-
ments of the antient Mokha, was called Arabia Felix. The
country east of the Jordan had the name of Arabia Secunda or
Arabia Petraeotinis (in allusion to its capital Krak or Kar-
rak, also named Petra Deserti, which was erroneously sup-
posed to be the capital of the Nabatheans); the country
bordering by Shabaneh (Shohok) or Mont-
royal (Mons Regalis) was called Arabia Territa, or Syria
Sochis, or Terra Montis Regalis. Oriental writers generally
subdivided Arabia into five provinces, namely, Yemen, Hejaz,
Terra, Nejd, and Yemen; some add Bahrein and the Persian
Gulf, while others consider this as part of Iraq Arabi. The three
provinces, Terra, Nejd, and Yemen, are by some con-
sidered as subdivisions of Hejaz. Arabia Petraea, including
Mount Sinai, is by most of them considered as belonging
partly to Egypt and partly to Syria; and the northern part
of Arabia Deserta is generally called the desert of Syria.
The following outline of the present division of Arabia is
found chiefly on that adopted by Niebuhr.

1. Yemen, bordering upon the Red Sea, and upon the
territories of Hejaz, Nejd, and Hadramaut. Its subdivi-
sion, according to Niebuhr, into fourteen independent provinces,
the principal of which is the following:

1. Yemen Proper, with the towns of Sanaa, in the mountain-
ous district towards the high-land, the residence of the
capital of the Saracens; called Arabia Petra; the country
east of the Jordan had the name of Arabia Secunda or
Arabia Petraeotinis (in allusion to its capital Krak or Kar-
rak, also named Petra Deserti, which according to Niebuhr, into fourteen independent provinces,
the principal of which is the following:

1. Yemen Proper, with the towns of Sanaa, in the mountain-
ous district towards the high-land, the residence of the
2. Hadramaut, a country once famous for its trade.
chiefs in frankinense, 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 with Oman and Yemen carried on by sea is largely in wheat and Keshin are the principal harbours. Part of the country is occupied by independent Beduin chiefs, among whom the sheikh of Shilbam is the most powerful. The island of Socotra, famed by Strabo, is the place to which the prodigy was, at 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 Sea, and borders, on the east and south, on the borders of the island of Aden and that of the Persian Gulf. 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 late Khali's son, Keshin. 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 sheik. 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 almost without an interruption. When a Persian army sends out fleet repairing the coast, where they have but little to lose, and retire in their boats to some uninhabited island till the troops are withdrawn. Gombroro, or Bender-Abbas, and Abusheer, are the principal sea-ports on the Persian coast. The islands of Alahar, or Karyk, in the northern part of the gulf, nearly opposite Abusheer, is, through its situation, an important station for eastern commerce. The little island of Hormuz, or Hormuz, situated in 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 Hormuz occasionally sent there a large island, on only two of the Cochin, Tavile, or Tarkheen, by the Europeans, and Tavile, or Derza, by the Arabs and Persians. The island, or rather the group of islands called Bahrein, near the western coast of the Persian Gulf, is celebrated from its pearl-fishery. It is said to have been very populous formerly, and to have contained upwards of three hundred and fifty towns and villages. The principal island of the group is known by the name of Awil. The antient harbour of Gerra is supposed to have been somewhere between the coast of Arabia and Bahrein. (See Strabo, xvi. c. 4. p. 776, Cesauba.)

V. The country of Lahaa, or Hajar, lies along the western shore of the Persian Gulf; the part immediately along the coast of Bahrein being named Bahrain; that of Oman, on the west on the Arabian high-land, and on the north on the territory of the Beduin tribe Kaaab, near the Shatt-al-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 Lahaa, the residence of the sheik, and Kaff, a sea-port opposite the Bahrein islands, perhaps near the antient Gerra.

VI. The country of Nejd 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 Hejaz to the Konfiden; it was more than a hundred and thirty years ago that Abu Laith, the famous Arabian chieftain, raised a standard of revolt against the return of the Ottoman government into the high-land of Arabia, and inhabited almost exclusively by wandering tribes of Beduins. The hilly tracts are fertile, chiefly in dates; but rivers, and even the temporary wadis, are scarce, and to obtain water deep wells must be dug into the country consists of sand and 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 a number of small villages, irregularly built, but populous, owing to the fertility of the soil, and the decline of hill, or in the midst of verdant valleys.

The country of Nejd is at present subject to the Wahhabites, a religious sect, which not long ago threatened by its rapid progress to overpower all Arabia. The founder of this fanatical sect was Abd-al-Wahhab, a native of Nejd, who lived several years at Bpees, and, after visiting Baghdad and Persia, returned to his native country. Here he began to promulgate 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 pretended prophet; but only as a magnificent and bellicose men. The capital of the Wahhabite dominion is the principality of the whole Arabian high-land, is Deryeey, a town of about 2000 houses, picturesquely situated along the borders of the Wali Hanif. This valley, extending itself from west to east, is a kind of greater desert, a desert that is long 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 stupendous wells of the suburbs of the town. It consists of twenty-eight mosques, (but, contrary to the Musulman fashion, without minarets and cupolas,) and thirty sebabs, in which the children receive instruction twice every day, parades. The gardens and fields around Deryeey, are fertile in dates, pomegranate-trees, apricots, peaches, grapes, melons, &c., also in wheat, barley, and millet. [See Rousseau, in the \textit{Mines de l'Orient}, ii. p. 155, \&c.]

VII. Hejaz borders on the east on Nejd, on the north on the Syrian desert and the Gulf of Abbas, 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 Medina, the former the native town of Mohammed, the latter the original seat of the Grand Seignior of Constantinople, in his character of Protector of the Holy Places, maintains his sovereignty over this important province, he used regularly to appoint a representative, generally a gentleman of the Jidda family, as the viceroy of Mecca, with a Turkish guard, and divided the receipts of the custom-house with the sherif of Mecca, who was considered as his vassal. The dominion of the Grand Seignior was, however, only nominal, and 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 from the latter; the town of Jidda, which, besides Mecca, in which all the descendants of the prophet's family throughout the Hejaz, and almost every inhabitant of that town, were allowed, as servants attached to the temple, to partake Friday. The gardens and fields around Deryeey, are fertile in dates, pomegranate-trees, apricots, peaches, grapes, melons, &c., also in wheat, barley, and millet. [See Rousseau, in the \textit{Mines de l'Orient}, ii. p. 155, \&c.]

The principal towns of the Hejaz (Mecca, Medina, Jidda)
have already been alluded to. Besides these, we may mention Yanbo, the sea-port of Medina; Tayef, which is agreeably situated upon a lofty eminence, and supplies Jinn and Mashed with excellent fruits; Ghunfude, and Haji.

VIII. The desert of Mount Sinai, including the Arabia Petræa of the ancients, once the seat of the Nabathanian dominion, is now nearly desolate, and contains but few towns; the chief of these is Benam, the seat of merchants who trade with 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 the country. It may be observed, however, that other parts of Arabia, which lie in the vicinity of the Gulf of Akaba on the east, and that of Suez, called also the Gulf of Kolzum, on the west. At the northern extremity of the eastern gulf is situated the ancient town of Alla, the chief of the Nabathanian cities; in St. Matthew 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 Hijaz is chiefly carried on from Koseir; yet the trade in coffee and Indian goods still passes by Suez to Cairo. On the eastern side of the Gulf of Suez is another good harbour called Bender-Tor, 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 sandstone, and on the highest parts granitic rocks, and on the northern borders of Mount Musa, surrounded by higher mountain-tops, and near the summit considered as the proper Sinai of Scripture, is situated the convent of St. Catherine, founded, according to the convent's records, in the year 320 A.D. by St. James the son of Zebedee, the brother of St. John the Evangelist (De viris inventis, cap. 11, b, c, d, the fourth century). Jebel Musa is rich in springs of fresh water; the surrounding valleys produce excellent grapes, pears, dates, and other fruits, quantities of which are brought from them to Suez. The inhabitants, once possessing a kingdom, the states of Wadi-el-Sheikh, and Wadi Girendoel, both to the north of Jebel Musa, and sloping towards the gulf of Suez, are filled with water during the rainy season, which obliges the inhabitants to find shelter in caves by the side of the streams. Towards the north of the group of Sinai is a desolate tract, called by the Arabs El-Ti, or Tish-Bani-Izrael, i.e. the desert of the children of Israel. Abudefus (Descript. Egypti, p. 14, ed. Michaud) says it is formed from hearns 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 Burchardt, who describes it as the most dreary and uninhabited portion of the entire district.

To the north of the Gulf of Akaha, in the hilly district of Jebel Sera, at a distance of about seven hours from Shobak, or Kerek-al-Shobak, its capital, the Wali Musa opens itself, watered nearly as open by the same mountain. The scenery below the village of Edjely, Burchardt discovered the magnificent ruins of a town which he, no doubt correctly, supposed to be the ancient Nabathanian capital Petra. 'The remonstrances of the Nabathan,' says Strabo (book vii. c. 4, p. 403, ed. Tauchert; Cacam. p. 779), '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 precipitous cliffs, while towards the interior it has copious springs for the watering of fields and for horticulture.' Peny (N. vi. c. 28) describes Petra as situated 'in a valley somewhat less than two thousand paces deep, and cradled by inaccessible mountains, with a stream running through it.'

IX. Tribes of Beduins, or Wandering Arabs.—The word beduin is a corruption of the Arabic baad, which is derived from baada, to wander or live on the move, and signifies an inhabitant of the desert. The Arabs who are thus nomads, live in towns, Nibjuhr observes, especially those near the sea-coast, have through their commerce had so much intercourse with strangers, that they have lost much of their ancient manners; still they keep in their tents what they 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 nobles they call sheikhs. A sheikh rules over his family, and all their servants. If they are unable separately to defend their property against a hostile neighbour, several petty sheikhs unite, and choose a chief from among them. Several chiefs, with the assent of the petty sheikhs, submit to one still more powerful, who is called sheikh-al-kebr, or sheikh-al-shuyukh, and the entire body of united tribes is then named after the family of its 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 produce of their nomadism, and partly for the purpose of sale. The smaller tribes, which are less wealthy and independent, principally tend sheep. Agriculture, and other descriptions of hard work, they commit to their subjects, the common Beduin, who live in the garb of nomads, are either beggars or soldiers. Being accustomed to an atmosphere of great purity, the scent of these Arabs' of the desert is uncommonly nice. It is said, they are able to live for five days without drinking. The government in the family, before the family, is an older than the word. They pass over the high-land in the Red Sea in the tents. Being accustomed to an atmosphere of great purity, the scent of these Arabs' of the desert is uncommonly nice. It is said, they are able to live for five days without drinking. The names of many have been attacked, and the only point of view, for instance, the beduin of the famish. They have no notion of the desert, but the eldest, who he appears the best fitted, is chosen. Every sheikh, however small he may be, must therefore endeavour to govern his tribe, for fear of being deserted. The names of many sheikhs, especially those who live near the large towns of Bagdad, Mosul, or 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 domestic wars are not very considerable. They are subject to the Sultan of Constantinople, and to the Grand Seignior. Whenever any tribe is attacked by a foreign enemy, all the neighbouring chiefs will unite in defence of the common cause. Every sheikh considers himself as sovereign in his own territory, and therefore an enemy to all strangers passing through it. The Turkish sultans have been obliged to engage themselves to pay annually a fixed sum of money, besides a number of garments, to the Beduin tribes on the road to Mocca, 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 is almost constantly visible. The Beduins cannot bear to wander from afar, ho 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, or if they have been watched, they are unrepresented no resistance is offered; the robber is sometimes 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 darned over with seven or nine black threads, one being in the middle, the lowest 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 poor, who cannot afford the expense of a tent, may rent a huge 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 as table, chairs, and bedstead; spare clothes are kept in bags, which are worn over the shoulder, and portable. The pots are made of copper lined with tin; the dishes of the same metals, or of wood. Their hearth is easily built, they merely place their cauldrons on loose stones, or over a pit dug in the earth. They are served spoons, nor knives and forks. A round piece of leather serves them as table-cloth, in whose remains of the meal are preserved. Their butter, which the heat soon melts down, they keep in leather bottles. Water is kept in goats'
and Tarshish many is Mesopotamia souls is house large also for Arabia, Arabia, (Edessa) Accad is supposed to be Nimrod, the mighty hunter, an Arabian chieftain, like the modern sheikhs of the Beduins: in the passage quoted from the Hebrew, Ereb is, according to several of the ancient versions, the modern Orfa (Edessa); Accad is supposed to be Nisip, the ancient Nisyr, on the Tigris.

Egypt seems at an early period to have been infested by invasions from Arabia; for we cannot hesitate to consider the early Arabian visits to Egypt as having occupied the Delta, and even to have penetrated as far as Memphis: the king of Thebes, Thothmes, at last succeeded in expelling them. Their dominion over Egypt is said to have lasted 264 years, from the eighteenth to 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 Medesians seem to have early applied themselves to traffic with the neighbouring nations. It was a caravans of Arabian on the coast of India, and thence to the Persian Gulf, and by the rich goods which they brought. The Phoenicians, brought gold, silver, gems, sandalwood, and other precious articles (1 Kings ii. 27; x. 22). Bochart, Heseld, 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. 19), enumerated among Arabian tribes descended from Joktan, to whom the town named Elbah is supposed to be the seat of the heathen nations, as the coast of Oman. (Bohien's Indien, 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 also as an intermediate station in the trade with India. Herodotus (ii. 107) calls Arabia the only country where frankincense, myrrh, cassia, and indanium are to be found: Strabo (v. 4. c. 3. p. 385, ed. Tauchnitz) mentions the province of Catabania in particular as the country of the Cassia (Cassia indica) and Chomatn collection 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 are, of course, rubies and a kind of topaz, called the Moha-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 ebony, the western nations 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 of the irregular intercourse of the Phoenicians with several towns or countries and tribes of Arabia, occurs in the elegy 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, as subject to be more certain, than the probable modern or classical equivalent.

Ezek. xxxvii. 12. ' 'Tarshih (Tartessus) was thy Tyre's customer, on account of the variety of all [thy] treasures: silver, iron, the [molten] brass did they them (the merchants from Tarshish) place on thy markets.

13. Yavan (Greece), Tubal (the Tiberis 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 Thogarma (Armenia) brought on thy markets horses for draught and horses for war, and mules.

15. The people of Dedan (according to Bochart, 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 nations and peoples with thee: with ivory and ebony did they repay thy gifts.

16. Aram (Syria) was thy customer on account of the variety of thy manufactures: [in exchange] for gems, and pearls, and purple, and fine linen, and bauxite, and beryl, and onyx, and crystal [which Aram brought] on thy markets.

17. Jeda and the land of Israel dealt with thee: wheat of Minnith (a town in the land of the Ammonites), and honey, and oil, and balsam did they place on thy markets.

18. Damasek (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 the Apamean Ganges (the Hoppo) and shining wool [which Damasek brought in return].

19. Vedan and Yavan (both here Arabian towns or tribes not yet ascertained) brought weavings on thy markets: wrought iron, cassia, and calamus hadst thou for sale.

20. Dedan (a tribe in the neighbourhood of Idumea) dealt with thee in carpets that are spread to sit upon.

21. Arab (Arabia) and all the chiefs of Kedar (the Araba Cedren) of Pliny were transacting business with thee: they were thy customers with their lambs and rams and he-goats.

22. The traders of Sheba (Saba in Arabia Felix) and of Ra'da (the Rhages of Persia, on the coast of the Persian Gulf) were dealt with: the choice of all sorts of precious stones, and gold did they bring on thy markets.

23. Haran (Carrhe, the modern Harran in Mesopotamia) and Canneh (i.e. Cessipon) and Eden (probably the modern Edhem, land of Syrian writers. In the time of Diarbikr), the traders of Sheba (Saba), Ash (Asyria), and Kilmaid (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, (Ithaca, Vol. i. p. 102, &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. This we think improbable, since none of the other names which can be traced with some degree of certainty belong to northern countries; besides the special evidence in favour of the identity of at least Haran with Carrhe.

To arrive at a precise conclusion as to the exact import 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 these harbours, but bought their goods from the heathen 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-
source 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 imperfect. The exact date of the invasion of Arabia by the Persians, and the extension of their dominion over the Arabian Peninsula, is not known with any certainty. The Persians, indeed, 

in vague traditions: thus Shaddad, of the tribe of Ad, is said to have founded the magnum city and the delicious garden of Jazan, which are often alluded to in eastern poetry, and which are supposed to have been originally inhabited by the Greeks and Romans. The body of the nation has escaped the dominion of the most powerful monarchies that have arisen and fallen in its immediate neighbourhood. Of the ancient Persian empire the name of Arabia passed from the fringes of the Persian dominions in the north to the limits of the bedouin tribes of the south. Some Arabs, who engaged to supply the Persian army with water during its march through the sands of Arabia Petraea, Herodotus (ii. 7-9.) If Phen, the conqueror of the new Assyrian empire, had plundered the city of Petra, Herodotus says, he would have carried away his spoil without any damage to the inhabitants. But the contents of the great roads which conducted from Khanaan to Petra, and from the bedouin tribes of the south to the cities of the north, were almost totally hidden from view in impassable deserts. The present or modern Arabians are, by their own historians, divided into pure or genuine, and insinuated or naturalized Arabs. Those who have ascended from the banks of the Jordan are described as genuine Arabs, and are reckoned as part of the Old Testament, Gen. x. 28, and the latter from Adnan, a descendant of Ismael, the son of Abraham and Hagar. These Ismaelide Arabs seem to have settled chiefly in the countries of the bedouin tribes. The ancient Arabians, who inhabited through the Khanaanites or Yonkanides. Kah- 

tan's son was Yarab, who was the father of Yash'ab; the son of Yash'ah was Abd-al-shamah, (according to some) Yash'al-shamah. His son was Sana, two of whom, Himyar (pronounced by some Homer) and Khablan, had a numerous progeny. The family of Himyar, it appears, had, during 3000 years, the general government over all the descendants of Saba, who were settled in Yemen, where the name of the Himyarides or Homerites) was sometimes taken by foreign nations as synonymous with that of Sabaeans. Himyar was, according to Arabian authors, the first king of the family of Kahlan that were a known dynasty. He is said to have given a name to the fact which we find recorded of him, that he expelled the tribe Thamud from Yemen into Hejaz. Various reports exist as to Himyar's successor: according to some it was his son Mushah, who was afterwards succeeded by his 

at Hidramaut. Similar variations in the lists of kings given by different authors (Abu'l-feda, Hamza of Ifshah, Nuweiri, and others) are given, which, however, do not materially affect the history of Arabia. Among the succeeding rulers, Ali Harath-al- 

Rayesh is distinguished as the first conqueror among the kings of Yemen; he first received the title of Tobias, and afterwards that of Musa. He was succeeded by his brother, who bore the same name. Himyar and Manarabs and his son Daul-admar are reported to have made conquests in Nijrela and other parts of Africa. The next sovereign but one in succession after Daul-admar is the famous Balkis, according to Arabic historians, the first king of Sabaeans. The Sabaeans were afterwards called Yadda, and the Sabaeans who visited Solomon (1 Kings x. 1, 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 Arabia. Impetuous moun- 

tain torrents used frequently to destroy the passions 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, con- 

structed an immense dam, and thus protected the country above the capital Mareb (or Saba), which prevented sudden inundations, and from the reservoir thus formed, supplied the gardens and fields below, through aqueducts, with the neces- 

sary irrigation, so that the country became fertile and happy; but its prosperity depended on the preservation of the mound, which, in the lapse of time fell into decay. Its final ruin is one of the few facts in the ancient history of the Arabs, the period of which is characterized by some degree of probability be ascertained. According to De Sacy, it occurred about the beginning of the third century. This event, which is in oriental writers designated by the name of Sel'-al-arin, i.e. 'the Torrent of the Mound,' caused a great change in the whole peninsula. Amru ben 

Amer, surnamed Mosaiqui, one of the nobles of the country, perhaps the chief of the Kalhahines, 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 Ace. After the death of Amru, the enigmatical families separated, and settled in different countries. The family of Amru's son, Jofah, established itself in Syria, and founded the kingdom of the Ghassanides in the deserts of Damascus, which embraced the Christian religion, and form part of the Roman or Grecian dominions, till, in the reign of the caliph Omar, it was incorporated in the Mongol 

medan empire. The tribes of Aus and of Kharesj, des- 


tended from Amru by his son Thalaba, went to Yathreb (afterwards called Medina). The descendants of Azd settled partly in Oman, and partly in the country of Sherait in Arabia; Malec ben Anam, another descendant of Amru, founded 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 Tai, which had left Yemen after Amru ben Amer, settled in the Najd, between the mountains of Ajā' and Soqma, since called the mountains of Tai. The family of Rehia, grandson of Amru, settled at Mecca, and received the name of Khawal. Soon, the Himyarite kings who dwelt over Yemen after Akran and the Seil-al-Arm, there is almost as much confusion as in the earlier part of it. We shall not enter into an enumeration of the names, but refer the reader to the dissertation of De Stey. Arab. Histoire des Arabes avant Mahomet, in the fifth volume of the Mémoires de Littérature of the French Academy, and to Johannsen's Historia Janna, (1838).

The ancestors of the tribe of Khowar, in the ancient temple of Mecca, called the Caaba, had, from immemorial time, been regarded by the Arabs as national sanctuaries. The (modern) Jorhamides, descended from Jorham the son of Khasan, had established themselves in Hejaz about the same time that Yarab settled in Yemen, and had for many ages been the hereditary protectors and keepers of the Caaba; when Amru ben Loheia of the tribe Khowar, with the Yemenese emigrants from Ace, and assisted by the tribe of Beikr, availed himself of the opportunity of a dispute between the Jorhamides and the neighbouring Ismaelides, to expel the former from Mecca, and take possession of the sanctuary.

Soon, however, the tribe of Beikr felt indignant at being excluded from the government of the Meccan temple, which honour, after the services they had rendered, they considered due to themselves. They entered into a treaty with Kossai of the Ismaelide tribe of Kowrech, and by his assistance compelled the tribe of Khowar to resign the charge without resistance. But the Beikr were again excluded from the guardianship of the temple, which came through Kossai into the hands of the tribe of Kowrech. It is calculated that this happened about A.D. 464.

The grandson of the Ismaelide Kowrech Kossa was Hashem, who is reported to have avowed a fanaticism by giving up his treasures. His son Abd-al-Motalleb is famous for his victory over Abraha, an Abyssinian ruler of Yemen, and a Caaba, which he watered with the tears of 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 chronicles of the East named the 'Year of the Ismaelians,' 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-Arm become temporarily subject to foreign power. The Jews, who since the destruction of Jerusalem in great numbers had made proselytes of several Arabian tribes, particularly those of Kenans, Kenda, and Hareth ben Kaab, and had already gained considerable power in some parts of the peninsula, were, who conspired with the Himyarites towards the close of the fifth century, adopted their religion, and began cruelly to persecute all those who would not follow his example. Christianity had about the same time found its way into the southern part of the peninsula, and had become the religion of the tribes of Himyar, Ghassan, Rebia, Taglib, Bahra, Tanu', Tai, and Kodas, besides the inhabitants of Hira and of Nejran. The inhabitants of Nejran in particular were suffering from the attacks of the Abyssinian negroes, who probably came to the assistance of his persecuted fellow Christians. The Jewish Arabs were vanquished; Dau-Novas, in despair; sought a voluntary death by throwing himself into the sea, and died an Ethiopian martyr. This Ethiopian occupation of Yemen became of a melancholy importance to the civilized world through the small-pox which the victors brought with them into Arabia, and which, by the conquest of the peninsula, all over the earth. In consequence of a revolt among the Ethiopian occupants, Abraha came in A.D. 549 to the command of Yemen. He endeavoured with great zeal to spread Christianity among the Arabs, and with this purpose built a church at the spot called the Sar as a place of pilgrimage, vied with the ancient Caaba. The heathen Arabs, indignant at this measure, profaned the new-built church, and Abraha, to avenge the insult, resolved on an expedition against Mecca, the failure of which (A.D. 571) has already been alluded to. After a reign of twenty-three years, Abraha was followed by his sons Yezik[1849-498] and Movsan (589-601). During the reign of the latter, Seif ben Dai-yan, an offspring of the ancient royal Himyarite family, obtained the assistance of a Persian army under Wehras, who, with the aid which he received from commerce, in which the tribe of Kowrech appears early to have distinguished itself. The wandering Arabs employed themselves, in the breeding and tending of cattle, and occasionally in the pillage of travellers. The picture exhibited by ancient poets (especially in the romance Anwar by Anasm) of their customs and mode of life, entirely corresponds to the representation which modern travellers make of the manners of the present Beduins. The elements forming the sphere of their life are so simple, and the habits so closely adapted to the nature of their country, that the lapse of time can work no perceptible change in their social state. Hospitality, expertness in the use of arms, horsemanship, and battle expertise are the characteristics of the Arab, whose language, were of old, as they still are, the accomplishment on which the Arab valued himself most.

When respect to the religion of the antient Arabs, our information is very imperfect. As they were ranging their immense deserts, 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; Kenans, the moon; Tai, the fixed stars; Pathans, the stars; and the Himyarites, the several stars in the fragments of Ante-Islamic history. The Koran alludes to three female deities: Allat (see He-rod, ii. 8) adored by the tribe of Thakhef, whose temple, at Godas, was profaned by Mowgias in the ninth year of the Hejra; Al-Uzza, adored by the tribes of Korowah and Kowara, under the form of a tree; and Mezut, the goddess of the tribes of Hudsul and Kowara. Two other deities, Asas and Neila, were adored by the tribe of Korowah, 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 Beduins the tribe of Himyarites, according to the religious history, the worship 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. Familiarity, 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, been subject to the Greek empire, while those bordering on the Euphrates acknowledged Persian supremacy, and an Ethiopian dynasty ruled temporarily in the south. The great mass of Arabia remained free, probably a sign of the slight influence of foreign domination. 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 home, were divided into several sections, each of which had its distinctive name, its language, its custom, and its separate government.
the dominion, the faith, and even the language of the Arabs, from the Atlantic Ocean to the Indus, and from the Indian Sea and the African Deserts to France, the Mediterranean, Asia Minor, and the Caspian Sea.

Mohammed was born in the tribe of Kureish, at Mecca, according to some on the 10th of November, 570, according to others on the 21st of April, 671, p.p. In his twentieth year he took part in an expedition against predatory hordes with an army of pilgrims on its way to Jerusalem. Five years later he visited the fair of Damascus as the agent of Khadija, a rich widow, whom he subsequently married. In the fortieth year of his age (A.D. 610) came the Leiladuha or Declaration of the Prophethood, in which, the Mohammedans believe, the angel Gabriel called him to become the prophet of God. Khadija his wife, his cousin Ali ben Ali Taleb, and his father-in-law Abu-bekr, of the tribe of Mekah, went with him to Medina. Twelve years had elapsed, when a revolt at Mecca threatened the life of Mohammed. The day of his flight to Yatreb (since called Medina or Medinat-al-nabi, i.e. The Town of the Prophet), the 16th of July, 622, has become the line from which the Mohammedans count their years. With it commenced a war against the opponents of the new religion. When Mecca was conquered, when the tribes of Arabia joined in the profession, that 'There is no God but Allah and Mohammed is the prophet of Allah,' the Viceroy of Chosroes was 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 forty-four. It was an era of revolution.

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 power, as the low and inefficient 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 animate its peoples against the new faith, which spread in the course of centuries, and was consecrated and propagated by a 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 an embodiement 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 a religious belief which was rooted deeply in the East of the Mediterranean.

The history of the first century of the caliphate exhibits an almost continuous series of conquests. In the reign of Abu-Bekr, the valiant Khaled conquered the whole of Syria and Mesopotamia. In the reign of Ommia, his successor, the House of Ommiades reaped the fruits of the conquests of his predecessors. As added Egypt to the Arabian empire; after a siege of fourteen months, Alexandria was taken; Babylonia fell, and Amru laid in the neighbourhood of its ruins the foundation of Fostat, 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 habitats united the Berber horde of Africa with the sons of the Arabian Desert. The victories won by Sa'id ben Aba-Wakkas over the Persian forces near Cadenza (522), Celebi (537), Holwan and Nhabawed (642), decided the fall of the Persian throne. Under Oman, the island of Cyprus was plundered (549); Abdallah ben A'mer conquered Xerocomus, and penetrated as far as Baikl. The reign of Ali ben Ali Taleb was spent in the quelling of internal commotions, which ended in the murder of the caliph by the hand of the fanatic Abdallah ben Mollam, and the succession of the Ommiades to the caliphate.

Moawiya, the first of the Omiamidae caliphs, removed the residence of the empire from Kufa, near the Euphrates, to Damascus. In his reign Oibya ben Nabi left the foundation of a long line of successors. In 683, he landed in the Atlantic. Oibya 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. From the year 683 to the year 730 (M.U. 101), the entire northern coast of Africa, as far as the Strait of Gibraltar, was in the possession of the Arabs. In the reign of Wadi I. (705-715), the dominion of the Arabs attained its widest extent. Julianus, the governor of Ceuta, incensed, it is said, against his sovereign, king Roderic of Spain, who had disgraced his daughter, married Alphonse of Burgundy (the Green Island,) into the hands of the Arab Tarik bin Ziad, who, at the command of the African governor Musa ben Noaiz, landed at the promontory which still bears his name (Gibraltar), and attacked the cities of Bokhara, Turkestan, and Khoweram; and Mohammed ben Kassim-al-Thakefi made conquests in the northern parts of India. Under Soleiman (713-717) the greater part of Asia Minor was conquered, with this exception of the empire of the reign of Omar ben Abd-al-Aziz (717-720) the countries of Jorjan and Tabaristan were added to the empire. But the want of energy of the latter caliph, as well as of his successors, Yazid II. (729-724), and the saviour of Hesham (724-743), roused a spirit of dissatisfaction in the interior, and encouraged the revolutionary attempts of other aspirants to the caliphate. It was in the reign of Hesham that the arms of the Musulmans experienced their first signal defeat by the Byzantine emperor, Heraclius, at Ypsilis, and the Chinese emperor at the battle of Tabaristan (October 732). For the farther progress of the Arabs on the continent of Europe: the river Aude, in Languedoc, became the frontier of their dominion.

When, in the year 749, the family of Abbas came to the command over the Faithful, all the surviving Omiamidae were cruelly persecuted: Abdallah ben Moawiya only escaped into Spain, and became the founder of the Omiamidae caliphate of Cordova (756).

Under the Abbasides, who fixed their residence at Bagdad, but few additions were made to the Mohammedan empire: the islands of Crete, Corsica, Sicardia, and Sicily, became subject to the Abbasid authority, against which 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 in the distant provinces of the empire. Under Almanzar, by establishing an independent Omiamidae domination, the Abbasides had set an example which the prelates of other countries soon followed. The caliphs were obliged to assemble a life-guard of Turkish mercenaries around their throne, and subsequently the same circumstance was repeated by other emperors of unlimited authority, the Emir al Omera. Through these arrangements, and through the encroachments of the Seljukide Turks, the caliphate had long since become a merely nominal dignity, when Hulaku took Bagdad (1258), and put an end to the dominion of the Abbadides. [See Abbadides.]

The history of the several Mohammedan states which arose out of the caliphate in 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 Omiamidae reigned till 1038. Among the small principalities which sprang up afterwards, that of Granada maintained itself till 1492.

II. In Africa, 1. in Egypt, Ahmed ben Tulun established in 866 an independent dominion, which remained in the possession of his family, the Tulundides, till 905, when Egypt returned to its allegiance to the caliphate. From 925-969, the Ikhids or Aghsides, the family of Abu Bekr Mohammed, a descendant of the ancient kings of Fergana, ruled over Egypt. They were in 969 followed by the Fatemides, or Mousides, Tanguide, a daughter of Fatima, the daughter of Mohammed: their dominion lasted for two centuries, and extended from the Euphrates to Kairwan. In 1171, the Fatemides were succeeded by the Abuksides, which was in 1259 followed by the dominion of the Barakeide Mansel. In 1517, Egypt became a Turkish province.

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Khorasan and Khorasan their successors, their Bausai
929 of their Arabies, their ghalan, their Ghilan
827 Khorasan and Mawarrah, which reigned from 898 till
Nasreddin Sabuktegin founded the dynasty of the
Ghurids, this the part day, Grana from 976 till 1182; they were obliged
to yield to the Ghurids, and these, in 1208, to the
Dilemites the nineh century. They were not reached till
the caliph Ali, who had taken refuge in the hilly parts of
the provinces of Ghilan and Masendaran. It continued from
927 till 1209, when the Ghurid dynasty took possession of the
country.

The Bides (properly Bocathides) ruled in Persia, and	heradices at their residence: they were in 932 recognized
by the caliphs. They kept the title and power of Emilat-
Onsar till their domination was overthrown by the Seleuks
in 1624.

An Ima'mite dynasty arose at Kashi in Persia since
1090, and lasted till the Tatar invasion in 1256. They are
only a ramification of the religious sect of the Ismaelians,
which, under different names (viz. Basienians, Karmatees,
Fatemides, Druzes, Nosairis, &c.), has often played an
important part in the history of Mohammedism.

The Hamadanides, in Syria, ruled over Mosul from
929 till 970; and their successors the Merabides over
Persia.

The Assassins were a fanatic sect in Mount Lebanon,
who gained great importance at the time of the Crusades;
the present Druzes are believed to be their descendants.

The crusades led to natural sources, not foreign
Badagd 1055; their domination over Aleppo lasted till
1154; over Kermans till 1187; over Iran till 1193; and
over Jerusalem till 1306. Independent of these, a dynasty
of Asafides began 1257, and established itself in the country
east of the Caspian Sea.

Since the time when the Ommiade caliph Moawiyah
chose Damascus for his residence, and still more when the
Abbasides removed the seat of the government to Bagdad,
the country of Arabia relapsed into its former insignificance;
it became a mere province of the Mahomedan empire,
and was soon again divided into small dominions. Curious details
about the history of one of the most important of these divi-
sions, the Mahomet, who was from the time of the
close of the fifteenth century, are to be found in Johann-
sen's Historia Jemana. Except the monotonous enumeration
of the annual procession of pilgrims to the sacred city,
the mutual conflicts among the Beduin chiefs, and of late
the rise of the Wailah-power in the Nejd, the recent
history of Arabia generally offers little of sufficient interest
to fix the attention of the general historian.

After the conquest of Syria, Persia, Mauritania, and
Spain, the inroads of the Arabs had often, in the heat of
great importance. The Islam favoured the establishment of emporia, and
the wide dominion of one religion and one language rendered
travels and mercantile transactions easy. The luxury of
these people fostered and the magnificence of the caliphat,
caused frequent travels of merchants into India.

Since the ninth century of our era, Arabs began to settle
in various parts of India; several Indian princes embraced
the Mohammedan faith. Soon the Arabs penetrated to
the Indian islands, Ceylon, Sumatra, Java, Celebes, and even
to China. Arabic 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 Moham-
medans, through the ports of Menfan, Wama, and
wards those of Sennassar, Darfur, Burnu, Tumbueto, and
Melii, were founded. On the coasts of Africa they came
through the Straits of Bab-el-Mandeb to Zanzibar, esta-
lished the kingdom of Madagascar, Menfan, Wama, and
Mayombeke, and went over to Madagascar. It is even
probable that the Muslim Arabs were, in the eleventh
century, the first discoverers of America. (See Notice et
Extraits des MSS. de la Bibl. du Roi, vol. ii. p. 21;
Relation, 1760; M. Belkina, Sur les Commerce et les
Relations des Arabes et des Peres avec le Russie et la Scandinavie
dans le moyen âge, in the Journal Arthilique, voix v. and vi.

Arabian Language.—The Arabic forms, with the Ethio-
pic, the southern ramification of the great stock of languages
commonly, though improperly, called the Semitic; the other
two principal branches are, 1. the Semitic branch, indi-
fuous in Syria, Mesopotamia, and Babylonia, comprising
the Syriac and Chaldee languages; and 2. the Hebrew, once
the language of Palestine and Phoenicia. These dialects have
flourished at different epochs. Of the Hebrew, we
know little; though we believe it 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
was confined to the present; but at present most of those Semitic languages are extinct,
or survive only in small districts. The Arabic alone has
outlived all its sister-tongues, and has spread not only as the vernacular tongue all over Syria, Egypt, and
Northern Africa, but as also 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 preceding to the time of Mohammed, most of which that of
the tribe of Koreish has, through the Koran, become the
classical tongue. Ebn Khalid thin thinks that the reason
of the elevation and purity of the Koraishite dialect is to be
found in the exclusion of that tribe from intercourse with
foreigners. Next to Koreish, the neighboring tribes of
Thilif, Hudseil, Khozas, Kenans, Asaad, Temim, and Ghat-
fan, are by native writers distinguished for the correctness
of their language; less so the Yemenite Arabs, and
other dialects, such as the Sabean, the Bihur, the Jodham, the Ghathar, and Kedheh. Niebuhr observes that the
Arabic is at present spoken with the greatest purity in the
district of Sohan. The Arabic language is rich, not only in words (especially In such as the Bihur, the Jodham, and the Sabean),
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 roots. The purity of their language had among the Arabs long been an object of
national pride. When, after the first conquests of the
Mohammedans, its genuine correctness seemed to become
endangered through the frequent and unavoidable inte-
 course with strangers, grammarians arose, to fix its rules
and secure it from corruption. Abu'l-Aswad al-Dulli is
mentioned as the first author on Arabic grammar: he
founded in 1366, the al-Ashir bi-Abi Taleh. Among
him, we must also distinguish the Nasi ibn Asaakib,
Abu Malek, Zamaakhabar, Ebn Hesham, Ebn Dorani, Matar-
rezi, Tebrizi, Beidhawi, &c., deserve to be
distinguished. Khalil ben Ahmed al-Ferashi, of Baars, who lived
during the second century of the Hegira, reduced the prosy and
language to an order. Abu Nasr Ismael ben Hammad al-Jauhari (A.D. 1000, or, according
to others, 1069) compiled a dictionary of the pure Arabic
language, containing about 40,000 words, and entitled
Al-Hakim, i.e., the dictionary of the pure language. But
work, though of great value in oriental philology on account of the
numerous quotations from ancient poems which are added
in illustration. Al-Daric and Al-Sighani, two other
literators, flourished in the middle of the fourteenth
century. In the fourteenth, Mohammed ben Yusac al-Fruzabadi (A.H. 817, A.D. 1414) compiled
an immense Arabic thesaurus, entitled Al-Lami, i.e., the

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Emileant, of which the author himself prepared an
abridgment under the title of Al-Kamus, or, the Ocean;
the latter work contains about 60,000 words, and is the
best original Arabic dictionary that we possess; an accurate
edition of it was published at Calcutta in 1817; a Turkish
translation appeared at Soutari, in three volumes, folio,
1739—1772.

The period at which the art of writing was introduced
into Arabia is not known. Arabian authors speak of an
alphabet used by the ancient Himyarides, which they call
Al-Moumad; this alphabet is now lost. In the second volume
of the Minœs de l'Orient may be found a copy of a few
undeciphered inscriptions discovered by Seetzen, between
Dorfar and Mankan, near Jerin, in Yemen, which he sup-
posed to have been copied from this alphabet. Yet of the
northern Arabs we do not appear to have had any alphabet till a short time before Mohammed: Morer ben Morsh is said to have intro-
duced an alphabet which was founded on the Syriac Etrang-
ner character. In the Koran was written, originally
without diacritical points and vowels, which were, however,
added before the end of the first century after the Hegira.
This character, which was called the Cufic, in allusion to the
opposite that lived at Cuda, remained long in use on coins
and inscriptions: for common purposes a current hand-
writing, known under the name of Nesbeh, was introduced by
Ben Mokla, in the tenth century. This is the character
still in use: the Persian Taalk and the African Mogreb
character are modifications of it.

To European students who wish to acquire a knowledge
of the Arabic language the following works deserve to be
recommended:—Silvestre de Sacy's Grammaire Arabe, 2d
edit., Paris, 1828, 2 vols., 8vo.; S. de Sacy's Cours de
Histoire de l'Arabie, Leipzig, 1831—1833, 2 vols., 8vo.;
Rosenmüller's Institutiones ad Fundamenta Linguae Ar-
abicae, Leipzig, 1818, 4to.; S. de Sacy's Christothermatis
Arabe, 2d edit., Paris, 1826—1830, 4 vols., 8vo.; Kose-
and Colus's Uexico Arabico-Latinum, Lugum Batuti, 1856,
8vo.; Wilmet's Lexicon Linguæ Arabicae in Corumum, &c.,
Rotterdam, 1794, 4to.; Freytag's Lexicon Arabico-Latinum,
Paris, 2 vols., 1830, 8vo.; and Carlyle's Specimens of Ar-
abian Poetry (Cambridge, 1796).

Al-Mansur, the second of the Abbasside caliphs, was
the first who distinguished himself by the study of science,
especially for the study of the law, of astronomy, mathe-
matics, and philosophy. The celebrated Christian physi-
cian, George Bakhtishu, with his disciple Isa ben Shahal, and
Abu'l-Ola, the Persian astronomer, was introduced by the caliph
into his royal court: Bakhtishu seems to have first drawn the attention
of the Arabs to Greek and Syriac literature. Harun al-Rashid,
by the advice of his accomplished minister and friend Yahya
ben Khalid, the Barmoede, called Gabriel the son of Bakhtishu to his court, who then lived at Najafur, and
he caused many Greek and Syriac works to be translated into
Arabic, and established colleges in the principal towns of
the empire. In the reign of Mamun the literature of the
Arabs saw its golden age. Among the foreign scholars who
lived at his court, we distinguish: the Indian physician Saleh
ben Nahala, and the Syrian Yahya ben Messawah (com-
monly called Joannes Meanae). The works of Aristotel,
Hippocrates, Galen, Diocleides, and Theophratus, of Euclid,
Archimedes, and Ptolomeus, were translated from the Greek
originals, partly through intermediate Syriac versions.
Among the translators we find mentioned the
Sabin astronomer Thabet ben Korra; the Christian phy-
sician Hosain, with his son Abul-Hakim, and his grandson
Hobashen ben al-Assim; Yahya ben Batrik, Yahya ben
Adda, Ibrahim ben Takwin, and others. At the command of
Mamun, Mohammed ben Musa, of Khwarazm, wrote
the first eloquent treatise on Al-Gebr, in which he made a
great proportion from Indian sources. Mamun founded
academies at Bagdad, Basra, Kufa, and Bokhara, and fur-
nished scholars with the necessary means to visit foreign
countries for literary purposes. In his reign Yahya ben
al-Mansur, the most celebrated of these, returned from
Bagdad and Damascus. Soon after the accession of The-
ophilus to the throne of the Grecian empire (A.D. 829) a war

FF
Ibn Khaldun, besides various other works of high interest, wrote a history of the Berbers; Haji Khusaf composed a military and diplomatic history of the Tartars; Ali Talib composed a history of literature among the Arabs, Persians, and Turks.

Dumiri, Ibn Beitar, and Kazwini, left books on natural history; the latter is also the author of a work on geography. Peculiar to the Arabic geographers is the division of the earth (the north and south) into zones, each of which is divided into many zones, 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 is Al-Battani, called Mohammed ben Al-Khelebi (or Abu'l-Abbas Al-Battani, Jaber ben Ahmad of the twelfth century), who is noted for his observations in Astronomy, which are still wanted. A good account of the works printed in Arabic till the year 1811 may be found in Schmirer's Bibliotheca Arabica. Those who want further information on the subject of Arabic literature must consult the Notice et extraits des MSS. de la Bibliothèque du Roi, the Bibliotheca Arabica Recensens of Casiri, the Bibliotheca Orientalis of Assemani, the Christomathie Arabe and other works published by De Sacy, Muller's Catalogue des MSS. arabes de la Bibliothèque Impériale, and Nicolli's catalogues of the MSS. in the Bodleian library, the Mines de l'Orient, the Bibliothèque Orientale of D'Herbelot, &c.

ARABIAN GULF. [See Red Sea.]

ARABIAN NIGHTS. [See Arabia, p. 819.]

ARAB'IIM were, according to St. Augustine (Heres. c. 83), a sect of Christians in Arabia, who believed the human soul to be mortal, and that it is dissolved by death together with the body, but will be restored to life at the resurrection. Mosheim (in Commentarius de Rebus Christianorum ante Constantium Magnum, ed. 1753, p. 718, seq.) thinks, that the materialism of Epicurus had some influence on the origin of this sect: but it is more likely that adoption in those days of the materiality of the human soul occasioned their heretical inferences. The Arabi were converted and confirmed by Origen in a synod held in Arabia, A.D. 246 (Mansi, Collectio Conciliorum, t. i. p. 759). The Arabes called their land ar ârâ 'to plough.' is that part of the land which is chiefly cultivates 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 Soils.—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 nearest the soil; the next, or the sub-soil, or the thickness, which covers the more solid and uniform materials which lie below it. This may be particularly observed wherever there are natural or artificial excavations or pits. A distinct line, nearly parallel to the surface, generally marks the boundary between the soil and the sub-soil. The soil is more or less composed of minute parts of various kinds of earth, mixed.
with animal and vegetable substances, in different states of decomposition. As a general rule, it owes its cohesive nature, 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 nearly black; and the better the clay, in which all 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 earths, metallic oxides, saline substances, vegetable and animal matter, and water. The earths, as a general rule, are the most important, and, in some cases, the only component part. Magmas, harveys, 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 peroxide. 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 alkalies, as the bases of metallic 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 aluminia, so called because it is obtained in its purest state from slum, in which it is combined with the sulphuric acid, is the basis of all strong and heavy soils. When it is minutely 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 mixed with water, a tough, brittle mass easily moulded into 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 degree, it loses its plasticity, and, if it is then baked, is proof 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 siliceous sand, when examined with a magnifying glass, has the appearance of irregular fragments of stone without any cohesion between them.

Siliceous 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 evaporation. In its mixture with soil it is kept open, to let the air and water, as well as other substances on which the growth of plants depends, circulate through it. Unmixed, it dries so rapidly that no vegetation can continue in it, unless a constant supply of moisture be given by irrigation. A small portion of gravel 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 brick-making. In building, it is produced by burning marble, chalk, limestone, or shells, in a great heat. In the stones which are formed principally of lime, it is combined with some acid, mostly the carbonic acid, which passes from it on production of burning, or by an air or gas, hence called fixed air, from its being thus fixed in a stone. These stones, of various degrees of hardness, are now all classed under the name of carbonates of lime.

Lime unites readily with water, which it also absorbs from the atmosphere. When heated, it becomes slaked, and in this state, it is put to use. When it is heated, it loses its carbonic acid, it returns to its former state of carbonate; with this difference, that, unless much water be present, it remains a fine impalpable powder. Pure lime is soluble in water, though sparingly; a pint of water cannot dissolve more than about twenty grains: the carbonate is not soluble in water. Carbonate of lime has a powerful effect on the fertility of a soil, and no soil is very productive without it. But it is not a properly angular and extensive earth, and it occurs in the soil, otherwise called a manure; but its use in this respect, and the mode in which it acts, will be given in the articles MANURE and LIME.

Carbonate of lime, as an earth, is neither so tenacious as clay, nor so loose as sand. In proportion to the fineness of its particles it approaches to the one or the other, and when the parts are large and hard it takes the name of limestone gravel.

Another distinguishing feature is its solubility in acids, which it neutralizes, depriving them of their noxious qualities in the soil. A proper mixture of these three earths, in a due state of mechanical division, forms a soil well fitted to the wants of every species of plants that can be cultivated for food: and nothing more is required than a proper climate to heat, a proper degree of moisture, and sufficient nourishment, to make all the plants generally cultivated thrive most luxuriantly in such a mixture, which is usually called a loam.

But there are some soils, which, besides a proper mechanical texture and mixture of earths, contain a large proportion of a natural manure which renders them extremely fertile. This is a substance produced by burning clay and animal and vegetable matter. It can be separated from the other parts of the soil, and has been accurately analyzed and described by many of the most experienced agriculturists, particularly by Bauhin in his Historia Plantarum; and Theodor de Saussure. (See Recherches Chimiques sur la Vegetation, Paris, 1804, &c.) This substance has been called vegetable mould; but, as this is not a very distinct term, we shall, after Thaer and other eminent writers on agriculture, adopt the name of humus when speaking of it. Humus is a dark, unctuous, friable substance, nearly uniform in its appearance. It is a compound of oxygen, hydrogen, carbon, and nitrogen, which, with the exception of nitrogen, which is found only in some substances, and the elements of all animal and vegetable substances. It is the result of the slow decomposition of organic matter in the earth, and is found in the greatest abundance in places which are old gardens, meadows, or even pastures, that varies somewhat in its qualities and composition, according to the substances from which it has been formed, and the circumstances attending their decay. It is the product of organic power, such as cannot be compounded chemically.

Besides the four essential elements in its composition, it also contains other substances in smaller quantities, viz., phosphoric and sulphuric acids combined with some base, and also earths and salts. Humus is the product of living matter and the source of all earthy food to organization. Without it nothing material can have life. The greater the number of living creatures, the more humus is formed; and the more humus, the greater the supply of nourishment and life. Every new creation in the earth, and the whole lifeless materials of nature, and forms humus, which increases as men, animals, and plants increase in any portion of the earth. It is diminished by the process of vegetation, and wasted by being carried into the ocean by the waters, or it is carried into the atmosphere by the action of the sun, which converts it into gaseous matter. (See Thaer, Grundzüge der Rationellen Landwirthschaft, Berlin, 1810, four vols. 4to.)

Humus, in the form in which it is usually found in the earth, is not soluble in water, and we might have some difficulty in comprehending how it enters into the minute vessels of the roots of plants; but here the admirable properties of nature make the observation of chemists an antiseptic; it resists further decomposition in itself, and in other substances in contact with it. It remains for a long time in the earth unimpaired; but no sooner is it brought...
into contact with the atmosphere, by the process of decolorization, than in a solution begins. Part of its carbon unites with the oxygen of the air, some with the water of the soil, in 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 most rapidly, the moisture, thus produced keeps the vegetable life, while rains and dews 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 once more unstable, in the form of a film, which Fournier 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, the soil, with the aid of water, can be made to re-form, 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-mentioned 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 for 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 productive of crops, or of pasture, in its composition than one without, or with less of it, and we see the great advantage of animal and vegetable manures, not only as nourishment to vegetables, but as mechanical improvements of the texture of the soil.

The greatest enemy of humus is stagnant water; it renders it acid and astrangent, as we see in peat; and soils abounding with vegetable matters, from which water is not properly drained, are sour, as it is very true of clay, or produce only rushes and other useless and impalatable plants. The remedy is simple and obvious; drain well, and neutralize the acid with lime; by these means abundant fertility may 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 Auspugy. 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 the soil be pulverized to a sufficient depth, for 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 constituents. We do this with great accuracy by requiring 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 spirits of salt, or muriatic acid. For this purpose, some of the soil, taken at different depths, not too near the surface (from 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 fibres. A convenient portion of this is accurately weighed; 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 coarser parts. The remainder, againweighed, is stirred in four or five times its weight of pure water; after the minutes, till an 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, filtered, 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 analysed, of which we will give a few examples.

A very rich soil near Drayton, Middlesex, examined by Davy, consisted of 4 parts of siliceous sand and 3 of impalpable powder, which, analyzed, was found to be composed of

<table>
<thead>
<tr>
<th>Material</th>
<th>Parts</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>Vegetable and saline matter</td>
<td>5</td>
</tr>
<tr>
<td>Water</td>
<td>3</td>
</tr>
</tbody>
</table>

This is a rich sandy loam, probably land 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 8 parts of coarse siliceous sand, and 1 of fine earth, which being analyzed, consisted of

<table>
<thead>
<tr>
<th>Material</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine siliceous sand</td>
<td>91</td>
</tr>
<tr>
<td>Coarse ditto</td>
<td>25</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>27.6</td>
</tr>
<tr>
<td>Alumina</td>
<td>13.5</td>
</tr>
<tr>
<td>Humus and soluble matter</td>
<td>5</td>
</tr>
</tbody>
</table>

The best loam in France, according to Mr. Tillet, consists of

<table>
<thead>
<tr>
<th>Material</th>
<th>Parts</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>
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<tr>
<td>Carbonate of lime, coarse</td>
<td>1</td>
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<tr>
<td>Ditto, fine</td>
<td>6</td>
</tr>
<tr>
<td>Woody fibre</td>
<td>5</td>
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<tr>
<td>Humus and soluble matter</td>
<td>5</td>
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</tbody>
</table>

A loam at Chalons, highly prized by gardeners about Paris, as the basis of their artificial soils, consists of

<table>
<thead>
<tr>
<th>Material</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gritty siliceous sand</td>
<td>62</td>
</tr>
<tr>
<td>Vegetable fibres partly decomposed</td>
<td>16</td>
</tr>
<tr>
<td>Humus and soluble matter</td>
<td>8</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>2</td>
</tr>
<tr>
<td>Soluble matter</td>
<td>1.2</td>
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</tbody>
</table>

The argillaceous sand is composed of fragments of soft stone, which retain moisture, and do not bind hard; the small proportion of humus is of no consequence whatever manure is to be had in any quantity.

A very rich, but very heavy clay earth found at Meudon, and in great request for flowers and in composts, consists of
This soil, like our bog earth, would be very unfit for the growth of corn; but, from the quantity of humus and vegetable matter, is highly useful in composts and artificial soils; mixed with lime, it would make an excellent top-dressing for arable clay soils.

Mr. Thor has given a classification of soils of known qualities, which, we think, worthy of notice. It is as follows:

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<tbody>
<tr>
<td>1</td>
<td>74</td>
<td>10</td>
<td>44</td>
<td>117</td>
<td>100</td>
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<tr>
<td>2</td>
<td>81</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>98</td>
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<tr>
<td>3</td>
<td>79</td>
<td>10</td>
<td>6</td>
<td>2</td>
<td>98</td>
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<td>22</td>
<td>32</td>
<td>4</td>
<td>2</td>
<td>90</td>
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<td>5</td>
<td>14</td>
<td>49</td>
<td>10</td>
<td>2</td>
<td>27</td>
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<td>6</td>
<td>36</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>27</td>
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<td>7</td>
<td>36</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>77</td>
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<tr>
<td>8</td>
<td>50</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>77</td>
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<td>9</td>
<td>12</td>
<td>30</td>
<td>10</td>
<td>2</td>
<td>77</td>
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<tr>
<td>10</td>
<td>45</td>
<td>50</td>
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<td>2</td>
<td>65</td>
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<td>11</td>
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<td>60</td>
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<td>2</td>
<td>30</td>
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<td>15</td>
<td>50</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>20</td>
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</tbody>
</table>

Below this are very poor clay-lands.

In all these soils the depth is supposed the same, and the quality uniform to the depth of at least six inches; the surface being too wet or too dry.

Nos. 1, 2, and 3, are alluvial soils, and from the division and the intimate union of the humus, are not so heavy and stiff as the quality 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 dry—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. 6, 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 in very good heart; and 2 per cent. with a good loamy texture, will render a soil fit for corn with judicious cultivation. The texture of the soil is of the utmost importance, as may be seen by comparing Nos. 7 and 8 with No. 6.

If this 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 sharp 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 land 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 the value in some of 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 hands than can be spared on other occasions. To draw plots, 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 plots in use at different times, and the improvements which have been made, and are attempted daily, will be noticed in a separate article [see Ploughs]. 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 slice will be continued 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 of it perfectly straight and parallel. 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 bulges, which are irregularities produced by the rising of sinking of the plough, or inclining it to either side. The antinomy was 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 stitches, 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 ridges are set up against each other, which is called ridging or bouting; 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 drier; this is generally done before winter, especially in stiff wet soils. Sometimes two or more ridges are made on each side, forming narrow stitches. When the ground is to be ploughed without being laid in lands or stitches, and all the ridges 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-wrest 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 to be readily 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. Wherever 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 ploughing. 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 *cariere*, the third *refringere*, and the fourth *serre*; 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 (Georgica, i. 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, contrivances by which the teeth are fixed to the frame at any required distance from each other, and lengthened or shortened; A A, three wheels to regulate the depth of the ground moved. By raising the beam and fixing it higher or lower on the piece (d), 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 mallots 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 inventories to lessen the labour. But, in general, a more imperfect cultivation has resulted from it. Columella mentions one Celsus, whom he blames, because, to save the expense of a stronger team, he only scratched the ground with small shares and toothed instruments (exigua some

Fig. 6.

(Hindu's Patent Harrow.)

a, a. The iron frame.
    c, c. Three small wheels, of which the foremost is brought forward by depressing the lever, d, and raising the leath out of the ground.
    d. Is a horizontal bar to keep the lever, d, in any required position so as to regulate the depth to which the teeth, h, h, enter the ground.

b. The teeth, shaped so as to throw the weeds over.

Fig. 7.

(Roller.)

ribus et dentatibus); and a modern agriculturist of some note has revived the practice of Celsus. General Beaumont, who had been in India, and had seen the simple instruments used there by the natives, has substituted for the plough and cultivators in common use, various light instruments, of which he has published an account. He recommends stirring the soil only a few inches deep, except occasionally; and, by means of burnt clay, which he uses in great abundance, he has produced a succession of good crops: but he has too high an opinion of the fertilizing qualities of burnt clay, which makes him undervalue animal and vegetable manure: and although he may improve the texture of his heavy soil by the burnt clay, which is insoluble and absorbent, he will soon find out, like the followers of Tull, that manures which contain soluble extract, or from which it can be formed, can alone maintain fertility.

The influence of the atmosphere on the soil, and the increased fertility produced by pulverizing and stirring heavy lands, has led to the notion adopted by Jethro Tull, that labour might entirely supersede the necessity of manure; hence the origin of the horse-hoeing husbandry, which at one time was so highly thought of as to be called, by way of distinction, the new husbandry. Follows and manuring were both discarded as unnecessary; the seed was sown in rows with wide intervals, which were continually kept worked and stirred. At first the result was highly satisfactory: all the humus, by exposure to the air, was converted into soluble extract, and taken up by the plants, which

throw well as long as the supply lasted: but in the end it was exhausted; and the warmed admixtures and supporters of Tull's system, Du Hamel and De Chastaigneux, besides many others, found to their cost, in practice, that pulverizing alone will not restore fertility. The system of drilling and horse-hoeing, when united with judicious manuring, has, however, been found a great improvement in agriculture.

In describing the various processes in general use in the cultivation of the soil, we have taken the year when the land as fallowed, because it is then that it receives the most perfect culture, which enables it to produce several crops afterwards with a much smaller quantity of labour. By such fallowing and proper manuring, the soil is fully restored to its highest degree of fertility. In light soils, which are generally poorer, turnips or other green crops are sown, on which sheep are folded, who, by their manure, still more enrich the soil, and it is only when this manure is ploughed in, that the land may be considered as possessing the proper degree of fertility.

There are some soils which are so mixed with pebbles and stones, that the foregoing observations will scarcely be applicable, and the instruments must be adapted to their texture. Some of these soils, abounding with chalk, are tolerably fertile, and the stones, when they are not so large as to impede the operations, are rather beneficial than otherwise. Theophrastus mentions a field which had been deprived of its fertility by the removal of the stones, and others have learned the same from experience. Pebbles prevent too great evaporation, shelter the young plants in exposed situations, and reflect the light and heat of the sun. The only inconvenience found from them in good soils is that they occupy the room of better earth, and wear out the instruments used, which, in consequence, are made stronger and blunter. When there is a crop to be mown with the scythe, the stones must be removed from the surface, but not otherwise, at least in light soils.

When the land has been duly prepared, the seed is sown. This is done sometimes before the last ploughing, but then

Fig. 8.
the manure should have been ploughed in before; for, 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 above two or three inches deep, and eight or nine inches wide; and it is only in very heavy land that a larger furrow is to be recommended. The most common method is to sow the seed on the land after the last ploughing, and draw the harrows over to cover it: when the land has been well ploughed, and especially if the press-drill has followed the plough, the seed will mostly fall in the small furrows made by two adjoining ridges, and rise in regular rows. But by far the most perfect way is, to sow it at a regular depth, by means of a machine, and in rows at regular distances (see Drill), or to dibble it, which is an operation performed only in a few parts of England, especially in Suffolk, Essex, and Norfolk. A man makes small holes at the distance of four or six inches, and in rows nine to twelve inches asunder, with two rods about thirty inches long, one in each hand, clearing over an acre in a day, and at a cost of £3 a man. The other, 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, and without defeating the end with the other furrows; two or more children follow and drop three or four grains in each hole; a bush-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 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, or lent clover; 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, one in winter corn, 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 deviate 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 inclusion; 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 as a two-field instead of a three-field system, 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 introducing the alternately and convertible system of which we shall 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 much 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-improved 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 re-seeded hayfields rich in rubby grass, yellow rye-grass, 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 setting the first acre of wheat and barley, then:

is, beans, wheat, turnips, barley, clover, wheat, making a rotation of six years. This can only be introduced with advantage where there are considerable pastures, and much cattle is kept; the supply manure for the land in the first six years for the turnip sowings, where the drill husbandry admits of hoeing and weeding thoroughly; but with these advantages, no course can be more profitable, as is found in those parts of Kent and Sussex, and other places near the coast. If the soil is too heavy and wet for turnips, and they cannot be drawn off nor fed on the land, without injuring it, a clean fallow is substituted for the turnips. These rotations are sufficient to give some idea of the principles on which they have been adopted. In Scotland, they adhere less strictly to particular rotations, nor are the tenantry so much tied to the seasons; it is founded more on the lands, and not in the least on the seasons and circumstances cause deviations, which are sometimes judicious and often unavoidable. It is best, however, to follow some regular course, and in the end it will be found most profitable. A very common rotation in Scotland, is fallow, wheat, clover, or grass, fed one, two, or three years, then oats, peas, or beans, and wheats again, if the land is clean and in good heart: for there is no rule better established, than that of never allowing the soil to be ex-hausted to a certain point; when that is reached, the land can readily recruit it. The greedy cultivator is sure to pay dearly in the end for every crop forced from the land unnecessarily.

Without preventing the tenant from using his discretion as to the mode in which his farm is best cultivated, a proprietor may be sufficiently protected against wanton deterioration of the land, by insisting on a green crop or fallow intervening between several years of two kinds, and assuming all the fodder and roots on the farm. For this subject we must refer to the article Farm. A proprietor with skill and experience, cultivating his own land, needs only consider the state of his lands, and what will most likely grow well in them; what is most in request, or can most be disposed of or own use and in the market; what will keep his men and cattle in most regular work, without confusion or hurry. If he allows his land to be impoverished for want of manure, or to run wild with weeds, for want of hoeing or fallowing, he has not the experience and judgment which are necessary for his pursuits.

The Flemish husbandry proceeds much on this principle. The greatest attention is paid to manuring and weeding; much more manual labour is bestowed than with us, and the crops seem more certain, varied, and abundant. It is not unprofitable we may conclude from the wealth of the country, the size of the lands of the large proprietors, and the appearance of the cattle. From the very interesting account of Flemish agriculture in the work of Mr. van Aelbroek of Ghent, written in Flemish, translated into French, and published in Paris in 1830, we learn what great care the soil is cultivated in Flanders. After ploughing into lands as we do, every interrowing furrow is deepened and cleared with the spade, the earth being thrown over the bed sown. Liquid manure (which is badly thrown away in this country), chiefly the effluent from the urinal of towns, being, the dung of horses, is casually 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, compounded of the best a country can produce—clover, lucern, flax and corn, equal in luxuriance to those on the richest soils. Fallow is rendered unnecessary by the careful destruction of weeds. In short, it is a garden culture on an extended scale. All the land is in tillage, except where rivers occasionally overflow, and render the soil for two or three years impassable. The land is divided into small plots, and is covered with clover and lucern, or other artificial grass, which, when drying, will maintain five times as many beasts, or more, than the same area sown merely with grain. This 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, considering its soil and climate, is one of the best cultivated 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 into small plots, and sowing grasses. This was resorted to in 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 sown over three or more years, 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 clover, unless sow Grass with an equal number of tares, manured. 6. Wheat. White clover and grass seeds, which were sown among the wheat the year before, and are kept in pasture the 8th and 9th. There is no fallow, and the cultivation of land will be better and more productive. It might, however, easily be introduced, as in the Holstein rotation.

Another rotation is,—1. Oats. 2. Beans well manured. 3. Wheat. 4. Tares manured. 5. Barley. 6. Clover and grass seeds manured for hay and grass fodder; 7. Wheat or oats. 8. Tith, 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. Clover. 4. Tares manured. 5. Wheat. 6. 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 the cattle in the stables. In light soils, the trend of sheep or cattle is, we believe, that 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 had space we might also mention the system of farming upon land of a proper quality will be repaid by the value of the produce, deducting the portion due to the landlord, or to the state? we shall answer, without any hesitation, in the affirmative, provided the cultivator 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 idea of them will be found 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 the dealer in pork, if successful, may make far 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 he neglects his business, and leaves it to others less interested in the result, he may cultivate for pleasure, and employ huilds, are fortunate if they get a moderate rent after paying expenses. For careless farmers, the simplest system alone can prevent great loss; and in this system, the grass land is sown as early as possible; and various other branches of the subject will be found under head; such as Barren Land, Farm,
DRAINING, IRRIGATION, MANURE, LABOUR, GRASS-LAND, CATTLE, &c.; and for the peculiar cultivation of the various products of agriculture, see WHEAT, BARNS, BARLEY, CLOVER, OATS, FEAS, &c. &c.

Writings on the names of a few authors whose works may be studied and consulted with advantage, by all those who desire to have a competent knowledge of agriculture, either as a branch of general knowledge, or for the pursuit of a particular profession.

Of the Greek writers on husbandry we have hardly anything left, except in the collection of Cassianus Basius, entitled Geoqonikha (earth-labouring). This collection, in twenty books, was made at the command of the Emperor Constantine, and was, in all probability, translated by Greek writers, whose names are given. We are not aware that there is any foreign translation of the Geoponikha, except the old German version of Herren, first printed at Strasbourg in 1545, 4to. The Latin writers, Cato, Varro, Virgil in his Georgics, Columella, and Palladius, are well known: their works, especially the last two, will be found to contain many valuable remarks; and abridged translations of them, or extracts, would be very useful even to modern agriculturists. Of the above, the following have been translated by the Rev. T. Owen, rector of Upton Scudamore, Wilt.:—1. The Three Books of M. Terentius Varro, concerning Agriculture. Lon- don, 1807, 2 vols. 8vo. 2. The Fourteen Books of Palladius on Agriculture. London, 1807. 8vo. 8vo. The same author has also published Agricultural Pursuits, translated from the Greek. London, 1805, 2 vols. 8vo. 15s. Of the earlier English writers, we shall only mention Fithcherbee, Bayly, Harby, and the father of the late Mr. John Bayly, and the great oracle of modern husbandry, Arthur Young; with Sir John Sinclair, to whom, as President of the Board of Agriculture, much useful information was communicated, which he industriously compiles. (Sinclair's Account of Systems of Husbandry, &c. 2 vols. 8vo.) The Surveys and Reports on the agriculture of the different counties, prepared for the Board of Agriculture, are replete with useful information as to the soil, climate, and the actual practice and condition of the agricultural population. We may notice Loudon's Encyclopaedia of Agriculture, as a useful book of reference.

The French are rich in elementary works, among which the Théâtre d'Agriculture, par Oliver de Serres, is a standard work. It was written at the express desire of Henry IV. and his minister Sully, and published in 1600; the last edition, in four volumes quarto, Paris, 1804, with numerous additions, and the Complete d'Agriculture, by various members of the Institute of France, published in 1820, contain everything that was then known of the science of agriculture. A little work of much merit may be mentioned, published by the rains of the Provençal, by the town of Bouillé Dupontm, Paris, 1826, two volumes, duodecimo; and also Le Calendrier du bon Cultivateur, par C. I. A. Mathieu de Dombale (on the plan of Arthur Young's Agricultural Register), Paris, 1828, 8vo, with a frontispiece of wood work. Incalculable numbers on particular branches, and the annals and memoirs of various agricultural societies, appear daily. Among the German authors we shall only mention Thier, whose works we have quoted above, and which form a most complete body of theoretical and practical agriculture: his experiments made on a large scale at the national farm of Mögelin near Frankfort on the Oder, and repeated for many years, can be fully depended upon. We have also numerous works of considerable extent, in the style of praktique de la Plante, Paris, 1830, octavo, as a useful and interesting work.

ARABS' GULF, a bay on the north coast of Africa, lying on the eastern shore of the bay of Bengal, and forming the westernmost part of the Peninsula beyond the Ganges. It extends only about 13° 5' 15" N. lat., and lies between 29° and 29° 5' 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 about 8000 square miles, and exceeds the principality of Wales by more than 3000 miles.

It is bounded on the east by a range of mountains, which separates it from the Burmees 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 the island of Chittagong, a province of British India, and a woody tract which extends between Chittagong and Munseepoor. It is separated from Chittagong by the river Nat, or Nauf.

ARANCE, which in 1826 was acquired by the East India Company from the Burmeses, contains three districts, Proper Aracan, or Akyab, Sandoway, and Ramree.

Aranca Proper consists of a valley stretching nearly parallel to the shore, between a range of mountains and a line of hills. The mountains line the coast, and extend the whole breadth of the coast from Ava is called Yenmocaud by the Aracanes, and Anyaceomyby the Burmeses: it extends from Cape Negrais (18° 2' N. lat.) to the Tipperah hills lying east of Deoa 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 Ava, it declines by a succession of ranges; but towards Aracan its descent is steep and abrupt. Several passes conduct over these mountains to Ava, but only two can be passed without difficulty.

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 conti- nuous range; separated, others are separated by level 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 intersected by many rivers, creeks, and inlets of the sea, so as to form a series of peninsulas, in- muses, and islands, by which the land communication is completely interrupted. The coast is fronted by numerous islands, moderate height, high in the north, and low in the south. 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. This 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 ebbs 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 down, the country is covered with small swampy 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 the midst of rivers and lakes.

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-com- munication 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 shallows, which seem to be little and partly uninhabited. This bay receives also the principal river of the country, the Keladane or Hurting, which rises in the mountainous tract between Chittagong and Munseepoor, and may be considered as one of the mouths of the river, which, farther to the south, intersect the hills, as the Talak Keen and the Yanaway Keen, are so small, but commonly navigable for boats eight or nine months in the year. This many causes this river to render 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 showers occur. In February, March, and April, when the rains are frequent, a great amount of water is added to the streams, when the periodical rains set in and last till November. The rain in July amounts to nearly 60 inches, and in August to 431. From the beginning of June to the end of September, it is continually poured down, a heavy rain, which was the ancient surface of the valley was under water. Heavy dews and
thick fogs prevail during the nights even in the dry season, and great heat in the day-time. The thermometer rises in July to 98°, and in August to 94°, and is never under 77° in these months.

The climate of this country is very great, and its soil is the richest of 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 in a great extent; but so as not 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. Black pepper is raised in the vicinity of Rangoon, which is the home of the industry. This plant, is, 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 (Artocarpus integrifolia, Linn.), sweet limes, and cocoy-nuts are plentiful, but oranges are scarce. Of the vegetables raised, the principal are onions, garlic, and turmeric; but bananas, red pepper, cucumbers, water-melons, pappayas, and raitulus 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 Hirtung; their grand and towering size, and the moderate annual rainfall, prevent the people from bringing them to the more inhabited part of the country. This timber, therefore, is imported from Rangoon in Ava, or from Bengal. Other forest-trees abound in the many islands of the Indian ocean, and on the coast of the Borneo islands.

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 treading out 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 beenascertained 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.

There are two rivers in this country, the Ramree and the Rangoon, the former being 20° 43' N. lat. and 93° 31' E. long., the ancient capital, is built on a plain entirely surrounded by hills, and intersected by several streamlets, which occasionally join each other or fall immediately into the river Hirtung. The Ramree is divided into two parts connected by a strong and clumsy wooden bridge. This stream ebbs and flows with the tide, and at high-water boats are able to navigate it. During the periods of the rains or in the main part of the river, it is navigable.

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 miserably constructed, one only story high, and thatched with straw or mats. They are ranged with considerable irregularity in streets, the chief of which skirts the stream on each side. This town is about four miles in length, and at the foot of a quantity of land, its occupation by the British troops (in 1824) it is said to have contained 13,000 houses and 95,000 inhabitants. Its actual popualtion 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 it possessed in the past.

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. There are also four pagodas, built in the centre of the whole, which is further inclosed by a quadrangular wall. They contain numerous images of Gautama, from one inch to twenty feet in height; but what stands 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 Ava and Egypt observed by Bynnes. Except the fort, the pagodas are the only stone-buildings in Arakan.

The height which surrounds the town are covered with pagodas, the girt spices of which, shooting up like pyramids from every pinnacle around and glittering in the sun, contribute greatly to the singular and picturesque appearance of the place. The increase in the number of these temples, of various forms, may be counted at once.

Abyab, the capital of the district which comprehends Arakan Proper, has a good harbour, but is little frequented, on account of its unhealthiness. Two other places are worth notice, Thalins and Talaing, others with Ko Aung. 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 Sandawey comprehends chiefly the mainland between 19° and 19° 15' N. lat., and is a mountainous country, intersected by plains raising 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 Kyo Kyaw Pyyo (the chief town, Sandawey is about 25° N. lat., and 93° 31' E. long.), a navigable river, and is a thriving town.

The district Ramree contains the two large islands of Ramree and Chetaba, and several smaller ones. The population of these islands is distributed among villages or by the side of the coast. Inhabitants are raised in the vicinity of Rangoon, and westward. The country is cultivated, and the southern part of the island is a very fertile soil. Besides the common products of the country, rice, mace, cloves, nutmegs, and are collected; also the country 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 by day. It is the rough part of the country, and is covered with a very thick and good, free from fogs, with abundance of water and firewood. Lately a few cargoes of rice and dried fish have been shipped from this place to the Mauritius.

At the southern extremity of the island is a safe harbour, called Ramree, or Amherst Harbour.

The island of Chetaba is divided from Ramree and the mainland by a channel some miles broad, and navigable, and on the whole it is safe to cross. The town is built on the site of a quantity of land, 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 miserably constructed, one only story high, and thatched with straw or mats. They are ranged with considerable irregularity in streets, the chief of which skirts the stream on each side. This town is about four miles in length, and at the foot of a quantity of land, its occupation by the British troops (in 1824) it is said to have contained 13,000 houses and 95,000 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 it possessed in the past.
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ances of having been flattened; the hair is harsh, 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, from the few words that are intelligible to them not being in the least comparable to 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 sciences; but in adopting these polysyllables, they suit them to their peculiar pronunciation 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 Burmese.

Most of the Rakhains of this country resemble the most ancient and original dialect of the Burman language. According to Dr. Leyden, their literature is not scanty, for an 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 a red or yellow varnish similar to 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 the 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 enumeration seems to be a sufficient quantity of food, and the erection of a house, which answers as a residence, temple, and school-room, with generally a small pagoda annexed to it, having a number of poles and palm-leaf roofs, on which it is covered with a covering resembling common china-ware. Indeed all their labours, as well as their persons and dress, resemble those of the western parts of China.

The Mugs are distinguished for their simple honesty and indefatigable disposition; they are perfectly free from the servile hypocrisy of the Hindoos, and equally unlike them as to probity—their word being generally trustworthy. In dealing, they ask the price which they think the article to be, and expect it equally ripened in their favour to bring two or three times that which it has been offered. 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 food in the deciduous parts of China, and far from 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 R A C H N I D A, a class of animals including spiders, mites, and scorpions, all ranked by Linnaeus under Insects, but which are very properly separated from them, on account of their external structure, and the manufacture of their egg-sac. The order 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 (mârâula) being horny and furnished with a claw (unogeta). M. Lamarck afterwards rank them in a distinct class; 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 perfecting the knowledge of their structure, manners, and numerous species by Clerck, De Geer, Walschenaer, Treviranus, Leon Dufour, Herold, Straus-Dürckheim, Blackwall, and others. We shall condense into as short a compass as we can the most important points investigated by these naturalists.

The arachnida (Acrea, Virey) offer from insects in having no antennæ; in the eyes being in most species eight,
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 (Drydora and Sibod), and in others two (Phalangium). 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 Dr. Herold. Figures of various arrangements of the eyes in spiders may be seen in *Insect Miscellanea*, pp. 125, 126, after Audouin.

With regard to the sex, male spiders are always much smaller than the females, being from one to two fourths the size. The feelers (papillae), also, in the male are furnished with organs at the tip, which are of various forms, but usually bulging, whereas the feelers in the female taper gradually to a point.

Looking at the size of the female spider, and the eggs which she lays, it appears almost incomprehensible how they could be contained in so small a body. But, by observing them more closely, it may be discovered that they have not, like the eggs of birds, a hard shell, but are soft and compressible. Accordingly, before they are laid they lie in the egg-bag (ovarium) within 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 equal pressure on the outside, and partly, 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, at least, like the eggs of birds, in one mass, and in the same manner. There is something indeed, however, which is very remarkable to those who look into the web of an invertebrate animal, that is never seen in the web of the higher animal, the bird. This is the case, I mean, that there is nothing in nature without some good reason, if we can discover it, we may infer that this form is designed to economize the materials of the silk web, which the mother spins around them by way of protection. Whether we are right or not in this conjecture, there is one very extraordinary point, to which the writer has often observed the process. The mother spider, in such cases, uses her own body as a gauge to measure her work, in the same manner that the weaver of the silk uses the diameter 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 lay its 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 silky 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 thick web of silk all round them, and, instead of a cup-shaped frame, forms a tent, of which the bottom 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 spoutula, which the spider can move in such a manner as to direct every individual egg, which it lays to the exact spot, and in the exact corners, as it wishes it to be placed. The sense of touch in this organ must, of course, be very acute as by touch it may 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 brought within sight of each other.

The hatching of the eggs of one species (Fepira diadema) has been traced with great minuteness, and the successive evolution of the embryo figured with great skill, by M. Poide of M. Mocquard's description. M. Latreille, whose method has been generally followed both in Britain and on the continent, arranges the arachnida into two orders:—

1. *Arachnida pulmonaria*, or *pulmonata*, distinguished by having pulmonary cavities for the purposes of respiration, and from six to eight simple eyes.

2. *Arachnida trachea*, or *trachearia*, distinguished by having air-pipes (trachee), 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, sap, and, thus, lastly, ardent spirit. Under which name Tartars distil it from wines, and other distillates, 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: arak or arrack is white arack, and arrack is the brown. Arak is sometimes prepared from the molasses of cane sugar, and even from incisions made in the stem, but erroneously. The toddy-tops, or coco-nut tree orchards, are very extensive in Ceylon, and their product is collected for the distillation of arack, and the manufacture of sugar and oil. In Ceylon, when it is intended to draw toddy from a tree, the toddy-drawer selects a tree of easy ascent near to the centre of the tree, the stem of which he surrounds with a number of bands made of creepers, about a foot distant from one another. Upon these bands he ascends the tree, and by means of the stems of creeping plants or coir ropes, he connects the heads of a number of trees, so as to enable him to pass from tree to tree in the subsequent operation of collecting the produce. The ordinary implements of a toddy-drawer are a large broad knife, which he carries in a coffer or basket suspended by a cord tied round his body; a mallet, consisting of a piece of hardwood about a foot in length; and the shell of a gourd, which is suspended round his waist. When a tree is in a state fit for yielding sweet juice, the toddy-drawer ties the flowering spath in different places, by means of the which flowers are cut off every morning and evening for six or seven days. In a few days after the spath has been tied, a few inches of it is cut off by means of the broad knife. Two or three days after it is thus truncated, sweet juice exudes from the cut surface, which is received in an earthenware vessel attached to the spath. The liquor issues, drop by drop, and a good healthy blossom will yield from two to four English pints in twenty-four hours, and continue to flow that quantity for a period extending from three to five weeks. As the coco-nut tree blossoms every four or five weeks, two spaths on one tree sometimes yield sweet juice at the same time. The toddy-drawer generally ascends the trees, for the purpose of collecting the sweet juice; he fixes himself in toddy-tops, both morning and evening, and to cut off a fresh portion of the flowering spath. The toddy is poured from the earthen vessels into the gourd, which is conveyed to the ground by means of a line. The gourd is emptied into the distillery, and when the spath is drawn up by the toddy-drawer for the purpose of being refilled.

Arrack may be distilled from toddy the same day it is drawn from the tree, but sometimes this operation is delayed until it becomes sour. The process of distillation is carried on in the maritime provinces in copper stills, but in the interior of the island earthen vessels are chiefly employed. Toddy yields by distillation about one-eighth part of proof-spirit.

On the peninsula of India, arack is distilled from the flowers of the Bastia longifolia, Tell mee (Cingalese), the Maheshe-tree, and the Bastia latifolia. Mahew-arack may be procured at the rate of an English pint for less than one penny.

Arrack is prepared in the island of Java, where it is known by the name of kneep, from a mixture of molasses, palm-wine, and rice, in the following proportions.

<table>
<thead>
<tr>
<th>Molasses</th>
<th>Rum</th>
<th>Rice</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 parts</td>
<td>30 parts</td>
<td>100 parts</td>
</tr>
</tbody>
</table>

The rice is put through the press, and after a quantity of yeast is added to it and pressed into baskets. Each basket is placed over a tub for about eight days, during which time a quantity of fluid passes through the basket into the tub; this fluid is added to the molasses and toddy in the distillery, where the mixture is allowed to remain until it is fit for distillation.

In most parts of Turkey, arack (raki) is made from the skins of grapes. It is flavoured with aniseed, and sometimes contains a solution of gum-mastic. The mountain Tartars distil it from wines, and other distillates, 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: arak or arrack is white arack, and arrack is the brown. Arak is sometimes prepared from the molasses of cane sugar, and even from incisions made in the stem, but erroneously. The toddy-tops, or coco-nut tree orchards, are very extensive in Ceylon, and their product is collected for the distillation of arack, and the manufacture of sugar and oil.

Ceylon exports annually, and for the most part to the presidencies of Bengal, Madras, and Bombay, from 5000 to 6000 leaguers of arack, each containing 15 to 18 gallons. The custom duty on the exportation of arrack amounts to 20 per cent. ad valorem, and in 1813, the Madras government imposed an excise duty of 440 per cent. on Ceylon manufactured arrack. The rate of arrack at Colombo varies from 8d. to 10d. per gallon. Ceylon arrack is said to be of better quality than the Burmese, 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 exported from Ceylon, in 1827-8-9, which will show the importance of the manufacture of arack in political and commercial points of view.

<table>
<thead>
<tr>
<th>Product</th>
<th>Quantity (gallons)</th>
<th>Rate (per gallon)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distilling of arack</td>
<td>2,344</td>
<td>£3.644</td>
</tr>
<tr>
<td>Retail of ditto</td>
<td>24,975</td>
<td></td>
</tr>
<tr>
<td>Export of ditto</td>
<td>1,336</td>
<td></td>
</tr>
<tr>
<td>Export of copper</td>
<td>1,336</td>
<td></td>
</tr>
<tr>
<td>Export of copper-nuts</td>
<td>1,551</td>
<td></td>
</tr>
<tr>
<td>Export of coco-nut oil</td>
<td>410</td>
<td></td>
</tr>
</tbody>
</table>

The tariff duty levied upon arrack imported into the United Kingdom is 15s. 6d. per gallon. (See Marshall's Contribution to a Natural and Economical History of the coco-nut-nut Tree, and Bartolucci on the Revenue and Commerce of Ceylon.)

ARAD ISLAND. [See Bahrin.]

ARACHIOMETRE. [See Hydrometer.]

ARASYSSTYLE. This term is compounded of arre and style, signifying rare or fine, this, such, and this, 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 araeostyle is, according to Vitruvius himself, that in which the columns are placed more distant from each other than those of any other order, to be. Thus the commentaries upon that writer say, is when the space between columns, or the intercolunniation, is from four to five diameters. The araeostyle intercolumniation is generally assigned by the same authorities to what in the Vitruvian system is called the Doric order; or as the name signifies, the arrangement of the more classical architectural works of the Greeks and Romans, on which the system professed to be based, exhibit no examples of either the araeostyle 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 araeostyle intercolumniation. [See also EUSTYLE.]

ARAEOSTYLE. This term is compounded of arro and style, and was formed to denote an arrangement of columns not mentioned by Vitruvius. The French architect, Perrault, is understood to have introduced the term araeostyle to designate an alternately very wide and very narrow intercolumniation, or, what is generally called coupled columns. This arrangement is alternately araeostyle—columns too far apart; and style—columns too close together.

The front of the palace of the Louvre in Paris, the western, portico of St. Paul's cathedral, the porticoes, pavilions, and colonnades of the Pimlico palace, and numberless other edifices in London, exemplify the peculiarly elegant mode of arranging columns which the term araeostyle signifies.

ARAFAT is the name of a hill near Mecca, where, ac-
according to the belief of the Mohomedans, Adam, conducted by the angel Gabriel, met Eve, after they had been separated for two hundred years, in consequence of their disobedience, and baptism at Paradise. The Mussulman pilgrims, after having visited the town of Mecca, perform, therefore, the last leg of their journey on the Ascension day, the 18th of Dhu’l-hijjah, the last month of the Mohomedan year. Burckhardt, who, in 1814, visited those territories which the Mohomedans regard as sacred, in the disguise of an Ayya or pilgrim of the Meccan Army, states that 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 mile and a half in circumference, and it is formed of sandstone and granite, at least a 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 Beyda Adam, where, according to Mohomedan tradition, the angel Gabriel first instructed Adam how to adorn his Creator. On the summit of the hill the place is shown where Mohommad 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 hawkeriers to receive the pious gifts of the pilgrims. The top of the hill commands an extensive prospect over the plains of a lower Martín, Guzmán, with some hills dispersed over the plain; they are filled from a fine aqueduct which supplies Mecca with fresh water from the eastern mountains. From the summit of Arafa, Burckhardt described it as three thousand feet in its breadth, but; the greater number of the pilgrims were without tents. The number of persons assembled here from all the Mohomedan 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 Mount Ararat was the roasting of a sheep, in a procession of a hill, pilgrims towards the hill, the sides of which cover from top to bottom; and in hearing a sermon, which is usually delivered by the kadihi of Mecca, and which lasts from about three o’clock in the afternoon till sunset. No pilgrim, although he may have visited all the holy places of Mecca, is entitled to the name of ayya unless he has been present on this occasion. (See Burckhardt's Travels in Arabia, London, 1829, 8vo, vol. ii. p. 49, &c.)

And Aragon Aragon, kingdom of, one of the provinces of Spain, situated between 40° and 42° 55' N. lat., 35° 5' and 1° 55' W. long., is bounded on the east by Catalonia and part of Valencia; by Navarra and Old Castile on the north; by Andalusia and the Pyrenees on the south; by the North by the Pyrenees. It extends, in its greatest length, about a hundred and thirty miles from east to west; and two hundred from north to south. Aragon may be compared to a large basin surrounded on all sides by mountains. The Pyrenean chain and its ramifications separate it from Franos, the Sierras of Molina and Cuenca from Castile, and those of Morella from Valencia. The principal of these mountains is the great Pyrenean chain. The lofty summits, which penetrate into Aragon, form a number of lateral valleys with a rapid slope to the south. Taking Monte Perdido or Monte Perdido, elevated 11,168 feet above the sea, as a central point, the range descends southwest in eight successive steps to the ocean. On the east the chain generally descends as far as the frontier of Catalonia, where it rises again in the Peñas Malatelas to 11,424 feet; it again descends as far as the valley of Andorra, where it rises in the Montol to 11,663 feet; from thence it descends again, and is crossed again in the Canigó to 9,141, and then makes a rapid descent to the Mediterranean. This circumstance at once led to the erroneous idea that the Canigó was the highest point of the range; but those who have ascended to the top of this 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 rectified.

The first valley of Aragon which we find in the Pyrenean chain, as we advance from the east, is that of Bénavèscas, 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 Big, Broto, Tusa, the capital of which is Sallen, in the centre of the range: about two miles from Sallen is the source of the river Gallego (an affluent of the Ebro), and far from the main mineral area of Panticosa; then follows the valley of Carfinas (on the Pyrenees in the Moncayo range which bears that name, is 6713 feet high); those of Aragües, Hecho, and the last, Ansó, on the frontier of Navarra. Every valley is separated from the adjoining by the gigantic blocks of granite, and the passes of a hundred feet, from the southern 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 the north, in the month of May the snow is not entirely removed. The summit of this province is that called by some geographers the Iberian, which runs in a direction from N.W. to E.S., under the names of Montes de Oca, 5425; Sierra de Moncayo (the Mons Caninus of the ancients), elevated 4931; Sierra de Teruel, 4321, at the city of that name; and then enters Valencia, and terminates on the shore of the Mediterranean near the desierto 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 affluent on the right bank within Aragon are, the Huesca, Jalon, Buerua, Aguass, and the eastern bank, from which the right bank, crosses the line of boundary between Aragon and Cataluña; and on the left, the Arvo, Aragon, Gallego, and Segre. (See Ebro.)

Several roads cross the province, passing through all the principal towns, and are particularly the three thoroughfares, commenced 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 the river. This work was abandoned, and remained unfinished for a century and a half. In 1819, the produce of this canal amounted to about 13,352 l. The object of this canal is double, being designed both for irrigation and navigation.

The climate of this province is suitable 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 Bochotn, or S.E. These two continue during nine months in the year. The period that the S. or S.W. blows is very short. The W., which the Aragonese call hagsuerio, and the Castilian montonn, 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 broom, flax, hemp, sumachs, balsam, madder, saffron, liquors, fruits, cotton, &c. The principal distinction 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 coppers; few of these, however, are worked; the deposits of rock-salt at the village of Remolinos, near Alagon, which supplies Aragon and Cataluña with this article. Pest earth, which has been compared with that of Holland, is found in this province in great quantities, and 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 2,500,000 heads. The rivers produce exquisite fish, particularly trout and caviels; of these, trout are those of a lake, or rather pond, near Alesia. The produce of grain and wine is more than sufficient for the con-
sumption; but there is a deficiency of horned-cattle and mules, which are supplied from France. The industry of Aragon is very limited, and consists principally in manufacturing cloth from imported flax, hemp and burlap. The produce of the country consists of wheat, rice, olives, sugar beets, grapes, figs, pears, dried figs, and wines. Those of Aragon are celebrated for their mildness and high quality.

Aragon is, in a considerable degree, impregnated with salt; the water of many of its rivers is as saline as that of the Dead Sea. Springs of carbonic acid gas arise from the bottom of the lake Gallarones, between Belo and Tornos, fuet and other sea plants are found. Thermal springs are abundant both in the Pyrenees and the Iberian chain.

The population of Aragon, according to the census of 1868, amounted to 637,376 upon a surface of 123,212 square leagues; the number of souls for a square league being 535, a proportion by no means great, even if we consider that mountains occupy a great part of the surface. (Antillon.)

Aranz has the area at 2000 square leagues, of 23 to a degree, which is equal to about 15,846 English square miles. Aragon contains 1 archbishopric, 6 bishoprics, 8 collegiate churches, 1396 parishes, 298 convents of both sexes, 20 military commanderies, 23 hospitals, 2 universities, 13 cities, 339 villages, 698 hamlets. Like the rest of Spain, it is a region of great political activity. Aragon was a province of the dominion of the Carthaginians, Romans, and Goths. When the Arabs invaded Spain, those Aragonese who escaped the sword of the invaders sought refuge in the fastnesses of the Pyrenees, where they were aided together in the valley of Sobrarbe in Navarre, and chose for their leader Garcia Igifus, called also Itigo Arista, on account of his timeliness, about A.D. 519. They stipulated with him that since by common consent they had elected him their chief and captain of the territory which they had wrested from the Moors, he was bound to swear to them, first, to maintain their fiefs, or privileges, and to improve them; secondly, to divide them the territory he should conquer from the enemy; not to enact laws without the advice and consent of his subjects; not to declare war, or make either peace or truce with any sovereign, without the assent of twelve of the most noble and twelve of the oldest and wisest men of the country. The chief agreed to these conditions, and declared that if he ever violated the compact established between them, they were free from their engagement, and might elect another chief, either Christian or Pagan (Zurría, book i. ch. v. p. 9). The Aragonese, under the protection of the royal authority, created a magistrate or officer peculiar to them, whom they denominated the Justicia. This officer was the guardian of the laws and the mediator between the king and the nobles. He was elected by the Cortes and the Cortes together, and his office was for life. His person and property were sacred; he was the supreme interpreter of the law: to him both king and subjects applied for redress against wrong: his decisions were without appeal, and he was only answerable to the nation duly assembled in Cortes. Once elected, he could neither be arbitrarily removed by any power, nor renounce the office. He had two substitutes, or lieutenants, to act for him, when he was unable to perform his duties. These officers were at first appointed by him, and enjoyed the same privileges as he did. Both the justicia and his substitutes were chosen from the order of caballería, or middle class between the nobles and the commons. In 1461, a law was enacted by which the kings were empowered to nominate the deputies of the justicia. The Cortes deposited in a box the names of eight individuals as candidates for that office, out of which the kings chose two by lot, when it was necessary to fill up the vacancies of those whose term had expired, or who had died. Their office lasted only three years, and none could be elected before the same number of years had elapsed. It is impossible to say when the office of the justicia begun; Zurita says that it was in existence as early as the 10th century. The justicia, creation contemporary with that of the fuero 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 caballería, and the people. The ecclesiastics were not admitted into the Cortes until 1861. (Blanco's Modo de Proceder en Cortes, ch. vi. p. 14.)

The first Cortes, the one of the rey donnats Erinse or communes, was distinctly national, and consisted of thirty-one men. These orders formed one house. Every brazó gave its vote separately, and the majority in each brazó decided the vote of that brazó, but the unanimous consent of the four brazos was necessary to the enactment of any law, except one relating to the suppression of 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 brazó consisted of twenty-two persons, and the cityér brazó of 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 those of Teruel, and Daroca, 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 convocation, they adjourned from day to day, for an indefinite period of time. The adjournment was made by the justicia: if before the sitting of the sessions, in virtue of its power, as justicia of the Cortes; and if after, by the order of the king, and not the will of the Cortes themselves. When the king absent himself from the place where the Cortes were assembled, they were dissolved. The king presided in the Cortes in person, or by his lieutenant, whom he had empowered the crown prince, or some other individual of the royal family, to supply his place.

The opening of the assembly, a discourse was pronounced by the procurador general. The Cortes was adjourned every time a brazó answered separately to the speech from the crown, but subsequently the archbishop of Zaragoza addressed the king in the name of the four brazos. On the first sitting every brazó appointed a certain number of individuables or representatives of their respective orders, who were to shape the matters which were to be laid before the general assembly. These were called promovedores, or promoters, and tractadores, or discursers. Of the promovedores, two were so by virtue of their office, viz., the archbishop of Zaragoza for the ecclesiastical, 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 discussed, and the tractadores examined and arranged them in proper order.

From the first opening of the Cortes, the justicia was obliged to sit in a place below the throne to hear the grievances, which were assembled in the council of the Cortes, and which were made by any individual, high or low, for infractions of the fuero, and this, says Martel, was not done by way of supplication, but as a matter of right. Certain officers called representadores, or examiners of grievances, or collectors and 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 grievance, he was excluded at the time of giving, the sentence, which was pronounced by the justicia and the Cortes. Both the positive infraction of the law, and the nonfulfillment of it, were a subject of grievance. As these complaints were more frequently made by persons of rank, some have supposed that this was a new abuse of the nobility; but Blanco says, that if any officer of the crown had put to the torture a thing contrary to the fuero, the most miserable farmer of the meanest 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 case.

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 proferia or escorrer, offer or succour, and was made not in money, but in men. The first time that the kings of Aragon asked for a grant of servicio was at the Cortes of Monzón, 1376, when Pedro IV. demanded a certain sum to pay one thousand lancers to continue his war with France.

The deputies, says Blanco, were amazed at this novelty, and after before hearing the avowal of the highness, "that the Aragonese were not accustomed to
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, the Archdeacon of Toledo, in March, 1478. Miser Juan de Mariguillén, treasurer to the queen, presented to the tratoadores 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 it had never before been done, and that 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 wish, and therefore they begged her to consider her petition, and 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 alter it in the least. In 1483, Pedro IV, obtained of the Cortes a loan of 60,000 ducats, a buen tono, to be duly returned. In 1412, 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 Tunis and Bugia. The ordinary expenses of the state were defrayed by means of certain taxes of the Cortes, levied generally for six years. These taxes were either direct, as the bajoage, or a certain sum paid for every couple of oxen, the monetaq or property tax, and the focage or house tax; or indirect, as the almans, or a tax upon the articles of fool. After the minute, after the elections having been granted, nobody could exact them, under the penalty of excommunication.

The last sitting of the Cortes was that called the solio, 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 debates and arguments by which the Cortes had been convened, the patience of the body, the king 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 dipuación, in union with the justicia, watched over the observance of the law, and examined the matters, and their contents in the financial department.

Among the many privileges of the Aragonese, the most notable were, the privilegio de la manifestación, and those of the fueros, by the privilege of the manifestación, when any subject was accused, and apprehended by the king, contrary to the fueros, 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 cortes, called the prison of the manifestación, 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 consented—not to prosecute capitally any of the Cortes, not to impose upon the Cortes, nor even to imprison him without previous sentence of the justicia to that effect, and with the approbation of the majority of the Cortes; secondly, that the king should be obliged thereupon 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, with the condition that the persons appointed should be foreigners, or by his own choice; 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 another, would declare, by a summons, these privileges, seventeen castles in Valencia and Aragon were placed in the hands of the representatives of the union. This extraordinary transaction took place on the 29th of December, 1289. Pedro IV, abolished these privileges in the Cortes of Zaragoza, 1348; still the justicia of Aragon, in union with the dipuación 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 Pérez, 'upon his accession to 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, Nos que valemos tanto como vos, de hacemos Rey y Senor, los que en todo caso de nos miren, sino, no; that is, We, who are worth as much as you, make your king and lord, provided you keep our laws and liberties, otherwise not. (Relaciones de Antonio Pérez, P. 92.)

Under the monarchs of the Austrian dynasty, those 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 Pérez from the grasp of the king and the then Aragonese Cortes, was given a new title, 'The Aragonese 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 the defense of their country. They were shamefully deserted by the nobility, imprisoned while in the performance of their 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 an Aragonese man, 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 Pérez, was his arrest, and his defence his martyrdom. From that time the constitution of Aragon became an empty sound; but it was long after another five or six centuries, 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 fifteenth century, yet instances may be adduced both in Aragon and in Castile, of the nation having departed from this custom and securing the election of any 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 1612.

In an accord made in 1318, to maintain the 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 long after any 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 tenaciously opposed to any innovation. The goodness 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.
1053. Sancho, son of Ramiro.
1094. Pedro, son of Sancho.
suggested that the Caspian was lower than the Black Sea, and the fact was ascertained with great accuracy, in the year 1811, by the Russian travellers, Engel and Caramust and Parish, who were sent by the Academy of Sciences at St. Petersburg to examine the mountainous region of the Caucasus. By a series of levellings at fifty-one different stations across the mountains, and by means of barometrical observations, they found the surface of the Caspian at 644 toises or 219 English feet above that of the Black Sea. This depression extends to a great distance on the north, for by the barometrical measurements of Helmerson and Hofmann in the years 1828 and 1829, the town of Orenburg, on the Ural or Iak river, is only fifty-two toises or 3324 English feet above the Caspian, consequently very nearly sixteen feet lower than the level of the Black Sea. Now Orenburg is 500 versts, or about 335 miles, in a direct line from the shores of the Caspian; and Humboldt is of opinion that the northern part of this depression runs between the neighbourhood of the towns of Orenburg and Saratov, and consequently includes all that country lying between the Volga and the Ural south of that line, these rivers being in 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 tableland of India, 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. Its north-western part, which the Monghodjar supposes is 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 insouled conical, called Aloukzouk, the highest point, is only 600 feet above its base. The Urals in the neighbourhood of Orenburg are composed of a red sandstone, and the same rock extends into these steps of the Kirghiz. Dr. Pander, the naturalist, who accompanied the embassy to the Caspian, says of these Urals, found between Orenburg and the Monghodjar mountains, the red sandstone replaced by a pudding-stone composed of quartz pebbles united by a quartose 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 belemnites and ammonites, some of the latter two feet in diameter; and he discovered beds of gypsum associated with the limestone: the Monghodjar mountains are composed of the sandstone associated with porphyr 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 enclose any part of it. In the northern part of this range, the peaks reach only to 6000 feet, but in the southern, the easternmost mountains, extending in a nearly north-east direction for 300 miles, include the Caspian Sea.

The case of the Aral Sea, a great inland lake of Asia, situated east of the Caspian Sea, between the forty-third and forty-seventh degrees of north latitude, and the fifty-eighth and sixty-second degrees of east longitude, is different. The only exact astronomical observation which has been made with the view of determining the position of the Aral Lake is that of M. Lenn, who found the longitude of the western shore, in latitude 50° 32' 20" north; 59° 59' east of the meridian of Paris, or 59° 29' 14" east of that of Greenwich. Its greatest length is about 290 miles from N. to S.; its breadth from E. to W. is irregular, but it is no where less than 130 miles, and in some places 250. In superficial extent it far exceeds any lake in the east of Asia, and, except the Caspian, it is the largest lake in Asia. It is formed by the Cona’s and the Terek, and is nearly circular in form, and about 20 miles in diameter. The surface of this lake is more than 60 feet below the level of the Caspian, and has thus a salinity about five times greater than that of the Caspian Sea, and is said by Humboldt to have been formed no more than 1000 years ago. It is filled with a vast quantity of brine, which has been derived from the Aral Sea, which was formerly larger than the Caspian, but has gradually diminished, the water of which has flowed by evaporation. The present size of the lake is about 12,000 square miles.

The lake is situated about 600 feet above the Caspian Sea; the river Syr-Sou or Sibouk, the ancient Iasous, flows into it from the east; the Amou or Juoin, the Oxus of the ancients, enters it from the south. The lake, like the Caspian, has no outlet; and the whole of the water supplied by these rivers, as well as that of some minor streams, must be carried off by evaporation. The evident proofs of a gradual lowering of the level of the lake, which we shall afterwards mention, show that the supply of water is not equal to the waste; in the heat of summer, the evaporation is so great that the lake is only one and a half feet above the bed of the lake. The northern sides of the lake, like those of the Caspian, are covered with the sandy barren waste, called the famous sand-blebs, which sometimes reach a height of 300 feet. The sand blebs are of considerable extent, and the west coast is covered with a continuation of the sand hills from the west of the Caspian Sea. The former and latter are caused by the wind and the sea, and are like the sea-beds of the Caspian.

The coast of the lake is not very extensive, and is diversified by a large number of islands. The largest is the Island of the Virgin; this is a flat-bottomed island, covered with pebbles, and is about three miles long, and two miles wide.

The water of the lake is remarkably clear, and the bottom is pebbled with gravel, sand, and shells. The latter are of considerable variety, and are apparently derived from the beds not far from the surface, and which flow from the steps on the north becoming quite dry.

It has been ascertained, that in this part of Asia the continent, over an extent of more than 18,000 square leagues, is depressed below the level of the ocean; the Caspian Sea occupies the lowest parts of this depression. It was long
ment of Colonel Monteith (Journal of a Tour through Aserdija and the South of the Caspian, in the third volume of the Travels of the Royal Geographical Society) states 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."

The Aral Mountains are close to the banks of the Syr-darya, a distance of more than 270 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 simple, deep places, and at times left a cup of 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-darya, there is a great sandy isthmus Cara-Coum, extending black and reedy, 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 Cara-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 some places rising 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 Gouberlinsk near Orenbourg to Oust-ourt, between the Aral Lake and the Caspian. The chain of low hills of the Great Bourouzouk, 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 Mewaliwski Gori. The caravans between Astracan and Khiva, and between Orenbourg and Khiva, pass through this isthmus, the route to Orenbourg lying along the shore of the Aral Lake, and the distance between the two places being a little more than 150 miles. The traveler, Thonnard, 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 Jaxartes flow into the eastern part of the Caspian. But until we are better acquainted with the structure of the isthmus, no sound opinion can be formed 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. Duhamel and Anjou of the French navy, from the Caspian to the Bay of Mortoy Konouk, 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. Poplars and willows, which attain a height of five or six feet, are met with in many places on the rivers 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. Liliaceous plants of the genera Hyphessos, tristan, and Zygophyllum, are very profusely 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, mouses, dormouse, and marmot, are abundant, and the Balik bou 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. Pande's Appendix to Meyendorff's Travels; A. W. Kephalaides, De Historia Mariae Capri; Engelhardt und Parrot, Reise in den Kaukasus; Meyendorff, Voyage d'Orenbourg à Boukara; Humoldt, Fragments Antiquites.

ARALICEAE are a small natural order of plants, nearly related to the umbelliferous tribe, from which they are solely known by their young fruit consisting of more parts than two. They are frequently shrub-like, and not uncommonly furnished with powerful hard prickles; but they often are also herbaceous and unarmed, like umbelliferous plants themselves. As an illustration of the order, the American ginseng, Panax quinquefolium, may be taken.

This plant, which is nearly related to the celebrated stimulating 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 ascribed to ginseng by the Chinese is considered to be picrophyal.

ARAM, ARM, literally, the high land, is a geographical designation given in the Old Testament to all the countries between Phoenicia, Palestine, Arabia, the Tigris, and Armenia, or to those countries which the Greeks called Syria and Mesopotamia (Jer. vii. 8; 1 Kings xi. 26). Aram was divided into:

1. Aram of Damascus ᴭᴅɜ b ʜɪ, 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. ᴥɜ b ʜɪ Aram-Zobah, which was, according to the Syrian authorities, Nisibin, the Greek Nisibis. But this cannot be, because Nisibis is in Aram Naharaim, or Mesopotamia, which, according to Psal. lx., differs from Aram-Zobah. The passage to which we refer belongs to the
English authorized version of the first verse: "When he (David) strove with Aram-Naharahim and with Aram-Zobah,.."

We read also in the Holy Scriptures that the king of Zobah obtained auxiliaries from beyond the Euphrates from Aram-Naharahim. According to Benjamin of Tudela, Zobah means Haleb, or Aleppo. Spanheim and Bochart think that Aram-Zobah means that part of the territory of Hamath where the town of Zobah was situated, not far from Tadmor (Bagdad), which has been referred to A.D. 45. The characters of the West Aramaic or Syriac differ greatly from the Hebrew. (See, for the various Aramaic characters, the articles Eran
gelo, Chaldees, Syriac, As.

The Aramaic name of the Shemitic dialects spoken by the descendants of Shem. Many forms of nouns and verbs, which in Hebrew and Arabic are poly-syllabic, are shortened in Aramaic into monosyllables. The forms of nouns in Aramaic are less numerous, and their terminations are more complex than in Hebrew.

The dual is rare in the East-Aramaic. The personal pronoun of the second person singular combines both genders in one form שְנָא.

Thus we see that the Aramaic has fewer grammatical forms than the cognate dialects, but we observe the reverse in the following instances.

The Aramaic has four active and four passive modifications, under every active modification, two participles, one of which has a passive signification, although the passive modifications have their own participles. The third person plural of the present tenses distinguishes the genders by means of a double formation. A present tense is formed by the combination of participles with the personal pronoun.

The Aramaic seems to have fewer words than the Hebrew, for an exact notion of its lexicon can hardly be formed till the dictionary of Bar Bahel is printed and has become more generally accessible. Abbubelbaa Isba bar Bahul composed his Syriac lexicon, explained in Arabic, in the convent of Kucharia, and his whole script of this work exists at Oxford, Cambridge, and Florence.

While the Jewish community maintained its political independence in Palestine, the Hebrew continued to be the common language of the country, and, so far as we are able to judge, although it was entirely pure and free from any important changes in those elements and forms by which it was distinguished from other languages. A few foreign words only had crept in along with the products of foreign commerce, arts, and inventions; and these, in consequence of the want of appropriate terms in the language of the country, received the right of citizenship. Even in the time of Hesekiel, the Hebrew dialect differed so much from the Babylonish-Aramaic, that it is probably, in respect of pronunciation, that the latter was used in the ears of the common people of Jerusalem like an entire foreign language, and was intelligible only to the principal officers of the court (comp. 2 Kings xvii. 16).

When the Jews of Palestine were dispossessed of the land and subdued Palestine, everything assumed another aspect. The Jews of Palestine lost, with their political independence, the independence also of their language. The Babylonish-Aramaic dialect supplanted the Hebrew, and by degrees became the prevailing dialect of the people.

The Babylonish-Aramaic language was very closely allied to the Hebrew; it stood to it in nearly the same kind of relationship as the Low-German to the High German. Both were the offspring of the original Shemitic language, which was used from the Halys in Capecia to the region beyond the Tigris, and from the source of the Tigris to Arabia. Both of these, as well as the other Shemitic, 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, and that the language of each exposed to the sun, or to dry in Aramaic, of which only the noun נִשְׁנָא (sun) remained in the Hebrew. The same word was sometimes in use in both dialects, but in different signifi-
cations. The Babylonian dialect borrowed expressions from the northern Chaldeans, who made an irruption into the country. Traces of such additions are to be found in the vocabularies of the officers of the Persian government, and in the documents granted to the government. The Babylonian pronunciation was easier of utterance, and more sonorous than the Hebrew.

The numerous Aramaic colonies (2 Kings xvii. 94) which were substituted for the subjects of the kingdom o.
Israel, carried to Assyria by Shalmaneser, retained their former language, and caused it to spread in the neighbourhood of their places of residence, even before the destruction of the kingdom of Judah. At a later period, the Babylonish-Chaldean governors who ruled over Palestine; the stationing of Chaldeans brought with them for the preservation of tranquillity, and which were composed of Aramaeans and Chaldeans (2 Kings xxiv. 2); the host of foreign officers in their train, and the transactions of all public business in the Babylonish-Aramean dialect, must have greatly tended to restrain the use of the national Hebrew dialect, since the Jews, who held public offices, or stood in any other near connexion with the new rulers, were compelled to become familiar with this idiom in these business. This was also reason to suppose that the Babylonish had still earlier been the court language at Jerusalem (see 2 Kings xviii. 26.)

The Aramaean language derives peculiar interest from having been spoken generally 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 occasional quotations and expressions 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 current in Palestine, and it was first introduced by the Macedonian conquests, and extended under the dynasty of the Seleucidae. We know, both from positive testimony and the indirect evidence of inscriptions, &c., that Greek was as common in Palestine at this period as the French has been in France, and is now in the province just mentioned. Greek was also the language of science and learning, as it contained nearly all the knowledge which at 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 his Biblical Researches for 1831, and partly in Edinburgh, in the Biblical Cabinet, 1833, vol. i. The standard work on the Aramaic language is, Andreas Tholomie Hofmannis Grammatica Syriaca libri sexti; ad Libri Scripturae Aramiticae generis exhibens, Hale, 1827, 4o.

English readers may compare Yato's Syriac Grammar; Harris's Chaldean Grammar, 1824, 8vo; and Ḫorēsē Nē Ḫorēsē, a Hebrew and English 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, 1834, 8vo, price 21s.6d.

PEDRO PABLO ARARCA DE BOLEA, COUNT OF, descended from a very antient and noble family in Aragon, was born about the year 1718, and embraced 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, and conducted him to the hospital. On his return to Spain, he was sent to Portugal to supersede the Marquis of Sarria in the command of the Spanish army then invading Portugal. In August, 1762, he reduced Almeida and other places; and soon after peace was made. In 1765 Ararca 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 arising from the insurrection of Aragon. 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 province, but a new military division of importance, by the establishment of a permanent garrison, and by other prudent regulations, the count prevented the recurrence of similar riots. During his travels in Europe, Ararca had improved his natural talents and knowledge.

In Prussia, he had devoted his attention in particular to examine the military tactics adopted by the great Frederic, which were then the admission of Europe, with a view to apply them to the military system of his own country. With a courage, firmness, and perseverance which no obstacle could daunt or undertake, he undertook the branch of the administration, and the adoption of those improvements of which his country stood so much in need. He diminished the auxiliaries, confining their number to two churches in the emperor's province, and he reformed the municipal system by the establishment of the diputados del comun, or, deputies of the commons. The coin, which was greatly debased, was called in and replaced by sound money; a new and improved plan was adopted for recruiting the army; the order of the Jésuitas, houses of education established; and the thickets of the Sierra Morena, until then the abode of wolves and desperate bandits, were colonized with an industrious population of Germans, Swedes, and French, through the efforts of the philanthropic Olavide. Ararca also endeavoured to check the papal power in Spain by reforming the tribunal called the nun-cistura, which he composed of six native ecclesiastics presented by the king, and confirmed by the pope, instead of a body of Roman jurists appointed by the pope alone, of which it formerly consisted; and by establishing a law that no papal decree should be valid in Spain without having first received the sanction of the council of Castile. The persons of the de senatus consultus, the rosarios, and other pious or rather impious exhibitions, were also abolished by him. The power of the Inquisition was greatly diminished by the establishment of a general inquisitor, and, indeed, had it not been for the impudence of the French encyclopedists, he would, perhaps, have abolished that sanguinary tribunal. When at Paris, Ararca frequented the society of Voltaire, D'Alembert, and other philosophers of that period, where he had often expressed his intention to abolish him, he at length overcame it; for he was given to power. Not long after his appointment to the presidency of the council of Castile, an article appeared in some of the publications of the encyclopedists, in the codes &c. (p. 10, &c. edit. 1810), wherein this confidential conversation was revealed to the world. When Ararca read this account, he was greatly vexed, and said, 'This impudent disclosure will ruin me, and fall all my plans.' He was not mistaken in his conjecture: such a ferment was raised against him, that foreseeing his ruin unavoidable, he solicited to be appointed ambassador to France, and retired from the administration A.D. 1773. Ararca returned from Paris in November, 1787, but still remained in disgrace. He then became the court of counsellor of state. After the accession of Charles IV. in 1788, Ararca superseded count Florida Blanca in the office of prime minister (1792); but he was not long after dismissed and went to the Indies. He retained, however, the presidency of the council of Castile; and he was exiled to his native province, where he died, according to some authorities, in 1794, and according to others, which is more probable, he depended on, in 1795, leaving behind him a young widow, without any children.

Ararca was a man of profound mind, and of a firmness characteristic of the Aragonese. Coke relates the following anecdote. One day when Ararca was urging, with usual perspicacity, one of his measures of improvement, the king, who had exhausted all his objections against it, said: 'Count, you are as obstinate as an Aragonese nulce.' 'Please your majesty,' replied the minister, 'I know another vice is more injurious than that of your highness.' 'His sacred majesty, Charles III., king of Spain and the Indies,' answered Ararca. The king smiled at the sally of his minister, and dismissed him with his usual complacency. The Marquis of San Andres's mind to a deep well with a narrow mouth. (See Coke's Memoirs of the House of Bourbon, vol. iv. ch. 67.)

ARANEA. [See Spider.]

ARANJUEZ (Ara Jovin), a town in Spain near the confluence of the Tagus and Jarama, in a high and bleak hills, in 40° 2' N. lat, 3° 36' W. long, twenty-six miles S.E. of Madrid. Aranjuez was once country-residence of the master of the order of the Santissimo Sacramento; it became the resort of the ruling family, and the kings selected it for their residence during the spring months, on account of its advantageous situation and the mildness of its climate. Philip II. was the first king
who possessed it. The palace was 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 III. continued it, and Charles IV., who delighted in such embellishments, contributed towards the additions. The gardens, which are watered by the Tagus, are particularly admired for their natural beauties. In the time of the Peloponnesian war, this palace suffered a true siege, and was taken by fire. Not only did it perish, 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 and level, and intersect each other at right angles. The actual population of Ararat amounts to 5245, which number is more than doubled during the residence of the court. In 1598, part of the ground, which had till that time been uncultivated, 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 local productions during this time have been partly repaired. (See Maffini; Ponc, carta v. vol. i.)

ARARAT ( дополнительное дополнение), 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 xii. 37); the Armenians call it to this day Ararat. The mountains 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. i. 27). That Ararat was originally a name of the region appears from Moses of Chorene (Supplemento geometrico, p. 529), who derives the name from Araji Arat, the spot of Arzji, who was king of Armenia in the days of Semiramis. (See Schroeder Thesaurus Linguar Armenian, p. 55; and Macqueen, Armenia, Not. Armen. ed. Whiston, pp. 293, 308, 358, 361.)

The ancient interpreters render Ararat, in Genesis xvi. 37, and 2 Kings, by the word Armenia, as Aquila did with Symmachus, Theodotion, and the Vulgate. At present the Armenians give the name Ararat in preference to that of Armenia, and the Tourneforts, who made an expedition to the Persian Kobs-Nah, the name of the mountain of Noah. (See Wall's Assy., pp. 518, 856, &c.; Gesenii Thesaurus.)

ARARAT, MOUNT; a celebrated mountain of Armenia, situated to the south-west of the town of Erivan, about five miles from the sea, which rises above the sea-level 8000 feet higher than the volcanic peak of Teneriffe, and exceeds by 5528 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 is stated by Ritter to be 7000 feet above the level of the sea. In the ancient world the mountain is 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 passed along the mountain has been described in his journal, when he first came in sight of Ararat, rising from a widely-extended green plain, fertilized by the clear waters of the Araxes, and covered with villages. He had the advantage of seeing it raised by clouds from its base to its summit, and the broad confines of the plain from 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 and Black seas. A remarkable circumstance, as connected with the traditions belonging to this mountain has been observed, namely, that when seen from afar and in certain positions, the summit has a striking resemblance to Noah's Ark. The Armenians call Ararat, Massissescar, or Mountain of the Ark, the Persians Koi-Nah, or Mountain of Noah. It is a common belief that the remains of the Ark still exist on the summit, and that the sacred wood is only the garden which was destroyed, but even the Ceres, a fine statue of the fountain of that name, entirely disappeared.

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ARA

and in some places 21 broad, situated eastward of Erivan and between Ararat and Sevanall, 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 rivers are impassable by boats. He says that he saw them within 700 yards of him, and that he and his people threw themselves on the ground for the sake of concealment while the pirates passed by. He adds that the young ones are caught in traps by the natives, that many of the mouths of the rivers abound with willows throughout Persia. (Tournefort, Voyage dans le Levant; Sir R. Ker Porter's Travels; Mr. Morier's Travels; Humboldt, Fragments d'Asiaticq; von Hoff, Géographie de l'Asie Mineure; Monstel's Tour through Azerbaidjan, &c.)

ARARAT, or PILOT MOUNTAIN. [See North Carolina.]

ARAS, ERAS, 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 S.E. of Erzerum, and at 35° 47' N. lat., 41° 9' E. long. A branch of the Noyzah rises on the Caspian, and drains the southern part of the same elevation, a fact known to Pliny (vii. 95). Its general course from this point is east, with a slight deviation to the north, through Basen and along the borders of the Caspian Sea to Tiflis, where it is called the Vazik of Erivan, at a place called Sahatshoph. From this point it takes a bend to the S.E. (passing the eastern base of Ararat) as far as the ruins of old Julfa in the province of Nakhchivan: at Sahatshoph, the frontier of Erivan, its breadth, according to Tournefort, is about equal to that of the Seine at Paris. Erivan and Nakhchivan are now in the Russian province of Armenia, which was ceded to Persia in 1828. Between the bend to the S.E. and the initial line of the Caspian, there remains a considerable width. 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 Khabshan, where it turns N.N.W., running in this part of its course, with some considerable bends, through part of Nakhchivan, Kaplam, and the Karabagh to near Jevat, where it is joined by the Kur (Cyros) 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 29° 19' N. lat.); a long projecting tongue of land, or delta, is here formed between the Caspian on the east, and the small gulf of Kistigotch on the west. After its junction with the Kur, it separates into two, one running 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 Dijbian-Nazim is of equal length of Ervern. 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-Galeh in Basen, the Dchenkhi, which comes from a lake of the same name in Cars, and the Arpathsh (according to Rammel, the Harpaxen of Xenophon, Anab. iv. 7) in the same province; the Arpathsh runs in a deep ravine, with numerous ruined castles on its high banks; the Zembali, one of its branches, and along the Zemv, which is said to be about 6000 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 length, 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 Khabshan, and a fourth at Jevat, below the junction of the Kur. There was a bridge at Julfa (38° 44' N. lat.), of which the ruins remain, and similar traces of bridges crossing the river still exist in the upper parts of the Caspian. Part of the water of the Araxes is 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 in its present state the current is extremely impetuous and dangerous. In Khabshan there is a considerable rastarce at a place called Ereesar; 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-

ably some exaggeration in this statement, if these falls are the same which Colonel Montesich describes as not more than six feet high, and which he considers to be the falls of Bresar, or Ara Bar. This is probably the cataract alluded to by Strabo (xii. 3, 11), 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 occurs near the source of the Araxes river, and the plain was drained. The position of this cataract appears also to correspond to the great break in the mountain chain which Colonel Montesich places about forty miles below Julfa. (See Montesich's Map, and Rennell's Atlas.)

In the Araxes was known to Herodotus, though only from hearsay (i. 902, iv. 40); he describes it as flowing eastward from the country of the Median, and dividing at its approach to the Caspian into two branches, one of which is its way clear to the lake, the rest being obstructed so as to form swamps. This seems in substance to agree with Strabo's description of the outlets of the Cyrus and the Araxes (xviii. 3, 401). It is evident that the left or eastern branch of the Araxes means by the Araxes; but we think there is little doubt that he meant the Aras 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 north of the Caspian, helps to complete the solution of our difficulties. (See Manneri, Gieir. der Griechen und Römer in Armenien.)

Strabo, according to the fashion of his countrymen, ex-

presses the word Aras as belonging of Greek origin, and having reference (according to its supposed derivation from ἀράξος, 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 (ἀραξίδατον) 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 Dandur Emir) flowed through mountainous Persia and entered the lake of Bakhtegan. Xenophon, in his Anabasis, gives the name of Araxes to the Aboras, or Chaboras, now the Khobair, an affluent of the Euphrates. Araxus was a large town on the coast of the Caspian, near the confines of Elia and Abonoe. (See Journal Asiatique de Paris, No. 71, 1833; Journal of London Geographical Society, vol. iii.)

E.R.A.T.U.S. This is an astronomical poem in Greek, which has come down to us. Whether the date of his birth nor death is exactly known; but, from other circumstances, we infer that he must have been alive in the 125th Olympiad, that is, he lived about the time of the Arat Punicus and his works, 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 be regarded contemporary. The materials for his life are chiefly collected from an anony-

mous treatise, one of the lost works of the famous Uromagogia, and various scattered notices and allusions in classical authors. There are, in fact, three anonymous lives of Aratus, besides the notices in Claudian and Rodoctus. All that is worth remarking is, that he was probably born in Cilicia, some say at Tarsos, others at Soli (afterwards called Pompeipolis); that his calling was medi-

cine; that he was invited to the court of Antigonus Gonatas, king of Macedonia, son of Demetrius Poliorctes, who is said, from the name of the Aras, to have been educated by a Stoic named Dionysos Heracleotes in the principles of that sect.

By the desire of Antigonus, Aratus turned to the Phaenomena of Aratus turned to the Phaenomena of Hesiodus into a poem, or rather, what he had made any remarkable astronomical qualification 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-
times: for this commentator frequently cites the prose of
Kudenus and the poetry of Aratus together. The work of
the former has not come down to us; in fact, Aratus is the
second Greek writer on astronomy extant. Autolycus being
the first. But not being an observer nor a mathematician, and
for this reason, that, in his description of celestial phenomena, he uses no higher
degree of precision than might have been attained by a
monitor or a priest. For instance, he describes
the head of the dragon as never setting, but only just
-touching the waves. This, at his era, amounted to a
latitude of 38° 7′; but, in another place, he describes the intersection of the
northern tropic and the line of equinoctial
time 4°, more than 51° 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
Phainomena, or Phenomena, and the Astrolagh, or Prognostics;
the first contains 733 lines, the second 417. It opens
with a declaration of the dependence of all things upon
Jupiter, *scepe *children all men are, and who has given the
stars as the guides of agriculture. This passage in italics
(vi. 559) has never been bettered. In a
manner later period, quoted by St. Paul in his address to an
Athenian audience (Acts of the Apostles, chap. xvii. v. 44),
for in him we live, and move, and have our being: as cer-
tainly as his laws and decrees are above all the
works of the moon's offspring. If the words in italics represent the correct text,
they remarkably serve to show the notoriety of the poem, if it be recollected that Paul was a countryman of Aratus;
but in pointing them out thus, the New Testament (see Gries-
bach's edition) support the reading αὖς μὴ διηγείται.

Aratus then proceeds to lay down the doctrine of the
immutability of the earth and the motion of the heavens round
a fixed axis. He describes the names and configurations of all the
constellations then in use, their relative times of rising and setting, the march of the sun through the
tropical, and the milky way, which is described as one of the great
circles of the heavens. The planets are simply mentioned as being in motion of the zodiac, but no idea is given of
the length of 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 pacing of the stars; for example, it is said that Lyra has none but small, and Cytus
none but moderate, stars, though there is one of the first
magnitude in both. There are various phenomena which
are irreconcilable with any one latitude, an instance of
which we have noticed; and there are others which could not have existed at any one epoch; for example, the
separate description of the winter and summer solstices belongs
to periods distant by 900 years from each other.

The book of Prognostics consists of predictions of the
weather, and of the phenomena of astronomy: a
book we are told to believe who has not at the same time
corrected 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
weather upon things by nature more like the *Georgics of Virgil than any other poem of
antiquity. The latter work contains several imitations of the
Prognostics. There is not a word of astrology either in
the Phenomena or the Prognostics.

Aratus wrote in 125 verses, or 2560 lines on Homer, on the
Iliad, on astronomy, on medicine, a hymn to Pan, a fun-
eral ode on his brother Myriss, and a poem called Eccehos or
Sceythian. More than thirty epitaphs of his were extant at the
fire that destroyed his biography.

The number of commentators upon Aratus is very great.
The elegance of the verse caused his work to be long
in time in circulation among the Greeks. Petavius gives a list
of thirty-six commentators in Greek; among the authors
of the first three ages are: *Aristotle, Plutarch, Eustathius,
and Hipparchus. The last has come down to us, and owes its
origin to the differences which Hipparchus had observed
between the descriptions of Aratus and his own observations.
According to some, it was his intention to correct *Eudoxus for the worse; 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
comparatively modestly, but with decided justice, charged
the heavens, but from a globe, on which the stars had been
incorrectly laid down.

A full account as well of Aratus as of his commentators
will be found in Delambre's *Histoire de l'Astronomie An-
ciente. The anonymous *Life of Aratus, is, as before noticed,
in the *Chronologie of Petavius, together with the
commentary of Hipparchus and another, which has been
attributed sometimes to Hipparchus, sometimes to Eratosthenes,
but which is given by the earlier writer as a
work of his own. This work of Petavius is
translated into Latin by Cicero when a very young man.
Several fragments of this translation still exist, and are given by Grotius in his edition of
Petavius. It was also translated by Festus Avienus, both of
which versions are to be found in the
same edition, which was published at Leyden in
1600, and contains also the original Greek with notes.

There are no new editions of Aratus. The first is by
the elder Aldus, Venice, 1499, followed by
other writers on astronomy. The latest is by Bekker, with
scholia, Berlin, 1828, 8vo. J. H. Voss published a critical
edition of the Greek text of Aratus, at Hidelberg, 1834,
4to., and accompanied it with an excellent German verbal
version.

ARATUS, son of Cleinias, was born at Sicyon 271 B.C.
His native city, distinguished in the history of Greece
as a school of art more than for her political
excellence, 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. Cleinias held
his precipitous dignity for a short time: but he was killed
by Antialcidas, and Cleinias and his son shortly after, as
like fate gave way to Passes, who was succeeded by Nic-
ocrates. Aratus was but seven years old at his father's
death. He died in the tumult, and falling into humane and
honorable captivity, was not forced to become a
tyrant's servant, but was sent to Argos, and there
then conveyed to Argos. There he grew up to man-
hood, distinguished for his bodily powers, a frequenter of
the *palaestra, or place of exercises, and a frequent voter in
the rough games which the whole of Greece loved to prac-
tise and were proud to excel in. When he had come
into the triumph, Aratus was just entering upon manhood,
and he became the object of that person's especial fear. This
jealousy was not unfounded. Aratus already modulated the
art of poetry, and contrived to sustain his love for
his country and to endeavour to associate in this view 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. He persevered however,
and carried on his design with secrecy and boldness. He
deceived the spies whom Nicocles employed to watch his motions, by an affec-
tion of carelessness and zany extravagance; and when his
friends 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 retine.
At the time of his extinction, he was really in the
enjoyment of the pleasure in life by Plutarch; he succeeded in
sealing the walls, forced his way to the tyrant's residence, and
mastered his guard. Nicocles escaped by secret passages.
Aratus immediately on the wind the city to summon his
friends; and at break of day the population assembled
in the theatre, where proclamation was made that Ar-
atus, son of Cleinias, invited the citizens to resume their
liberties. This striking revolution was effected, a.d. 251,
without the loss of a single life, either in the heat of combat
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, and those who returned to Sicyon
were 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 re-establishment
of the Bourbon dynasty. 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
Greek cities, gave himself up to industry and research,
and procured the enrolment of Sicyon as a mem-
ber of the Achian confederacy. (See *ACHIANS.) Aratus
had cultivated the friendship of Polymnie Euegeres, king of
Sicyon, by sending her presents, notably a series of
illustrations of Greek 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 (180 talents),
the whole of which Aratus employed, on his return to

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character of Aratus; who, as we are told by Pindar, even during those years when the forms of the constitution prevented his having the name of strategos, 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 good of his country, above the general advantage of the Achaean league.' Accordingly, he was elected general oftener, it should seem, than the law strictly allowed; for in a period of thirty years from his first elevation, n. c. 311, he was chosen 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 readiest way of retaining control in subject states; to expel the southern division of the Peloponnesians; 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 Tholians, a warlike and turbulent people, who derived much of their wealth from plunder, and were ever opposed to peace and to good order. Hence, though sometimes led to alliance with the Acheans by a common jealousy of the power of Macedon, they were much more frequently arrayed against them; and in one of their predatory incursions into Achaia, they were repulsed with 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, in fact, a man of singular prudence and so 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 hesitated when the events were of long duration and he had to deliberate: 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 Achaean league, war broke out (n. c. 226) between the Lacedaemonians and Acheans; a war to which neither party seems to have been adverse. The Acheans looked with contempt upon the youth of Cleomenes, king of Sparta, and Cleomenes was both desirous of military fame, and hoped to find in the events of war some favourable opportunity for effecting the civil changes at home which he desired. Aristocles, the late tyrant of Argos, was a strategos when the war began. Aratus, however, had been disaffected by the appointment of a new and unsympathetic strategos by the Achaean league. This disaffection, which was probably prompted, of course, by the example of the Lacedaemonians, was shared by the young tyrant. When King Cleomenes had obtained Upper Lacedaemonian league, and induced his city to join the league, n. c. 232. Aratus was sacred by the popular favour, and was three times chosen strategos, alternately with Aratus. Each probably felt jealous of the other, for continual haggling existed between them. Lydiadas was killed in battle with the Lacedaemonians, about n. c. 229.

In prosecution of his favourite policy, Aratus made several attempts to induce Achaia, by threats of force, if he could not obtain by arms, to effect a commercial union. A friendly commercial treaty, which he could not obtain by arms, he effected by money, soon after Antigonus, surnamed Donos, began to reign, n. c. 227, when Diogenes, the Macedonian governor, delivered the Argives and those who held them, together with the state of Salamine, for a bribe of 150 talents, of which Aratus contributed twenty from his private fortune. At the same time Xerxes, Hermone, and a considerable part of Achaia joined the Achaean league. We have reference to the map of Greece, that during a period of about twenty years, in which the affairs of the Achaean league had been chiefly managed by Aratus, that body had grown up from the union of a few weak cities for mutual protection and defence. The Achaean league, indeed, extended over the whole northern coast of Peloponnesus from the promontory of Aratus to Scyllium, 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
continued to exercise his usual controlling influence. To
extend his hold from the difficulties in which he was in-
volved, he adopted the disgraceful expedient of invading both
the Macedonians, whom he had left at so much pains to
expel from the Peloponnesus. He had been already engaged
in negotiation with Antigonus Doson, during the winter
193-192, and had so much success as to win over many
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
Dyme, he made a formal appeal (192 B.C.) to his countrymen
in behalf of peace. Antigonus, however, required, that the Ac-
corinthus should be placed in his hands as the price of his
services: and this open invasion of the liberties of Corinth,
and the pretext which this gave to him, made the 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 Isthmus, but he was obliged to abandon it in consequence
of a counter-revolution at Argos, which returned to
the Achaean alliance, and Antigonus entered Peloponnesus un-
opposed (192). He took several cities in Arcadia, which he
delivered to the Megalopolitans, and going to Aegium to
confere with the Achaean assembly, was appointed in
chief of the confederate army. In the following year he
took Tereia, Ochremonia, and Mantinea; but this success
was counterbalanced by the loss of Megalopolis, which Cle-
omenes had given to a friendship who was defeated and
slain the same year, 192 B.C. 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
with great cruelty, as before he did, and he caused
unrest. 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
Aretus.
Peace followed the battle of Sellasia, and for a time
Peloponnesus was quiet. This, however, was of short duration.
Of the character of the Rhodian tribes we have already spoken.
Concerning the Cilicians we need not come down. Their weal,
as their interest prompted, they were never in firm friend-
ship with a people whose conduct was directed in the main
to the upbuilding of peace and order, while they led them-
selves 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 masters. Aretus took an
active part in urging this measure, and being elected stra-
tegus for the ensuing year (it was near the period of chang-
ing officers when these transactions occurred), he antici-
patched for himself the honours of his office, that he might hasten
his march against the Rhodians. The Rhodians were already engaged in ravaging Messenia. He failed
signally in the conduct of this campaign: once at Caryae,
by giving battle too hastily, in which he was defeated, n.
c. 49; otherwise, he fought on the West coast, continuing the enemy in
chanting 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
Aretus himself seems to have been sensible that his con-
duct 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. The Achaeans were speedily made peace, and
Aretus 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 Achaean
army. For some time he observed his uncle's dying com-
mands, and regulated his own conduct strictly by the
counsels of Aretus; and he displayed such ability, pru-
dence, and justice, as gave rise to the fairest expectations
of his reign. Some however of his confidential ministers, jealous of the authority of the
king at the death of Philip II., used every means to destroy that statesmen's weight with
their prince, and they induced Philip to procure the
election of Epirus as strategus, an avowed opponent of
the Achaean king. Although of the people of Aretus, Philip
had been the principal instrument in the 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 Aretus.

The war was then prosecuted with success both in Aetolia
and Peloponnesus. All parties, however, became desolate
of peace. Philip sought to take advantage of the distress
to which the Romans were reduced by Hannibald; the
Achaeans wished to conclude peace while the advantage
was on their side. Philip II., therefore, concluded an armistice,
which, in the end of which they had the worst. Peace was
concluded n.c. 217, each party retaining what they then
possessed.

The extensive prospects of ambition opened to the Mac-
edonian king brought to light the seeds of evil in his character.
Hitherto his conduct towards his Greek allies had been
generous and faithful; henceforth his desire was to reduce
all Greece under his power, and be scrupulous at few things
which may be termed his maxims. This, however, 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 hate-
able, that Aretus 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 au-
thor; but feeling that complaint was useless, he endured it
in silence, with the simple exception that he once observed
he had a hand in raising both Sparta and Athens. Such,
Cebalon, are the rewards of friendship of kings. (Polyb.
viii. 14.) He died n.c. 213. The honour of being his burial-
place was disputed between Sicyon and Aegium in Achae,
but it was by the common consent of the people of Aegium
that of his former. He was splendidly interred there, and a monument
erected to him. He was honoured by the Sicyonians as the
father, founder, and saviour of their city; and twice a
year, on the anniversary of his birth, on the restoration of
liberty to the city, a religious festival was celebrated in his
honour.
He wrote a history of his own times, entitled Commenta-
taries (ending with the year 229), which, unfortunately,
has not been preserved. He has recorded, however, in his
Polybius, as containing 'very faithful and clear memorials
of his own times'; and from the close of this work Polybius
chose to commence his own history. Particulars of the life
of Aratus will be found in Polybius, lib. ii. ix. inclusive;
and in Plutarch, Lives of Aratus, and Cleomenes.

There is a chapter devoted to this subject in the Ency-
clopedia Metropolitana, from which the dates here given some-
times vary. We have followed our usual guide and guide
his Postis Hellenicae, from the 124th Olymp. to the death
of Augustus. 'See also Schlosser's Universalhistorische
Uebersicht (ii. 1), whose judgment on the character of Ar-
atus unfavourable to the latter's claim to be considered a

ARACUCANIA, the name given to a South American tribe, inhabiting a country comprised between 26° 44' and
39° 50' S. lat., and 70° and 74° 30' W. long., and bounded on the
E. by the great Cordilleras of the Andes, by the Pacific Ocean, on the
W., by the great range of the Sierra Nevada, on the N., by the
Valdivia or Callacalla on the S. It extends about 186 miles
along the coast; the breadth from the sea to the crest of the
Andes is perhaps about 150 miles. The people take the
name of Araucanians from the province of Arauco, which
is the smallest in the state; and pride themselves in being
called Auca, which, according to Molins, means frank,
or free. The Spaniards, who had served in the Nether-
lands, and afterwards fought in Chili, allied the country
Araucanian Plataea, or the Invincible Chieftain. The
productions of the soil are in general the same as those of
Chili.

The territory of Araucania has been divided from time
immemorial from north to south into four parallel
rutha
mapus (otherwise written ushulmapus), or tetrarchies, almost
equal in extent, which are called longus-mapus or the maritime
country, leuos-mapus or plain country, inapiru-mapus, or the
land of the central, and the yautha-mapus, or the
country of the Andes. Every yautha-mapus is subdivided into
five illarques or provinces, and every illarque into
nine riales or districts. The maritime country comprises
the central, south, middle, and north sides; and the
Andes include those of Arauco, Requena, Maquegu, and
Marihual. That at the foot of the Andes comprises the districts of
Marven, Collue, Ca-
chasco, Quecheherca, and Guapanu. The province of the
Andes was formerly possessed by a separate tribe, called Puelche, which afterwards became united to the Araucanians.

The government of the Araucanians is aristocratical, and is composed of three orders: the toquis, the apo-ulmenes, and the ulmenes. The toquis are four independent chiefs, one from each tribe. They are the only men who are derived from the word toqui, to judge or rule. Though independent of one another, they form a federal union for the public welfare. The apo-ulmenes have the command of the provinces under their respective toquis, and the ulmenes preside over the relusses or districts. The badge or device of the toqui is a porphyry or marble axe. The apo-ulmenes and ulmenes have staves with silver heads, but the former are distinguished by a silver ring round the middle. They are always able to distinguish theirULMENES from the TOQUIS in the male line, in the order of primogeniture. The toqui possess but a shadow of sovereignty; the real power resides in the zaucogoy or asucogoy, the great council, or council of the Araucanians. This diet is composed of the toqui, the apo-ulmenes and ulmenes, 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.

The code of laws 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, the succession and union of the tetrarohies. The election of the toqui, the dignity, its period of time, the grant of the diet reside in the toqui. No toqui can ever rule over more than one tetrarohie. The subjects are not bound to render their chief any sort of personal service except in time of war; he supports himself by his own private property. 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 toqui 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 punishment with his offenders. Both sons and nephews or paternal brothers possess the right of punishing their children, or any other individual of their family, even with death, whenever they may 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 toquile. Any one who is found guilty of a capital offence is immediately put to death, priests not being in general use when Malinos wrote.

The government of the tribe, though not more complete than the civil and criminal codes, shows a considerable degree of intelligence. When the cunoi or council has decided upon war, they proceed to choose a cunoi or amander from among the four toquis, but if none of them possess the necessary qualifications, an ulmenes, who is a private officer, is chosen. The general having appointed the officer, assumes the title of toqui, and takes the title, which all the other toquis are obliged to say down to him, the time of his dictatorship. This ceases with the war. Both the toqui and all the other officers swear allegiance to him: the general then appoints a vose-toqui and the officer of his staff, the latter nominating their subaltern officers. The vose-toqui is generally taken from the tribe of the toqui. A messenger, cast off, as much as if he were a man, is 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; if the war has already begun, they put in the centre the figure of a dead enemy. This expedition is called the paquilte: or running the arrow, and is done with such secrecy, particularly in the possessions of the Spaniards, that it has rarely been discovered. The dictator then requires from each of the toquis his allotted contingent of men, and the levy is made by the apo-ulmenes and ulmenes without any difficulty, as no Araucanian ever refuses to come forward in defence of his country's liberty. Thus the Araucanians, with the poorest facility and propriety, 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, who soon introduced the breed of horses; and in 1648 they were able to equip some squadrons for the field. The toqui Cadegual was the first who established a regular body of cavalry in 1685. The infantry is formed into regiments, each consisting of 1000 men divided into ten companies; every regiment has a flag with a star embrodered upon it, which is the arms of the nation. The cavalry is divided in the same way, but the number of horses is greater. They are armed with pistols 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 since been foiled in their arms by the Spaniards. They were at first very anxious to possess it. Having observed some negroes among the Spaniards, they supposed that gunpowder, from its blackness, was extracted from their bodies; none of those poor negroes having had the misfortune to fall into their hands offered them the opportunity of trying the experiment. He was first played from head to foot, and then burnt to cinders, but the result only served to show them the fallacy of their chemical knowledge. They have since occasioned the following times of different races taken from the Spaniards, but, perhaps from their strong prejudice against anything derived from the Europeans, they have never generally adopted them. The Spaniards have no dress that is suited for 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 companies. Each soldier carries with him his own provans, 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, unumbered with any sort of baggage, move with greater facility than the one alone, the toqui himself having no greater share in it than the private soldier.

One of the laws of the military code of the Araucanians prescribes, that when a man, though not more complete than the civil and criminal codes, shows a considerable degree of intelligence. When the cunoi or council has decided upon war, they proceed to choose a cunoi or amander from among the four toquis, but if none of them possess the necessary qualifications, an ulmenes, who is a private officer, is chosen. The general having appointed the officer, assumes the title of toqui, and takes the title, which all the other toquis are obliged to say down to him, the time of his dictatorship. This ceases with the war. Both the toqui and all the other officers swear allegiance to him: the general then appoints a vose-toqui and the officer of his staff, the latter nominating their subaltern officers. The vose-toqui is generally taken from the tribe of the toqui. A messenger, cast off, as much as if he were a man, is 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; if the war has already begun, they put in the centre the figure of a dead enemy. This expedition is called the paquilte: or running the arrow, and is done with such secrecy, particularly in the possessions of the Spaniards, that it has rarely been discovered. The dictator then requires from each of the toquis his allotted contingent of men, and the levy is made by the apo-ulmenes and ulmenes without any difficulty, as no Araucanian ever refuses to come forward in defence of his country's liberty. Thus the Araucanians, with the poorest facility and propriety, it consists generally of five or six thousand men, besides a large body of reserve.

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spirit. They give him the epithets of Guem-Pillan, or 'the Spirit of Peace,' Veta-Gen, 'Great Being,' Pimente, 'Creator of All,' &c. The universal government of their Pillan is similar to their own. The universal god has the same names and usages to preside over the inferior affairs. The principal of these inferior deities, are the Bynumman, or 'god of war,' and the Meulin, 'the beneficent god, the friend of the human kind.' There is an application with these gods, in saying, they are servants of the god Guemuebu, but the expression of the God Guemuebu has shaken it; if a friend dies, he has been suffocated by the Guemuebu. On the contrary, the good Meulin, by the agency of his celestial umenes, is constantly endeavouring to check his malignant influence. These spirits or gods, as they are called, are of various forms: the former are called Gens, and the latter Amuet-Malghen, or spiritual omens, of which latter is constantly attendant on every Araucanian; and so firmly are they persuaded of the truth of this influence, that when any one has been fortunate in anything, he expresses his satisfaction by saying, Nien cow as Amuet Malghen, that is, 'I have my nuphy by me.' As their earthly rulers require no particular service of them, the Araucanians support them to the very highest degree of reverence and worship: accordingly, they have neither temples, ideas, nor priests, and offer no sacrifices except on some solemn occasion, when they offer a llama, and burn tobacco, as the most grateful offering to their deities. They are very particular in the choice of their words, and any expression which is impure or profane, is immediately withheld from the sight of which they do not know. An eclipse of the sun they call long-ansu, and that of the moon long-ansuy, that is, 'the death of the sun or moon.' Comets are considered by them as being signs which become ignited in the atmosphere, but they are not terrifed 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 eldest son of an ulmen who has not a proficient in this, is excluded from the succession: for this reason they take their children to their national assemblies, and accustom them, at a very early period, to speak in public. Their poets are called gempin, or 'lords of speech.' Their poesms, 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 in all its purity, that when a foreigner settles among them he is obliged to change his name for an Araucanian one; even the missionaries have been compelled to adopt that practice, and to submit to be interrupted in their sermons by their auditors at every word they speak. These are the peculiarities of the Araucanian language, they will rather submit, on all public occasions, to the tedious explanation of an interpreter than adopt the Spanish tongue.

The language, as the best written by the Araucanians, is very copious. Molina says, according to the vocabularies which are in existence, the best of which is far from perfect, its radical words, which are generally monosyllables or disyllables, amount to 1725. These roots are susceptible of an indefinite number of combinations. Owing to the want of certain gutural and harsh sounds, and to the great variety in accentuating the words, it is very sweet and harmonious; its eymology is very simple and regular. There is not a single root which has been derived from another, and the signs of the different cases are the same in the singular, dual, and plural: thus they say choa-ki, of the father; choa-agui, of the two fathers; and pu-choa-ki, of the father. The genders are confined to words designating animate beings. The masculine is expressed by a male, and the feminine by a female—e.g. Asun铺tiheuen, a dog, domotehuen, a bitch. In the masculine the sign is generally omitted. The mechanism of the consonants is the following. The terminations of the past and present are s, t, i, for the singular; su, tu, it, for the dual; and igm, igmen, igmen, for the plural, which terminations are the same in all tenses. The number of the personal affixes in the intransitive tenses is three, three for the past, two for the future, and two aspirates. The characteristic sign of every tense is placed between the radical and the termination. Thus from edes, I give, is formed chu-n, I will give, and chu-bu-n, I did give; the
passive is formed with *gen*, to be; e.g. *elu-gen*, I am given; *elu-ge-a-n*, I will be given. Substantives, adverbs, and even interjections, are converted into verbs by the addition of *gen*; not *gen-*, but *gen-e-,* as some suppose; *cum-e, good, cum-e-a, to be good; iha, close, iha-n, to be close by; alith, ah! *alith-un*, to feel a pain. Adjectives are converted into abstract substantives by adding *gen* to them-e.g., *cumul* becomes *cumul-gen* or *cumul-un,* being changed into active by means of certain particles; thus from *in,* to eat, *eulon,* to cause one to eat. There is in this language a great latitude for stringing words together, and very often a single word expresses one or two sentence thoughts. Thus: *eulon-er-* comes to me; help me to build a house; which word is composed of *roos,* a house; *tun,* build; *za,* a sign of entreaty; *clo,* help; *eulon,* come. The only books existing in this language are catechisms, sermons, prayers, and other religious books, translated or composed by the Jesuits, to whose labours we are also indebted for most of the grammars and dictionaries of this tongue.

The physicians are of three classes—the empirics, or empirics, the *vileus,* or methodical, and the *machis,* who cure by spell; the first of these physicians employ principally simples in curing diseases, and are excellent practitioners; the *vileus* pretend that all contagious diseases proceed from the human frailty of the animal; and vileus have proved inefficient in curing a patient, a machi is sent for, who, after practising some mysterious ceremonies, pretends he has discovered the place where the magic poison lives, and reveals the name of the poison. The doctors have adopted this belief, and frequently endangering the life of some innocent individual. They have likewise two sorts of surgeons, the *gudaw,* who cures fractures, dislocations, ulcers, &c.; and the *rupace,* or ana-logiasts, so called because they are principally employed in opening the bodies of such as die of unknown maladies. Besides the above-mentioned professions, they have machines, such as blacksmiths, silversmiths, carpenters, &c.

The Araucanians have as many wives as they can support, rather are a tie to purchase; but, as in all other countries where polygamy is permitted, it is only the rich who enjoy this privilege: the poor content themselves with one or two. Celibacy is disgraceful among them. An old bachelor is called *uchipiro,* which means a useless old man; and *cudipra,* a useless old woman, is the word by which they designate an old maid. The marriage ceremony is very simple, and consists in carrying off the bride by pretended violence. When the bridegroom has fixed with his future father-in-law the number of a wife for him, he attends accompanied by some of his friends, to surprise the bride in some retired spot; she is then seized, placed upon the horse of her future husband, and conducted to the house of the bridegroom. After eating and drinking, the bride, as soon as she is married to her first wife, called *unenambo,* is always considered the legitimate one, and respected as such by all the *tandamo,* or secondary wives. Each wife is obliged to present her husband the dress which they wear, as a particular token of their affection at her own fire. Thus the most civil manner of asking an Araucan how many wives he has is, *mieu cithalgen?* or, 'how many fires have you?' It is, besides, the duty of every wife to furnish her husband with the necessary articles of dress, and with one pecoha every year. The Araucanians are not fond of the cleanliness not only of their houses and clothes, but even of their persons. They comb their hair twice a day, and wash their head at least once a week with some oil, which they call *cudana,* or burnt, or made use of instead of soap. Their habitations are placed near the banks of rivers, in which, during summer, the men bathe several times a-day, and in winter at least once a-day. The women also bathe regularly, and on the very day of giving birth to a child they wash both the infant and themselves in the stream, and then lay it upon a sort of rush cradle, which is hung on the ceiling, covered with soft skins, and return to their daily occupations. The child is kept by its mother until it is large enough to put on it a very loose gown. Their moral education is not more constrained than their physical. Their parents instruct the males in the management of arms, and in speaking their language with freedom, elegance, and purity, allowing them to dirty themselves by the habits of wildness and to inflict on them any corporal punishment, as in their opinion this practice tends to degrade them and make them towards.

The Araucanians are of a moderate stature, strong, muscular, and well-built, and naturally have a very martial air. It is exceedingly rare to find among them a deformed cattle, and not a few of them are very fine. 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 wanting among the Araucanians, they frequently allow them to live. Their colour is like that of the Americans, 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 lessening, with a single lower line of teeth, and muscular, with small and flat feet. In general, they have the appearance, 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 always ready to help each other. They are valiant; but 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 small slit in the side. The women wear this jacket, with a piece of cloth simply with a hole in the middle for the head to pass through, falling before and behind down to the knees; 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 handkerchief, a cloth, which in time of war is ornamented with feathers; they also wear a saab of different colours round the waist. Persons of distinction make use of woolen boots of different colours and leathern sandals, which they call *chelle,* 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 *chimal,* fastened to the shoulders with silver buttons; a saab round the waist; and a short mantle called *tchele.* 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 *tchele,* 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 hang upon each other's shoulders, a piece of long hair, which they call *chira.*

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 they think is marked by their ancestors. 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 *comica* or chess, and the quechu, similar to buck-rammon, 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 *peaco,* representing a siege. Twelve men form two rows opposite each other, and a child, held in the arms 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 first 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 Araucania, a place which was given by the Toqui Paillamacchu 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, converted the Spanish governor and his soldiers to the Jesuits, and both continued to live 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 Araucanamo, making her escape, and
A.R.A.

ARAUCARIA, in Botany, is the name of a singular genus of gigantic trees, found scattered over the southern hemisphere. It is known from all the other firs by its still 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, of 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 the Southern States of New England, Botany Island, Isle of Pines, and in some parts of the east coast of New Holland. It is described as a most majestic tree, growing to the height of from 160 to 228 feet, with a circumference sometimes of more than 30 feet. Its trunk is curved, and it is sparsely 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 bark abounds in turpentine; the wood, which is destitute of that substance, is white and ungrained. 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 Captains Hubard could only keep it afloat in his fish box by out of thirty-four that he was compelled to be filled.

Its wood is, however, useful for carpenters' indoor work. Several specimens of this tree exist in the collections of this country. One of them is in the garden of the house of Mr. Dometon, and its growth is so rapid as to render it very soon too large for the loftiest greenhouses. A supposed species, called the Moreton Bay Pine, or Araucaria Cunninghami, is scarcely distinguishable from this. It is a highly interesting fact, that Captain Cooke has seen the same on the coast of New Guinea, and that Cook himself certainly once grew in Great Britain. Remains of it have been found in the woods of Dorsetshire, and have been figured in the Fossil Flora, under the name of Araucaria primigenia.

**Araucaria Dombyrii**, 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 circles 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 further to the southward than the volcanic of Villarica.

**Araucaria Brasilianensis** 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.

**ARAUVULLI** 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 73rd meridian, to the north of Edur, or Eder. From this point it extends in a N.N.E. direction to 26° N. lat. where it terminates some minutes to the east of 76° 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 Komulum 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 Komulum 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 Tana (Dar Alw), which terminate to the south of Kanound and Rewane.

This mountain-chain is not remarkable for its height. On an average it does not rise to more than 3000 feet above the sea, though, perhaps, the summits attain a thousand 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 Indian Frontier (the Indus or the Brahmapoot). A road, 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 them. Whenever, when no carrying road can be made, even a small party, 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 Aravalli falls, 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 easy and effective in the hands of an active and well-constituted government.

The southern extremity of the Aravalli range is united to the Vindhya mountains by an extremely hilly and broken country, which extends from the junction of the Edu-fot and the Myhie, occupying all the country on the upper part of that river and its branches, and joining the Vindhya mountains near Champaipur. By the same hilly country it is united to the table-land Pat'har, from which the principal range is connected with the valley of Ocker below.

That part of the Aravalli mountains lying to the south of Komulmair 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 Rawut, are hereditary. The rawut of Oghta can bring into the field 5000 bow. Their habitations are dispersed through the valley in small clusters, and these are the pastures or places of defence. To the north of Komulmair 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 Rajasthan, they have become peaceable subjects. They possess upwards of 150 villages and hamlets, scattered over the declivity of the range, 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 raised without the aid of art and science, and is that which is consumed by the inhabitants of the Tyrol. This is effected by constructing, on the narrow level tract along the rivers and upon the shelving sides of the mountains and hills, a series of terraces rising over each other, and by forming above the terraces pools or reservoirs, by means of large trees, from which the water is conducted so as to irrigate successively the terraces, on which rich crops of sugar-cane, cotton, rice, and Indian corn are raised.

The rills 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 Lajpara or the Laxmara, which run into the sea.

This range is composed of rocks of primitive formation. The granite reposes, as Colonel Tod reports, in a variety of angles. Where the general dip is to the east on massive compact dark blue slate, the latter rarely appearing much above the sandstone or the iron-ore rock. The internal valleys abound in variegated quarts and a variety of schistus slate of every hue, which gives a most singular appearance to the houses and temples when the sun shines upon them. Part of the quartz and of granite appear in the intervals; and in the diverging ridges west of Ajmeor the summits are quite dazzling with the enormous masses of vitreous rose-coloured quartz. Tin, 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 Rajasthan. Garnet, amethystine quartz, rock crystal, chrysotile, and some inferior kinds of emerald, are found in few places.

The name Aravalli implies the 'strength of refuge,' which is very appropriate, as at all times it has afforded protection to the inentant sovereigns who held dominion either to the north or to the south. (Tod's 'History of Rajasthan'; Maps by the Society for the Diffusion of Useful Knowledge, India, VI. and IX.)

ARBEE, one of the Quamroo islands, in the gulf of Quarnaro, on the coast of Persia, and within the circle of Zar in that province, from which it is separated by the canal of Maricca. 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 island is very pleasant, the air is generally warm and 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-pans, 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 island. The largest of the temples is the college of the Comoro, with a good harbour: it is the seat of a bishopric, and contains about 500 inhabitants. The name of the market village is Baradeo. Lat. 40° 50' N., long. 14° 50' E. The same edition.

ARBEELE, now Arifbol or Erbil, a miserable village, which lies on the ordinary route from Bagdad to Mosul, in 36° 11' N. lat., according to Niebuhr's observations. It is situated between the Little and Great Zab (the Lykus), but nearer the latter, in a hilly and tolerably fertile soil. Arbil has, in possession of an hereditary title 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 it as being burnt and the old tower not a tree, in order to prevent the castle from being destroyed. Of the town, which perished in the course of a severe battle; the buildings are built of sun-dried bricks, is on the hill, and part around it. There are no antiquities here, but there is a minfrech belonging to a mosque at a small distance, which was erected by Sultan Musaffar. This minfrech is strongly built of burnt bricks and mortar, 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 a village in the Kurdistan, which is scattered over the mountains, and consists of scattered terraces, and affords pasture for sheep, 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, but is raised without the aid of art and science, and is that which is consumed by the inhabitants of the Tyrol. This is effected by constructing, on the narrow level tract along the rivers and upon the shelving sides of the mountains and hills, a series of terraces rising over each other, and by forming above the terraces pools or reservoirs, by means of large trees, from which the water is conducted so as to irrigate successively the terraces, on which rich crops of sugar-cane, cotton, rice, and Indian corn are raised.

The rills 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 Lajpara or the Laxmara, which run into the sea.

This range is composed of rocks of primitive formation. The granite reposes, as Colonel Tod reports, in a variety of angles. Where the general dip is to the east on massive compact dark blue slate, the latter rarely appearing much above the sandstone or the iron-ore rock. The internal valleys abound in variegated quarts and a variety of schistus slate of every hue, which gives a most singular appearance to the houses and temples when the sun shines upon them. Part of the quartz and of granite appear in the intervals; and in the diverging ridges west of Ajmeor the summits are quite dazzling with the enormous masses of vitreous rose-coloured quartz. Tin, 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 Rajasthan. Garnet, amethystine quartz, rock crystal, chrysotile, and some inferior kinds of emerald, are found in few places.

The name Aravalli implies 'the strength of refuge,' which is very appropriate, as at all times it has afforded protection to the inentant sovereigns who held dominion either to the north or to the south. (Tod's 'History of Rajasthan'; Maps by the Society for the Diffusion of Useful Knowledge, India, VI. and IX.)
Upon the lender. In these actions the person appointed to adjudicate was styled a judge (judge), and the only question for him to decide was, simply whether the plaintiff had completely established his case. The question was fixed by a statute, and was the subject of a great许多 authors were of opinion that the authority of an arbitrator 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 ovbius is inserted in the submission; and if one of the arbitrators does not make his award, his authority ceases, but a clause has usually been inserted to enable the arbitrator 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 arbitrator 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 arbitrator 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; or in cases of private parties, by the counsel, 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 courts of law in other cases may not possess.

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. And where the court or a judge requires such witnesses, the arbitrator 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 arbitrator's authority depends on 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. In no case is an arbitrator authorized to adjudge upon any claim or matter not express in the submission; 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 in the submission. As numerous cases may be set down in which the differences existing between themselves, an arbitrator can have no authority to bind any one who is not a party to the reference.

An arbitrator 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 be partially or ill-considered, there is no appeal, and the parties left, in many cases, without any redress. It has been already observed, that a modified award, upon application being made within reasonable time. This happens either, 1. where the award is not co-extensive with the arbitrator's authority; or, 2. where it appears on the face of it to proceed on mistaken views of law, or to fail 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 arbitrators have been guilty of secret or open collusion, or other misbehaviour, as, if they have met before or after the hearing of the cause, and giving notice of the meeting, have improperly refused to receive evidence, or committed any other gross irregularity in practice; 2dly, where it is proved that the arbitrator has been bribed, or that there has been any improper act of the parties, 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 arbitrator 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 arbitrator was revocable by either party at any time before the award was made; but it is not now so. It is now provided that the authority of an arbitrator 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 arbitrators does not make his award, his authority ceases, but a clause has usually been inserted to enable the arbitrator 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 arbitrator 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.

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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 by disobeying the order of reference, in order to compel the performance of the agreement. 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 aside what he knew to be against the purpose, 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 acknowledge the award, he may, before leaving 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 refer their differences to 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 be able to rescind the same if, if either of them should, 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 agreement.

If, however, the award be enlarged, or if there be a clause to that effect in the agreement of submission, or if all the parties consent to it, but otherwise. There are no means of compelling the attendance of witnesses, nor has the arbitrator the power of administering an oath to the parties or the witnesses and—if they have agreed to be examined—the parties are sworn either before a judge, or, in the country, before a commissioner. They may, however, be examined without having been sworn, 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 made, it is前所未有 to prevent one party from availing himself of 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. Reg. 3, that the parties agree that the arbitration (which is held in this case must be in writing) shall be made a part of the law of his Majesty's courts of record, and in practice courts of equity have long enjoyed concurrent jurisdiction, and have given such an agreement in their submission, and this submission may at any time afterwards be made a rule of court, by producing the affidavits of its execution made by a witness thereto. The provisions of the new statute 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 originated in ancient Athens, in high degree, according to Aristotle, to give an instance of a metaphor that is appropriate without being obvious, quotes a passage from Archytas, in which he compares an arbitrator to an altar, as being a place where parties might be compelled to come. (Aristot. Rhet. lib. iii. p. 346.) There were at Athens two modes of proceeding which passed by the name of arbitration—the Greek word for which is δίκαιον (diakos). In one of these the arbitrators have to come together, and in modern jurisprudence would be called a Court of Reference. In the other, 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 (Cod. Athic. Ditt. 380; Drich. asd. Athic. Animadversiones, p. 370), and were then bound to act, under pain of infamy. They sat in a public court, and their judgments were subscribed by the archons. (Pett. p. 346.) 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 (Heraldi Animadversiones, p. 372.) In either case, all the writings connected with the trial were sealed, stamped, and delivered to the tribunal that had been 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; Polux, viii. 16.) Their jurisdiction, however, was confined to Athens citizens, and they took no cognizance of suits in which the sum in dispute was less than ten drachms, such smaller actions being disposed of in a summary manner by a special tribunal. (ibid.) The litigant parties paid a specified sum to the court as the expense of arbitration. (Arist. Rhet. i. 316, English transl.) 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. (Demostenes's Speech against Apaturius, chap. 4.) The arbitrator was not required to adhere to a rigid form in the expensation of his decision, and he might, at his pleasure, give the individuals 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 Demostenes against Meledas, chap. 26.)

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 customary authority are still governed by the rules and principles of the arbitration known in our law—are mainly founded upon the doctrines contained in the Digests of Justinian, lib. iv. tit. 8. The only mode of referring a matter to arbitration in the law modern is by a 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 extends to all matters of importance, or for that matter 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 aside, or on the ground of its having been obtained 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 the praetor, be compelled to go through with 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 decision; by either party reviving the agreement, and by having incurred the penalty for 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 of the reference was a public act, or if the arbitrators, 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 in no case be compelled by a court to give judgment, 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 ill-health, or by an appointment to some public office in the state, in number of numbers.

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 (Petit. p. 345; see under arbitri animadversione, as already mentioned). The parties were 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 subject 

duly 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 them failed to appear, the award was not to be pronounced 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; and if the majority could not agree, they were equally divided, it is said that they might of their own authority appoint an umpire, and in case of their refusing, the president had the power of compelling them to do so; but when their award was pronounced, it could not be retracted, and they could neither retract nor alter their decision.

The award when made had not the authority of the sentence of a court of justice, nor was there any direct methods of enforcing the performance of it; but as the parties had bound themselves to abide by the arbitrator’s 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 appointment, or had not agreed in the execution of it, no direct method of setting it aside; but if an action was brought to enforce the award, such misconduct might be insisted on as an answer to it. (Heineccius Elem. Jur. Civ. part i. § 531-543; Voëti Commentarius ad Fundect. vol. i. P. 1.)

The Roman law was, with some slight modifications, adopted in France (Domat’s Civil Law, part i. hook i. cit. 14; and Public Law, book ii. cit. 7; Pothier, Traité de Procédure Civile, part ii. chap. iv. art. 21), and notwithstanding the changes which have been introduced from time to time, it still forms the groundwork of the system. There are at present three kinds of arbitration; the first is voluntary arbitration, which is founded, in the Roman law, on an agreement of the parties. The mode of proceeding in this case is treated of at considerable length, and with minute attention to details, in the Code de Procédure Civile, art. 1003-1028.

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 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 system, it will be necessary to premise that 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, they are not exclusive of local tribunals, which are within the jurisdiction of the courts of the district; and if the judge is resident in the neighborhood of the suitors, it has been found necessary—in order to guard against partiality or the suspicion of partiality—to allow either party to refuse or challenge a judge, as in England they would challenge a juryman; and in the same manner an arbitrator may be challenged, but this can only be in respect of some objection which has arisen since his appointment, for the very act of appointing him is an assumption on the part of the parties that the arbitrator is qualified and competent, which might have existed up to that time; but if there is no ground for challenge, the arbitrator’s authority cannot be revoked without the consent of both parties.

An arbitrator’s decision or award is considered as a judgment, and all the formalities required for the validity of a judgment must therefore be observed; but execution of it cannot be enforced until it has received the sanction of the public; for the compulsory execution is granted by the president of the tribunal within the jurisdiction of which the cause of the action arose; the granting of this warrant is called the homologation of the award. If the arbitrator has already passed his authority, the warrant of execution may be superseded, and the award declared null by an application to the tribunal from which the warrant issued. Besides this, the same modes of obtaining relief may be resorted to in the case of an award, as in that of any other judgment. If any misconduct or irregularity has occurred, the award may be set aside by what is called a requête civile; and even where nothing can be alleged against the formal correctness of the proceedings, if the parties be dissatisfied with the judgment, he is at liberty (unless it has been expressly renounced) to appeal to a superior court: when this happens, the whole case is re-opened before the tribunal of appeal, and the merits investigated anew; and when an appeal has been brought under the consideration of a court in any of these ways, any final judgment which the court may have pronounced may be brought before the Court of Cassation, and there quashed if erroneous in point of law.

The second is called the compulsory arbitration, 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 this species of arbitration very extensively for the settlement of disputes respecting either mercantile transactions or family arrangements; but by the codes now in force, it is admitted in one case only, that of differences between partners. Over such differences the ordinary courts have no jurisdiction whatever. In the first instance, 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 themselves, or by the antient court of partnership; but if, when a dispute has arisen, one of the partners refuses to nominate an arbitrator or nominaates an improper person, the commercial court, upon application made by the other partner, will appoint one for him; but the authority of the commercial court ceases at any time before he enters upon his functions an arbitrator is duly nominated by the partner in delay; and when the firm consists of several partners, upon an application being made by any one 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 sentence 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 de Commerce, art. 51-64.)

Besides the compulsory arbitration in matters of partnership, the parties have been permitted to obtain by the liberty 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 do so; but if the arbitrator is not agreed upon by both parties, the people 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 appellation 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, arbitratores. The peculiar characteristics of this amicable composition are, that the references are, by the other cases, bound to adhere rigorously to 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 to any other tribunal. In case of irregularity or 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 voluntary or compulsory, in accordance with the réseaux Paradis, Cour de Côté Commerciaux, § 1386-1419.)

In Denmark and its dependencies, Courts of Arbitration or Conciliation were established about the year 1776, and were, like the others, provided with the same powers and 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 commonalty. In other towns, the chief magistrate proposes five or six of the more respectable citizens for arbitrators, of
whom the community 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. All matters of civil and criminal litigation are referred to these two persons, 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 of deciding in the particular manner proposed by the court: if they agree, the terms of the arrangement are registered, and it has then the force of a judicial decree; if, after stating their differences and hearing the suggestions of the arbitrators, the parties are unable to arrive at a decision, they are at liberty to discuss their respective rights in the ordinary courts of justice. It is necessary, however, that before a suitor commences an action in the superior courts he should prove that he has already applied to one of the courts of conciliation. These courts, which are attended with very small expense to the suitors, were, 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 États Denois, par Caenne, tome i, p. 296.)

**ARBAST, or ARBALEST, was the name more particularly given to the cross-bow. Robert of Gloucester, in his Chronicle, gave the word bowmen as applied to the cross-bowmen of the eleventh century, and he adds that the cross-bow was a new and unknown weapon. The precise date and origin of the arbalest is unknown; but it seems to have been derived from the larger species of balistae. Vegetius is inclined to consider the scorpio to be the same as the cross-bow; he speaks of scorpiones, which he says were the name most usual. Yet in the 13th century the modern weapon is sometimes termed scorpio manualis.**

Pitieus, in his *Lecticon*, has assigned the introduction of the arbalest into the Roman armies to the time of Constantine, but little reliance can be placed on this statement.

Strutt thought that the cross-bow was introduced into England about the thirteenth century; but Daines Barrington, who came probably nearer to the truth (Archaeologia, vol. vii, p. 46), when he inclines to the opinion, that it was the arbalest, not the long bow, which was used with such destructive effect at the battle of Hastings by the Normans. There can be little doubt that the arbalest was introduced by the Normans at their first arrival. We have no means of ascertaining whether it was a native weapon or brought from the continent. The Saxons, but in the *Domesday Survey*, compiled in 1086, we have several arcubalistarii, captains of cross-bow men, among the tenants in chief. No such appellation is given in the *Domesday Book*, unless he who held lands in the time of King William, who committed the Constables.

Brompton, in *Twysden's Scriptores*, vol. 1276, says, that the use of the arbalest had been laid aside, was revived by King Richard I., who was afterwards killed by an arrow shot from one. The arrows for the cross-bow were called quarrels, from the French carreux. More will be said of the use of the cross-bow in the account of *Archery*.**

**ARBAGOST, LOUIS 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 artillery at Strasburg, and rector of the university of the same town. He afterwards represented 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 prominent figure in the formation of the new Institute, 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 department, which he held from April 1801, having the title of an assembly which must be placed high among those of the analysts of his day, and a character without reproach.**

Arbogast's first work was presented to the Academy of Sciences, under the title of *Essai sur de Nouveaux Principes de l'Infini Infiniment Petit, et de celle de Limites*. This essay is not printed, but from his own account of it in the preface to the *Calcul des Derivations*, it appears that he had, partially at least, anticipated the leading points of the *Théorie des Fonctions de Lagrange*.

In 1790 (Lacroix, *Calc. Diff.*, 1792; *Bog. Univ.*) he gained the prize proposed by the academy of Petersburg for the best essay on the subject of the calculus of variations in the integrals of partial differential equations. In this paper he takes, and in the opinion of Lacroix finally establishes, the view maintained by Lagrange and Euler against Condorcet in the case of the discontinuity (Lacroix, *Calc. Diff.*, vol. ii, p. 686).

But his great work is the *Calcul des Derivations*, published at Strasburg in 1800. Its main object, and which we can here state no more, is the law of derivation, and the applications of a principle from the general form of another, when the expression is more complicated than a function of a binomial. Therefore Taylor's theorem and common differentiation are particular cases of Arbogast's method. It is an eminently useful work to read, and on account of the number of new notations, 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 even the unpublished memoir of M. Francois, who was in habits of intimacy with M. Arbogast, 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) thought was inapplicable by common methods.

We must not omit to mention, that the *Calcul des Derivations* contains the first use of the separation of symbols of operation and of quantity, which has since thrown so much light on the mixed parts of analysis. (See Lacroix, *Calc. 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 le Saunier, 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 great north-eastern ridge of the Jura. It is neat and well built. The wines of the neighbourhood of Arbois are highly esteemed, especially that which, being made at the commencement of winter, has the name of vin-de-gêlées (frost wine). Leather, paper, and china, are among its manufactures. The population in 1825 was between 6000 and 7000. It is the seat of a tribunal de première instance (a subordinate civil and criminal court) under the Cour Royale (nassie court) of Besançon. Before the revolution there were several religious establishments at Arbois.**

It possesses some Celtic and Roman monuments, and has the ruins of an antient castle, which is considered by the inhabitants to be haunted. The tradition is thought to have been originated from a man 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° 50' N., long. 8° 50' E. of Greenwich.

This town gave birth to General Pichegru. (M. Brun, *Balbi, Dict. Universel de la France*.)

**ARBROATH. [See Abbeville.]**

**ARBUTHNOT, JOHN, a celebrated wit and physician in the latter part of the seventeenth and the early part of the eighteenth century. His father was a clergyman of the Scottish episcopal church. He was educated at the University of Aberdeen, where he took his doctor's degree in medicine. The revolution having deprived his father of his church preferment, and a small paternal estate being insufficient for the support of his family, he was obliged to come to London in pursuit of fortune. He began by teaching mathematics as a means of subsistence. Dr. Woodward's *Essay towards a Natural History of the Earth*, published in 1695, contented him with the observation, and which Dr. Arbuthnot thought to be irreconcilable with philosophical truth. He therefore drew up a work entitled *An Examination of Dr. Woodward's Account of the Deluge, with a Comparison between Stellen's Philosophy and the Doctrine of the Design of Creation in the Universe*. This work went out in the year 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-
that he 'would willingly have redeemed his life with his own,' it is probable that grief aggravated his disease, and heightened its terminal torments. He had been 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 a fellow of the College of Physicians. He had for some time been living at a Folly near the Seriblers Club. In 1714 he engaged with Swift and Pope in a design to write a satire on the abuse of human learning in every branch. It was to have been executed in the humorous manner so well adapted to the adventures oflyrical poetry, and was connected with mock sobriety as well as 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 Martimos Sorberus. 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, is any other; it is characterized by a brilli-ness of invention too great for its size, it is the same kind of 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 13th chapter. The subject of the poem, entitled The Green peny, was drawn from the Hon. Mr. Stukeley's Restaurina, and the report straying V. Siloeo, are detached portions of the same work; of which the eminent writer above mentioned speaks thus:—'Polite letters never lost more than this.' The number of political satires of John Bull, which has served as the model for many jens de esquis 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 British crown in 1700, and which was ended by 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 spirits. As a relief to his melancholy, he went to Paris; but after a short stay returned to London, and having lost his last 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 little garden behind the house. In 1765 he published Tales of Antient 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 numbers of witty and humorous pieces. In 1731 he published his Essay on the Natural and Commercial History of the Student, which was published 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 the Lydian, and which lasted some years, and at length was found to be incureable. In 1734 he retired to Hampstead in hope of some relief; but died at his house in Cork-street, Burlington-gardens, in February 1735. Mr. Oliphant has written a Life of Arbuthnot, 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,
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 arcs of various curves, see their several names.

It is found necessary to assume the following axiom previously to any general investigation of the properties of an arc. Every arc is greater than its chord, but, when converse 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 integration of the formula

\[ \int \sqrt{dx^2 + dy^2} \]

or, in the language of the fluxional calculus,

frequent 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 number of the sub-divisions, and the error very large. For instance, the arc of the quadrant of a circle, whose diameter is ten million of inches, is 7,853,982 inches, within half an inch. Divide this quadrant into ten equal parts, and the sum of the chords is 7,845,910 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 7,851,963 inches, wrong only by one part out of 359. Therefore, 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 proposition. Let there be a number of arcs, such as A C B, cut off the same curve, having their chords parallel to the tangent XY. Then, as A B moves parallel to its first position towards X Y, C 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 startling to the mind, but has to be considered by him with great attention. It may be illustrated 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 C 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.

Formerly, the term arc was frequently confounded with angle, which arose from the practice of measuring angles by arcs of the circle. For such terms as ARC OF ELEVATION, &c., we refer to ANGLE OF ELEVATION, &c.

ARC, JOAN or JEANNE OF, surnamed the 'Maid of Orleans,' from her heroic defence of that city, was born about the year 1410 or 1411, in the little hamlet of Domremy, near the Meuse, and about three leagues south of Vaucouleurs, on the borders of Champagne. Her parents were humble and honest peasants. The district was remarkable for the devout simplicity of its inhabitants, as well as for those romantic superstitions which in a rude age are so often allied with religion. It appears from the copious depositions of witnesses from the neighbourhood of Domremy, examined at Joan's trial, that she was unerring in her prayers, and other religious exercises, and was strongly inspired, at a very early age, with the prevailing superstitions of her native place.

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 their war 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 decidedly Armagnac, and was strengthened 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 great 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 the hazardous mission, until a hand of Burgundians, who had been driven from the country, escaped 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 Dormenzy in flames. The dragon of war, they said, 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, 1429. De Baudricourt 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 prophetess that France, lost by a woman (Isabeau of Bavaria), should be saved by a virgin from the frontiers of Lorraine, alluded to her. She it was, she asserted, who could save France, and not either kings, or dukès, nor yet the king of Scotland’s daughter—an expression which proves how little she knew of 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 considered by his enemies, and the battle of Harrington seemed to take away all hope of saving the city from the English. In this crisis, when all human support seemed unsavilling, Baudricourt no longer despised the supernatural aid promised by the damask of Dormenzy, and gave permission to John of Meier and Bertram of Poulangy, two gentlemen who had become converts to the truth of her divine mission, to conduct Joan of Arc to the dauphin. They purchased a horse for her, and at her own desire furnished her with male habits, and other necessary equipments. Thus provided, and accompanied by a respectable escort, Joan set out from Vaucouleurs on the 13th of February, 1429. Her progress, through regions attached to the Burgundian interest, was perilous, but she safely arrived at Fierbois, a place within five or six leagues of Chiton, where the dauphin then held his court. At Fierbois was a celebrated church dedicated to St. Catherine, and here she spent her time in devotion, whilst a messenger was despatched to the dauphin to announce her approach. She was commanded to proceed, and reached Chiton on the eleventh day after her departure from Vaucouleurs.

Charles, though he desired, still feared to accept the prophecy of the young woman. The strength of her enemies would be, that he had put his faith in a sorcery, and had leagued himself with the infernal powers. In consequence of this, Joan encountered every species of distrust. She was not even admitted to the dauphin’s presence without the presence of his priest. Thus she was excluded from all his court; this Joan happily was able to do, as well to gain the good opinion of the young monarch by the simplicity of her demeanour. Nevertheless, the prince proceeded to take every precaution before he openly trusted her. He first handed her over to a commission of ecclesiastics, to be examined; then sent her for the same purpose to Poitiers, a great law-school, that the doctors of both faculties might solemnly decide whether Joan’s mission was true, or a delusion. The doctors, however, declared her to be merely human. The greatest guarantee against sorcery was considered to be the chastity of the young girl, it being an axiom, that the devil would not or could not take part with a woman. This was speedily ascertained to her true character in this respect. In short, the utmost incredulity could not have laboured harder to find out imposture, than did the credulity of that day to establish its ground. After being examined together with the other witnesses, she was granted a hearing, but her only reply was, ‘Bring me to Orleans, and you shall see.’ The siege shall be raised, and the dauphin crowned king at Rheims!’ was her answer, and she received the rank of a military commander. A suit of armour was made for her, and she sent to Fierbois for a sword, which she said would be found buried in a certain spot within the church. It was found there, and conveyed to her. The circumstance became afterwards one of the alleged proofs of her sorcery or imposture. Her receiving passed some time at Fierbois amongst the ecclesiastics of the place must have led, in some way or other, to her knowledge of the deposit. Strong suspicions were raised against her, as a sorceress, by the attack of Orleans from the north, and through all the fortifications of the English. Dunois, however, and the other leaders, at length overruled her, and induced her to abandon the little campaign of war, which she had raised, and to enter the beleaguered city by way of the least passable path. She succeeded in carrying with her a convoy of provisions to the besieged. The entry of Joan of Arc into Orleans, at the end of April, was itself a triumph. The fears of her enemies were increased by the pious confidence of success; and the English, who in every encounter had defeated the French, felt their courage paralyzed by the coming of this simple girl. Joan announced her arrival to the foe by herald, and, to the astonishment of the English generals to be given from the land, or she, the Pucelle, would slay them. The indignation of the English was increased by their terror; they detained the herald, and threatened to burn him, as a specimen of the treatment which they reserved for her. But in the mean time, the English, either from being under the influence of terror, or through some unaccountable want of precaution, allowed the armed forces raised and left behind by Joan, to reach Orleans unobserved. These, traversing the country, were the state of feeling on both sides, Joan’s ardour impelled her to take advantage of it. Under her banner, and cheered by her presence, the besieged marched to meet their assailants. The first carried was that of St. Louis, 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 5th of May, Joan, at another summons, appeared at one of the town’s gates, after having concealed herself into a boat, crossed the river, and her appearance was sufficient to frighten the English from the open field. Behind their ramparts they were still, however, formidable; and the attack led by Joan against the works to the south of the city was the most memorable achievement of the siege. 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 ashes, 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, after a desperate conflict, succeeded in driving the commander, Gluesdall, or Glaciesa, as Joan called him, piously at the Maid of Orleans, had redeemed the most incredible and important of her promises. No sooner was Orleans freed from the enemy, than Joan returned to the court, to entreat Charles to place forces at her disposal, that she might reduce the towns between the Loire and Rheims, where she proposed to have him speedily crowned. Her projects for the coronation were not of the court, who considered it more politic to drive the English from Normandy than to harass the Burgundians, or make sacrifices for the idle ceremony of a coronation; but her earnest solicitations prevailed, and early in June she attacked the English at Jargieu. 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 Poles was killed, and another was wounded, but the French pursued the English prisoner. 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 her, after the establishment of Jargeau, 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 enemies. Well might, on such an occasion, the fifteenth century believe 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 return home; whereupon she was brought from her glory to the place of her baptism, under the pretense of a resolution on the 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 lingered on; her heart, still young, and her senses of weakness had deserted her. She was detained at this place, and there 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. Chastely left with her, two of her companions were, and there are few records 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 saved Orleans, from their assaults. She had not been many hours in it when she headed a sally against the Burgundian quattuor and gave them a taste of her might, her body prostrating the Burgundian commander, John of Luxemburg. Her capture appears, from the records of the Parisian parliament, to have taken place on the 23rd of May, 1430.

It is a piteous sight to behold the burning of Sion's fortress of Beaurevoir, near Cambray, cries of vengeance were heard among the Anglican partizans in France. The English themselves were not foremost in this unworthy zeal of the Pucelle, but that it was done by leaping from the top of the donjon at Beaurevoir, was at length handed over to the English partizans, and conducted to Rouen. The University of Paris called loudly for the trial of Joan, and several letters are extant, in which that body reproaches the bishop of John of Luxemburg with their tardiness in delivering up the Pucelle to justice. The zeal of the University was at length satisfied by letters patent from the King of England and France, authorizing the trial of the Pucelle at Rouen, but stated in plain terms that it was at the demand of public opinion, and at the especial request of the bishop of Beauvais and of the University of Paris,—expressions which, taken in connexion with the delay in issuing the letters, sufficiently prove the reluctance of the English council to sanction the extreme measure of vengeance. After several months' interrogatories, the judges who conducted the trial drew from her confessions the articles of accusation: these asserted, that Joan pretended to have the visible likeness of the Virgin Mary in her thirteenth year, and that she had been visited by the archangels Gabriel and Michael, the saints Catharine and Margaret, and to have been accompanied by these celestial beings to the presence of the Pope, to Calais, to River, and to St. Michael from St. Gabriel, and St. Catharine from St. Margaret; that she pretended to reveal the future; and had assumed male attire by the order of God. Upon these charges her accusers wished to convict her of sorcery. Moreover, they drew from her answers, that she declined to submit to the ordinances of the church whenever her voices told her the contrary. This was declared to be heresy and schism, and to merit the punishment of fire.

The University of Paris was incensed, and the 'accusations were accepted by the University of Paris, and all the 'accusations 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 as soon as Joan was brought forth on the public scaffold at Rouen, the matter was determined by M. Lavedy, however, of extracts from MSS. in the Bibliothèque du Roi, contains everything relating to the trials of the Pucelle; and is a source at once ample and respectable. Unfortunately for the Pucelle, the very day on which she was executed, 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 reaction of the part.

Arkade signifies a series of arches on inscribed piles, forming a arcade, and also the space inclosed by such. This is, perhaps, a limitation of the term within that usually given to it; but arcades is properly a consecutively of colonnades, and should not therefore have a more extensive signification.
What, by a strange perversion of the term, are in this country called *plazza*, 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 that same place or square, to which the term *plazza* properly applies and is generally accepted as a great part of its exterior, the correlative term *columnade*.

Arcade is but another and a substantive form of *arched*; and although it may be well to restrict it, as a substantive, to that part of an arch which projects, yet it may be properly used, as an adjective, instead of *arched*, as in the description of the antient 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 such.

ARCA/DIA, one of the antient 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 35° 21' to 36° 4° N. lat., and from 21° 29' to 22° 38' E. long. Its greatest length from Kalyvria, the antient Cynathia in the north to Samark in the south, near which it must have been separated from Laconia, was about 30 miles. Its breadth varied from 35 to 41 miles.

On the north and north-west it was separated from Acbaia and Elia 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 2400 Greek feet (800 English), was traversed by two small rivers, and was known by the several appellations of Areosula, Lampia, Ermithanus and Phloge; on the west it was separated from Triphylia by mountains which are a southerly continuation of those already mentioned, but the name has not 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 Erotes and northwards into the Alpheus; its separation from Messenia was the high land of the W. of Lyceus, running between the bed of the Neda and the sources of the Pamias, and containing the great mountain Tetdriz (Cerunium), a part of Lycomus. On the east it was separated from Alania by a range of mountains, which, though only intermediate, give that peculiar aspect to the extreme east of Arcadia, that is probably the truth, at least in its most prosperous days.

Arcadia may be regarded as the Switzerland of Greece, though the ranges of mountains in the interior of the Morea may be considered as a high table land, which is traversed by numerous ridges of hills: the valleys of Teges, Mantinea, Orchomenus, and Caphyus, which run from south to north on the east side of Arcadia, are of considerable extent when compared with others in the Morea, and show the general level of the eastern side of this tableland; 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 east coast is more steep and abrupt. The plains of Caphyus, Teges, 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 three to five miles. The Alpheus (previously the river of 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 Alpheus is the only lake of any extent, from 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 of frequent occurrence 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. Elvies is the only town of any extent, that is the third town of Arcadia, after the cities, Teges, Mantinea, and Orchomenus, the extensive plain of Tripolitia 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 Megalopoli still abounds in delightful scenery. The sides of the majestic mountains are adorned with meadows, vineyards, chestnut woods, and a great part of its exterior, the correlative term *columnada*.

The Alpheus, the principal river of the Peloponnesus, has its source near the mouth of the Bocca del Drago, runs N.W., not far from the western boundary of the Peloponnesus, until it encounters the slopes of Mount Phloge, when it enters the valley of Olympia, and, flowing in a westerly direction, reaches the sea. (See ALPHIUS.) It is joined on the east by the rivers of the Cynus, Opus, and Olenus, the last is 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 inferior towns or villages. Of their number some idea may be formed from the fact that the inhabitants of forty of them were transferred, B.C. 351, 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 reaching as far as the sea. It was 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.

Besides the antient authorities already quoted, the reader may consult Strabo, viii. 388; Pliny, iv. 1; and Brummel, Geschichte von Arcadien, Frankfurt, 1791; 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 Aristotile (L. 73 Scholium), the Arcadians were of the same stock, and the Arcadians 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 the two great races of Pelasgic nature, which seems to have extended, at one time, nearly in a continued line from the Italian peninsula to Asia Minor. A strong confirmation of this statement is, that Arcadia furnishes specimens of antient polygonal walls, (such as at Mantinea and at Lambes,)—a species of architecture supposed to be peculiar to the Pelasgi; and their first king is reported to have been the earth-born Pelasgus. Pausanias, in his account of its early history, presents us only with fable; and it is therefore unnecessary to enumerate the names of the kings, which he pretends to have learned from diligent investigation.
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. They could not, therefore, indulge the luxury of a sedentary life, and we find them often represented in all the rudeness of an uncultivated state. Men and swine alike lived on acorns, and Philostratus (lib. iii.) paints the Arcadians as little superior to the animals in their gross simplicity. With these testimonies, therefore, to the character, we cannot but wonder how the Arcadian shepherds could have acquired their reputation for mildness and innocent simplicity, qualities by which they are best known to us. Both the ancients and the moderns, in particular, refer 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. 685-686, we find the Arcadians under the command of a king, Aristocles, whom they stoned to death on account of his treacherous behavior to the Messenians, and the country was then divided into a number of small republics. Herodotus (vii. 202) tells us that they took part with their countrymen against Xerxes, B.C. 480, 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, nor do we have instances of insurmountable resistance to their arms. It seems that they possessed the feelings of a united people. They were mere soldiers of fortune, ready to draw their swords in defense of any one willing to pay them. In the celebrated Sicilian expedition, B.C. 415, they were found in the rear of the expedition, nor do we find them ever, 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 10,600 members (αξιωματος), and if it were not frequently mentioned by antient writers under this appellation, we should be inclined to regard it as mere matter of speculation. But we may still inexcusable is, that it possessed the executive and judicial powers, but not the legislative, which resided in the whole assembled people. Pausanias, in his Arcadia (chap. xxx.), mentions the council-chamber (θεσσαλος) 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 Achian 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 the country, and included it in their Achian, but their days of prosperity never returned. Strabo states, that in his time the country was desolate, and that Thebes was the only city of importance which it contained; but Strabo himself did not visit Arcadia. Pausanias, who especially describes the country, 20th, B.C. 174, has some reason to deplore the depopulation of its ruined cities, and of the numerous antiquities with which it abounded. (See Pausanias, book viii.; Thucydides, vii. 57.; Xenophon, Hellenica, viii.; Diodorus, book xv.; Herodotus, vii. 78, &c.)

ARCA/DIUS, 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.

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 the Great. But when this king was about to marry his provincial mistress, a charge was brought against him of burning the rich library at Constantinople, the property of his predecessor; and Theodosius, on his first visit to his son, being so much influenced by the latter's personal advantages, as to be led into the commission of a great crime, it is not surprising that the son, in the first instance, should have been suspected of the guilt. Theodosius, however, employed all his influence in the court, especially of Arcadius with his daughter, but failing in this object, he was accused of advising the Huns and Goths into Asia and Greece, and was at last murdered in the presence of the court, May 3rd, A.D. 395. The first emperor to enter Constantinople with a gun, and to divide the purple gavmets are reserved for his sacred person alone; and his robes of silk are embroidered figures of golden dragons. His throne is of massive gold. Wherever he appears in public, it is surrounded with an honor guard. They appear, shields, cuirasses, the bridle, and trappings of their horses, have the substance of his life. Arcadius was entirely under the control of his wife, Eudoxia, whose character is best shown by the fact that she persecuted the virtuous St. Chrysostom. Arcadius died May 1, 408, leaving his empire to his infant son, Theodosius. The facts of his life are to be gleaned from Claudian, Suidas, and Theodoretus.

ARCESILAUS was born at Pityas, a city of Boeotia in Asia Minor; of his personal history we are able to collect a few facts from Suidas, and his Life by Diogenes Laertius. He was born A.D. 316, and began, according to Apollodorus, to attract the attention of the learned by the acuteness of his remarks before he had reached the age of seventeen. He studied under Archelaus, Andocides, and Thrasylus, 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 greater charms for him, and according to Theon he became a disciple of Theophrastus, and then of Crantor. He also made himself acquainted with the subtle dialectics of the Megarese 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 that which has been called the Middle Academy. The Academic sect was instituted by Plato, through his successor, Seleucus, Xenocrates, and Crantor, Polemo, and Crates, to Arsesilaus, who is a point which has been disputed, whether Arsesilaus 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 (Ptolemy, Edinburgh, vol. i. p. 57) satisfactorily proves, by reference to many passages in antient authors, that Arsesilaus established his school at the death of Crantor, who died before Polemo and Crates; that from this period Arsesilaus and Polemo and Crates, strictly speaking, had no successors; that the old academy expired with them, and was superseded by the school of Arsesilaus, which had been founded in their lifetime.

Aresilaus 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 refer from coming to a decision, because the mind of man sufficiently distinguish truth from falsehood. He does not, however, appear to have carried these sceptical opinions into the every-day 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 a 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

ARC

the accused ARC but then the only formed but an arc-stone as

ARC

the crown.

ARC

the conclusion of A,B, and C,D; perpendicular to the same continuation of A,B, of any length, and draw F H parallel to C,D. It is a known theorem, that any three forces which balance each other, are proportional to the three sides of a triangle, the directions of the sides of which are perpendicular to the direction of the forces. In the present case, H E F is such a triangle; for H E being horizontal is perpendicular to the direction of all weights; F E is the continuation of A, B, and therefore perpendicular to the pressure at A, B, while F H, being parallel to C, D, is perpendicular to the pressure at C, D. Hence H E bears to F E the same proportion as the weight of A C D B to the pressure at A. In the same manner it may be shown, that F M being parallel to K L, the weight of the portion A B K L is to the pressure at A B as M E to F E, from which it follows that the weight of A K L B bears to that of A C D B the proportion of M E to H E. Hence the following theorem:

hand, if the whole superincumbent load could be considered as perfectly solid and wholly unsustained by lateral pressure, the portion p q h 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, partakes 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 and B D are called the piers of the arch; it is said to spring from A and B; A F and B F are the flanks, and G the crown. The lower line of the arch stones is called the intrados or soffit, the upper, the extrados 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 the intradoses or backs of an arch are always, sufficiently formed 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 uncremented, their friction upon one another would tend to prevent the disturbance of equilibrium, and allow considerable variety of form in arches constructed with stones of the same weight. But if we suppose the stones

ARC

perfectly smooth, so that each of them is kept from slipping only by the pressure of the adjoining two, then each intrados has one particular form of extrados and one only, so long as the manner in which the stones are cut follows one given law.

Let P Q, R S (fig. 2) be parts of the pier, which we suppose firmly fixed, and let there be no key-stone or suppose the key-stone divided in the middle at A B. Let the portion A C D B be taken, composed of several arch-stones, and let its centre of gravity be G. Then the weight of A C D B, collected at G, is sustained by pressures at the surfaces A B and C D, perpendicular to the lines of direction of the continuation of A B, of any length, and draw F H parallel to C D. It is a known theorem, that any three forces which balance each other, are proportional to the three sides of a triangle, the directions of the sides of which are perpendicular to the direction of the forces. In the present case, H E F is such a triangle; for H E being horizontal is perpendicular to the direction of all weights; F E is the continuation of A, B, and therefore perpendicular to the pressure at A, B, while F H, being parallel to C, D, is perpendicular to the pressure at C, D. Hence H E bears to F E the same proportion as the weight of A C D B to the pressure at A. In the same manner it may be shown, that F M being parallel to K L, the weight of the portion A B K L is to the pressure at A B as M E to F E, from which it follows that the weight of A K L B bears to that of A C D B the proportion of M E to H E. Hence the following theorem:

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It is to the friction and cements 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 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, and to CBD about Q measured: then the effect of friction is this, that instead of the two arch-stones moving on TF, 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 X Y M V X Y, the angles MXF, MFY, NFX', NF Y', 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 in the proportion 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 pressure which might arise from the slipping of the 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, 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, p. 640). It had been built from a soft, but 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 about two feet from each, 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 the instant it fell, but it first split in fifteen or sixteen feet at each, 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 before the arch actually came down. In ten minutes it was 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 is about five minutes after this the whole came down. Even this movement was plainly distinguishable into two parts. The crown sunk a little, and the archstones 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 these splintered off, the whole fell down.

The preceding method of fracture also took place in several model arches of chalk, loaded for the purpose, and Dr. Robison explains the phenomena as follows. He supposes that the total pressure on a single arch-stone exerted in a straight line along with many vousoirs as 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 clipping from I, H, F, and G is supposed to have come from the whole demand of 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 to say whether or no Dr. Robison was justified in supposing the line of communication of the pressure to be straight. His hypothesis might equally apply, if A H D 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 vousoirs to be impossible, may be considered as almost unobjectionable, led its author to recommend that the arch should always be made so as to make the same straight line being drawn so as to pass through some point of every vousoir 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 the triangular arch, slipping being supposed impossible, since there is no part of the arch

which exerts any effort to overturn the butt, but only to crush it. Brick and stone bridges of this kind, are indeed triangular, but so flat that a straight line can be drawn through all the vousoirs, 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 Encyclopaedia Britannica.

For the method of building an arch, see Centering, to which also we must defer the account of a method of constructing arches lately invented by Mr. Boulton, in which the stones are joined in such a manner that each of the 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 or what age it was first used. There is good reason to think 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 the architects in various forms and in a form which still remains in the numerous ecclesiastical structures in this country, in our beautiful pointed styles, and most particularly in some of the greater churches and cathedrals.

The origin of the pointed arch has been almost as much disputed as the character of the pointed arch itself. It became general in most parts of Europe at nearly the same time, and about the period of the return of the warrior-priests and pilgrim-soldiers of the first crusade. One theory is that it was added to the tolerably well ascertained fact of the pointed arch being used in Asia before that period, and that an arch of the pointed form cannot be satisfactorily shown to have been used in the middle east before the parts of Europe anterior to it, give, in the opinion of some people, a reasonable degree of certainty to the supposition that the notion was brought from the east by the crusaders. Its origin may be this:—Before architecture was understood, or its principle known, the use of long lintel stones was sometimes avoided, and, indeed, a trifling degree of strength was gained, by jutting stones over from each side of an opening in three or four courses until they nearly met in the middle; then a stone of common size and ordinary length only was required to close in at the top, instead of a long and large one cut to project lower angles of the stones, which curled or batten over, were disagreeable to the eye, and might also be inconvenient; and therefore they would be generally cut off, as indicated by the dotted lines, leaving the head in the form of a pointed arch. Such an explanation is, however, far from satisfactory, as the following extract from Mr. Rickman (An attempt to discriminate the Styles of English Architecture, by Thomas Rickman) contains a more probable solution of the difficulty, at least as far as concerns the origin of the pointed arch in early English buildings.

"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 outline of the arch, the intersection of the arches, 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, was encased with arches which are (or were, as it is asserted) intersecting, and it was frequently observed that the Romans, who had not hitherto 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 Etruscan. The application of the arched structure is one of the most useful mechanical contrivances ever discovered by man. By means of it 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 it ceilings are vaulted; subways, or arcades, are made, 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 made use 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 enormous abutments, which proves that the architects, who seem to have been the most skilful of all, were not the weak the 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 experiment and try to do by varying the form and construction of the arch.
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 Capitolinus. (See also Liv. xxxii. 27; on the arch of L. Stertinius.) The Fabian arch is mentioned by Cicero (Pro Pisoni) under the name of 'Fabianus fornix;' it stood by the Via Sacra, near the spot afterwards occupied by the temple of Antoninus and Faustina. It was raised in honour 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 ἀψίδος τριήμερος. 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, reliefs, 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 Livia, 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 Suse, at the commencement of the road which leads over Mont Genève 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 Judaea. 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 Caesar, 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.


Dacico. Pont. Max. Tr. Pot. XVIII. Imp. IX.

On the Right. On the Left.

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Divae.
Plutinae.

Marianae.

Aug.


Sor. Aug.

Bronze statues of Trajan, of his wife Plutina, and his sister Marciana, were placed on the summit of the arch, but they have been destroyed. Another fine arch in memory of Rome, that of Septimus Severus, and that called the arch of Constantine, which we have chosen for our illustration. The view has 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

[Arch of Constantine.]
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, superior to that of the age in which it was executed, as it contains a 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] of a single section 2 9/16" in diameter, made by an artist 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 monument.

The number of marble arches, in honour of emperors and other personages, existing in antient 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 Nimes and Orange are the best preserved; several in Macedonia, at Archippus, and at the city of Thessalonica; and one, at Sikyone, dedi-
cated to the Roman period; several in Syria, and in Barbary, particularly one at Tripoli; and another at Constantina, de-
scribed by Shaw. In modern times, triumphal arches have been raised in imitation of the Roman ones. Those of the great bridge of the Rhine at St. Goar were erected in 1839 in honour of Louis XIV. Bonaparte also had one con-
structed 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 Sim-
pion. It was interrupted by the overthrow of the French empire, but has since been continued by order of the Austrian government, under the appellation of the Arch of Peace. It is now nearly finished in London, two structures of the kind have been raised of late years, a single arch at Hyde Park Corver, and a triple one in front of the Palacio palace. On Roman triumphal arches the reader may consult Pitiusus, Lexicon Antiquitatum Romana-
um, art. 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 being the widest opening among all the arches in Italy. The front is decorated with two Corinthian columns thirty-two feet high. It is made of Istrian marble.

The arch of Septimius Severus is sixty-one feet high, seventeen feet in width, and twenty-two feet deep. The cen-
tral archway is thirty-six feet high, and twenty-two feet wide. The side arches are twenty-two 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 long. It is a triple arch.

ARCHANGEL, or properly ARCHANGHELSK, 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 or-
der in it. Come, then, be princes unto us, and hold dominion over the public lands from the Caspian, to the Ural, and to the Vistula; from the Neman, to the Merowe, and to the Volga; from the Dnieper, to the Don, and to the Donetz; from the Vistula, to the Volya, and to the Selenga; from the Volya, to the Yenissei, and to the Ob; from the Ob, to the Yenissei, and to the Lena; from the Lena, to the Ural, and to the Vistula;' all these are parts of the immense empire of Russia, and all are tributary to the Tsar. The whole empire is divided into two great parts, that on the right bank, and that on the left; the former is called the White Sea, and the latter the Black Sea. These two parts are each divided into two provinces, the former being divided into the provinces of West and East, and the latter into the provinces of South and North. These provinces are again subdivided into districts, and these districts into counties, each of which is governed by a governor.

The province of Archangel is now one of the sixteen provinces, or guberniyas, of the Russian dominions called 'Great Russia;' and is not only the most northern but the most extensive province of Russia in Europe. It comprehends part of antient Biarnia, the ancient Lapland, the disFigure countries of the Wainbrot branch of the European Samoedés, Nowas-Zemlya, or Nova-Zembla, and other islands in the Icy Ocean. Its most eastern limit is about 68° E. long., and its most nor-
est limit extends to lat. 76°, the extreme point of Nova Zembla. The superficial extent of this province is variously estimated; by some writers at two hundred, by others at two hundred and seventy, and by Russian scholars at three hundred and fifty thousand square miles. Including the 37,000 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 360,000 square miles. In this province the soil is diversified, the climate is cold, and its extent is considerable; the long, cold, and stormy winter, with its sudden changes, makes this country a desolate and sterile region. The Rurik by various accounts been stated to have scanted the principal river of this province, and is supposed to be the source 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 Biarnia.
the Mesen, a considerable stream, which rises in the marshes of the steppe of Petsobor, and flows in a north-west easterly direction for nearly 500 miles. The Petsobor, which rises on the Ural, is navigable for about 300 miles, and the river Ob is navigable for about 300 miles, and the river Ob is accessible to an estimated 700 miles of dry были, and, before it crosses the boundary between the provinces of Wologda and Archangel, receives the Una and Elma, and then enters the sea, between Cape Chatou and Katchou, without the assistance of islands: it is navigable immediately after quitting the Ural mountains, but is locked up by ice for nine months in the year; its dryable banks are rarely the resort even of the hardy Samoiede.

The mouth 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 lakes of Kowda, Toposoro, Angoeros, and upper and lower Koutto.

The climate of this province, particularly the northern districts, partakes both of the extremes of heat and cold. The heat 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 go north. The article is, in consequence, frozen by the end of September or beginning of October; the Dwina, on the other hand, does not usually close until a month later, and is again free from ice by the end of April or the first week in May. In the districts which border on the Petsch and the 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 intervals of three or four months.

The northern districts of Archangel are wholly uncultivated, and its soil, even in the south, does not yield grain enough even for the support of its scanty population. The bread in use is a compound of meal, moss, shootings of the bark and roots of plants; all of which, in tolerable time, are tender; and, as it 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 employ to the labourer, the artisan, boatman, mariner, shipwright, merchant, and even the more humble gleaner of the harvest. The woods, which are of timber of different species, grow from the banks of the river to the top of the mountains, and are generally large. The predominant species of timber are firs, pines, birches, elders, and larches, which are of great dimensions and lofty growth. These forests are the resort of a variety of wild animals, which have, therefore, a considerable number of inhabitants. In the good sea- and coast-are the bear, wolf, rein-deer, squirrel, ermine, hare, mart, flan, fox (both the common species and the beautiful polar fox), wild duck and goose, swan, water-hen, and siber-fowl. To these may be added an abundance of marine animals, in pursuit of which hunting parties repair 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 morse, or in hunting the polar-bear, fox, or rein-deer. The seas, lakes, and rivers of Archangel furnish food to the inhabitants from their ample store of whittings, pikes, eels, salmon, perch, and other fish. The only domestic companion of the Laplander and Samoiede is the rein-deer; there are in this district alone over 100,000 of these, which are estimated at 200,000 in all. The domestic animals, in proportion to the extent and productive of wealth; hence the individual who has too thousand is accounted rich, but the man is poor who cannot muster more than thirty or forty. Archangel is but slendrily supplied with sheep, and the limit of the number of each of the calvery of this species is 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 dappled with spots that they are called breeding white, and 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 wadnal. The country is also so well-stocked with game, that scarcely any poultry beyond the cock and hen are kept. With regard to fish, it is brought in great variety in the markets of the town of Archangel, and in the Russian vessels which come from the Black Sea, from the Caspian, and from the Baltic. The chief articles of commerce are wood and flax, and the skin of the rein-deer.

The manufacturing and mechanical industry of the people is principally confined to ship-building, the preparation of pitch and tar, and the making of linen, which latter occupation has become a great source of wealth to the people of the province of Kolmogory and Archangel, and constitutes a lucrative branch of their commerce with St. Petersburg, Moscow, and other Russian ports. In some years, 3000 tons of pitch have been exported, and 30,000 bales of flax. The Russian vessels and trade of Archangel have been despatched to the extent of 25,000l. in value to foreign parts. There are two refineries for sugar in the province, and seven rope-manufactorys, but only three of them can be said to be of any importance. From 400,000 to 500,000 deals are often sold in the market of Archangel.
of them resorting to so distant a spot as Obdorsk in the month of February, where they exchange their wares for Russian bread. Brman, indeed, tells us that they will at times travel four hundred miles in search of it. The commerce lies between Archangel and Turkmansk on the Jenisei, from mere fondness for shifting their quarters. (For further details, see the article SAMOIBDS.)

A city of the eight centuries, namely, the city and dependencies of Archangel, Khlomgory, Shenkurek, Pingos, Onega, Kem, and Mezen. Independently of Archangel itself, the circle of that name contains Nowa-Dwinskaia-Krepost, a fortress, about ten miles distant from the capital, on an island of that name, on the mouth of the Dwina, which is defended; close upon the ramparts is a town of about two hundred houses, which are mostly used as stores by the merchants of Archangel. The island of Boloszewko, in the White Sea, is also within the limits of this circle; it is the largest of a cluster lying about 150 miles N.W. of Archangel, and, besides a monastery, to which numbers of pilgrims resort, contains a borough town, the inhabitants of which pay peculiarly pure description, consisting, considered by some to be the finest that Russia produces. The chief town in the circle of Khlomgory bears the same name, and is situated on an island in the Dwina, thirty-five miles south of Archangel; it has a building-yard for ships, and for navigating the ice, provides pasturage for the finest breed of cattle in this quarter of the world. The population scarcely exceeds 500 souls. Shenkurek is the capital of the circle so called, and lies on the river a hundred and thirty miles S.W. of Archangel, and possesses a good harbour, is engaged in shipbuilding, and exports timber, tar, and pitch. The number of its inhabitants is about 2000. Kem, the capital of the circle of that name, which once formed part of the province of Olonetz, and has latterly been incorporated with that of Archangel, is a small town with a harbour, not far from the afflux of the Kem into the White Sea. Kola, or Kolkoi-Ostrog, the principal place in Russian Lapland, in 52° 39' E. long., 66° 20' N. lat., is the northernmost town of Russia in Europe, and next to Vardie, a port on a promontory in eastern Finnmark in Norway, which lies in 71° 2' 30" E. long., 76° 22' 36" N. lat., and to Hammerfost, which is on an island of the same name, 10° 40' (90° N. lat., 23° 49' E. long.) is the northernmost town in Europe; it is situated close upon an arm of the White Sea, between two rivers, the Tuloma and Kola, and possesses a harbour formed by the mouth of the latter stream. Its inhabitants, they say, have not been above 1200, and in many years below 900; walrus, cod, and whales, and traffic in furs and hides. There is a copper-mine in its vicinity, and at the extremity of the gulf is the port of Ekator nakaia. Kola is about 630 miles north of St. Petersburg. It should here be observed, that the Faleds districts, formerly belonging to Norway, have constituted a portion of Russian Lapland, by virtue of the frontier treaty concluded between Russia and Sweden, ever since the year 1628. Part of the river Pasvig and the Jessely breed, with which it did formerly terminate and meet the Neiden and Peise, two places within the latter, are the resort of the native traders. The capital of the circle of Mezen, as well as the chief town in the territory of the European Samoyeds, and of the same name, is St. Petersburg, twenty-eight miles from the Icy Ocean, where it forms a harbour: it is inhabited wholly by Russians, who make excursions on an extensive scale to the islands of the north of Archangel, and carry thither the islanders and Zembla, and bring back with them the produce of their toils by land and sea, in such quantities as to give rise to considerable trade. It is about 140 miles N.E. of Archangel. The other spots deserving of notice in the north of the European Samoyeds are Pust-Osekar, an executive town on the island of Zembla, and an exact description of the town and its appendages has been improved of late years by the opening of a communication by canal with Moscow and Astrachan. The bulk of its shipments still consists, however, of the growth and manufacture of Siberia, and more northerly latitudes; such as fish, fish oil, tallow, cloth, cotton, unworked hemp, pitch, tar, wax, iron, linseed, furs, hides, bristles, caviar, &c. When the navigation of Archangel is open, the river, from the roadstead to the town, is covered with vessels and boats of all sizes; the quays and shores are
people with multitudes, variously and actively employed; and the great road from Siberia is covered with travellers and barrows. These barrows are mentioned from 2,000 to 3,000 above 200 houses, and its inhabitants do not exceed 15,000; in both respects it stands much on a par with Berwick-upon-Tweed. Mixed with the native-born subjects of Russia are a few Englishmen, Dutchmen and Swedes, who probably are already engaged in merchandise or mechanics. In a manufacturing point of view, Archangel is of minor importance: there are some sugar-refineries, and manufactories of canvas and cordage; there is also much ship and boat building. The ice below the town is almost navigable in the government yard, with three slips for building ships of war. This establishment is protected by the lines of Nowadwinka, which command the entrance into the Dvina, and the island of Hamburger Skog which is built of piers and spits, which is deposited in the adjacent sthorehouses. 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, are very strong. The roofs are covered with every species of convenience, and indeed luxury. The most striking of the stone edifices is the Gostinnn-Dvor (caravansers, or court of the trading guests), an extensive mart for the exhibition and sale of goods, which is surrounded by high walls and a gate. The church is always 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. There are, besides, a hospital, a building 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 ranged, if possible, in one row; 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, Archangel is a visitant city; the town is a strong town, 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 growth of corn and fruit ceases; this line being, near the town, in a latitude of 63° N.

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 coasts of Siberia and Japan. Kazan, the capital, is on 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 stipendary 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 Solombalak, which is formed by the Kushezha, contains an admiralty and marine-barracks. Archangels lies in 64° 35' N., 14° and 49° 35' E. long., or about 460 miles N.E. of St. Petersburg.

ARCHAEOLOGY, literally, 'the study of antiquity or antient things,' from antieos, antient, and λῆγος, a discourse. Though the term is often used, its meaning in this country has not always been 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 archæology 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 the chief works on each will be noticed under the proper heads, such as Egypt, Greece, Medals, Sculpture, &c.

The great extension which the study of archæology has received of late years, and is still receiving, seems to require now more than we can here attempt to notice. The name is applied to itself. In this point of view, the Archæological Institute of Rome, founded in 1829, seems likely to be of great utility. (See Thesaurus der Archæologischen Institute in Rom, 1837, 2 vols. Edinburg.)

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 to the archbishop probably, as a name, who is the head of the church in this 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 admittance superiority and a certain dignity, which is not always the same in different countries; sometimes called his suffragans, together with some peculiar privileges. This superiority is indicated in the name. The word or syllable arch is the Greek element αρχη, (which signifies chief, head, &c.) and it is prefix'd to the word bishop, to denote any bishop who has such dignity as head of a church, as the head of the clergy, and to the holder of such dignity. He it is who has the chief 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 any other term, we are not aware, and every person who has been appointed to such dignity, has always given an apparent reason for the change, being, in the case of the pope, as we shall see, in the case of the archduke, by a kind of compromise, in the case of the bishop. The pope is the head of the church, and, as such, is the archbishop, yet the archbishop is not the pope, and the pope is not the archbishop. Whatever might be the precise functions of the episcopos (επιςκός, bishop), the term itself occurs in the writings of St. Paul, Phil. i. 1, Tit. i. 2, and elsewhere; but the word stone, as πέτρους, or petrous, is used for the pope, the Latin word, at least from the fourth century, Cyrillus Archiepiscopus Hierosolimitanorum, and Celestinus Archiepiscopus Romanororum, occur under these designations in the proceedings of the council held at Ephesus, A.D. 431. Other terms by which an archbishop is sometimes designated are princeps and metropolit. The first of these is formed from the Latin word primum, 'the first,' and denotes simple precedence, the first among the bishops. The latter is a Greek term, which rendered literally into English would be head of the many of er or after, 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 metropolitan, when thus analzyed, points out to us the origin of it. In the Greek, and, perhaps, in the Latin, 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 acquirements or to the authority vested in him as bishop, but to his consecration, by which he becomes metropolitan. 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, 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, offspring, 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 more considerable cities, remote from the city in which the original church was seated, there was a convenience in confirming upon him the functions of a bishop; and the leading design, the extension of Christianity, was more effectually answered, than if by preserving all the episcopal power 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 whom the bishop was dependent upon, in order to receive at his hands some superintendence over the newer bishops, archbishop became a suitable designation. Thus in England, when there was that new beginning of Christianity in the time of pope Gregory, Augustine, the first who presided in the mission, gained an early establishment at Canterbury, the
capital of the kingdom of Kent, through the favour of King Ethelbert. There, in this second conversion, as it may be called, of the English church, and from whence the persons were sent out, who at length christianized the whole of the southern part of England. Paulinus, in like manner, a few years later, gained a similar establishment northwards, to which the see of York was annexed. 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 Christianity was diffused over the northern parts of England; and the consecration and works of these were done, 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. The bishops of Carlisle and Chester. Of these, the bishopric 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 scattered was the seed 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 Rochester, St. Albans, Winton, Winchester, Rochester, Chichester, Salisbury, Exeter, Bath and Wells, Worcester, Hereford, Lichfield and Coventry, Lincoln, and Norwic...
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. The extent of this superiority, and the conditions under which it varies, for those 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 doctrine. In Germany, some of the cities enjoyed no small degree of political independence, and power. Three of them, viz. those of Treves, Cologne, and Ments, were electors of the empire. In France, under the old regime, there were eighteen archbishoprics, all of them so-called; not one of them has been founded in the second, third, and fourth centuries, the foundation of the archbishopric of Cambrai was referred to the sixth century. The French have a very large and splendid work, entitled "Galila Christiana," containing an ample history of each province, a denial substitute, comprehended in it, and also of the abbys 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 the relations metaphil in the close of the reign of King Henry V., is a distinguishing number of suffragan bishops of this class, and some persons were actually consecrated. But every bishop within his province is sometimes spoken of as a suffragan of the archbishop. The reason, in fact, of this name, we have been raised respecting the origin of the word suffragan, which is by some supposed to be connected with suffrages or voices, as if the bishops were the voters in ecclesiastical assemblies; but more probably, if connected with suffring, 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, preceptor, 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 the times of the arch deacon, is an officer of the diocese in which deacon or archdeacon. Deacon appears to come from the Greek term διακονος, the name of that officer in the church of whose appointment we have an account in Acts, cap. vi. To one of these deacons prebendary was given, and no doubt some species of superintendence or control, and to him the title of archdeacon was assigned.

In the name, then, there is no indication of any peculiar employment. What now belongs to the archdeacon was originally performed by the officer in the bishop's court called the chorepiiscopus; and the manner in which the archdeacon usurped upon this obsolete officer and attracted to himself the functions which belonged to him, is supposed to have been the easier the nearer the bishop and much trusted by his people. The archdeacon was often employed by the bishop to visit distant parts 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 office of archdeacon was spoken of by every 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 reform.

If this is a just account of the origin of the archdeacon's power, it is manifest that originally the power would be extended over the whole of a diocese; but at present it is confined within certain limits. In the "Valor Ecclesiasticus" of King Henry VIII., there are fifty-four archdeaconies or districts through which the visitatorial and corrective power of an archdeacon extends. This distribution of the dioceses into archdeaconories 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 is assigned to its own archdeacon, with the same precision and certainty as other and larger districts are assigned to the bishops and archbishops; and the archdeacons are entitled to certain annual payments, under the name of procurations, from the benefices within their archdeaconories.

As the archdeacon in ancient times intruded upon the chorepiiscopus, so in recent times he has extinguished the authority and destroyed almost the name of another officer in the church, the rural deacon. The rural deacon is a body of men so organized and 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 these deaneries a substantive 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 superseeded, the duties have been assumed by 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. They duty usually visit their archdeaconories 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; and sometimes, in some instances, the archdeacon is called upon to be the officer to exercise the same functions; and to be appointed, not without a certain quantity of power within the confines of the diocese, for the cure of souls, and for the care of the church. Though the office is confined to the bishop and his officers, yet it is held to be, in some measure, a office of the archdeacon, that the archdeacon is called for the archdeacon. 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 commutable 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 English archdeacons may be found in a book entitled Fasti Ecclesiae Anglicanae, by John le Nero. ARCHELAUS, a Greek name composed of two words, signifying rule and people. Moreri has distinct articles on this subject, and there is a penalty of a learned man who bore this name; and the reader is referred to find a list of authors on this subject in Peculiar's Bibliothea Greca, with some account of them in the body of the work. We shall only notice.

1. 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 sentence of Thucydides, who says that "Archelaus, son of Perdiccas, was killed by the Athenians, and his twenty sons were slain 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 had previously done."

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 his residence, which became one of the great resorts for strangers. He established games at Dion in honour of Jupiter and the nine Muses, which, from the description, 'magnificent religious festivals and dramatic contests' (Diod. v. 11. 2), was splendid, and numbered, in the time of Socrates, v. iii. 88., as being a place of great interest. We may presume to have been of as literary and refined a nature as the great festivals of southern Greece.

[From a silver coin in the British Museum.]

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 Pericles by a slave, and that he gained the kingdom by a series of murders. (Graec. 471, vol. iii. p. 208, 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 testimony of Plato and Aristotle, that his excesses led to his death by conspiracy. Diolorus (xiv. 37) says, that he was killed accidentally when hunting, by his favourite, Craterus, or Crates. The close resemblance between this tale and that of William Rufus's death cannot fail to strike the reader. Archelaus died a.d. 399, after a reign of fourteen years. (See Mitford, chap. xxxiv. sect. 1; and Clinton, Appendix 4, besides the authorities above quoted.)

3. ARCHELAUS, an eminent general in the service of Mithridates, long in 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 Piraeus, and defended it obstinately. Compelled at last to evacuate his stronghold, he retreated to Thrasyllus. 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, by whom he was well received. (See Appian, Mithridaticæ; Strabo, i. xii. and xvii.)

4. ARCHELAUS, son of the preceding, obtained the dignity of high-priest of the temple of Comas in Pontus, where there was a temple sacred to Eumelus, to which a considerable tract of land and numerous slaves were annexed. He served in the expedition to Egypt of Gabinius, to reestablish Ptolemy 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 six months' reign was slain in battle against the Romans.

5. ARCHELAUS, son of the above, succeeded him as high-priest of Comas, and was expelled by Caesar, b.c. 47, to make room for Nicomedes the Bithynian. Between his wife, Glaphyra, and Mark Antony, an intrigue is said to have subsisted; and from Antony.

6. ARCHELAUS, son of Archelaus and Glaphyra, 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 lesser Armenia 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 by Dion to have counterfeited daggers for the purpose of turning aside the tyrant's suspicions. (Tactius, Ann. ii. 42; Dion, libr. i. 16; Bayle, Ann. Univers.)

ARCHELAUS the Mileian, an eminent philosopher of the Ionic school, and the last who presided in it in direct succession from Thales. He succeeded Diogenes Apollonites 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 circumstance that of his having taught 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 a philosopher, and numbered, in the time of Socrates, v. iii. 88., as being a place of great interest. We may presume to have been of as literary and refined a nature as the great festivals of southern Greece.
this he employed the whole force of his arms against the rioters, and 3000 of them were massacred. The rest escaped to the neighbouring mountains. Archenholtz published 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 customs and government. He was refused 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 Jewish nation, who denounced the recognition 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 emperor gave him a hearing to all parties. He consented to be impolitic to accede to the demands of the Jews, but he placed only the districts of Judaea Proper, Idumæa, 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 princesses were not called kings hut ethnarchs, and their territories were not called kingdoms but ethnarchies. Archelaus built the city called after his name at the town of Josephus, and had himself traced on the ground by putting marks, and had also the technology of his name written on the ground, 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 restored the kingdom of 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 posterity. To understand the history of Archelaus in connexion with preceding and subsequent events, the reader must refer to Josephus, On the Jewish War, from book i. chapter 28, to book ii. chapter 8; and the Antiquit. book xvii. Compare acanthopterygious, ed. Breithaupt, v. 35, from page 497 to 500. 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 Hamburg, where he published several works, which became very popular in Germany. The first work that established his literary reputation was his England und Italien, published in 1784, which he gave not only in the Prussian journal of a town, 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 as a particular instance of the studies of this country given by a foreigner. Archenholz had visited England repeatedly and stayed there nearly six years between 1789 to 1795. He had been likewise several times in Italy, and had resided there 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, 1787, Archenholz expressed his wonder at the change of the state of Italy with which he had been forsooth 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 poet and a tourist, and the point of view which he chose was the most unfavourable to that country. Italy has changed considerably since that time, and any of Archenholz's observations are no longer applicable. A later edition of his work in the next work of Archenholz was a History of the Seven Years', in which he collected the information scattered through many memoirs and records of those memorable campaigns, and especially consulted the valuable work of Major Tempelhof of the Prussian artillery, Ge-
history of many different nations; but some people, the ancient 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, l. 45), and Hercules also, as described in the Odyssey (xxi. 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 Philistines 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, xxiii. 860). 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 uses against his domestic enemies.

In the later times of Greece, archers formed a part of the light-armed troops. 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 cross-bow, 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 cross 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 Poitiers, 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. at act was passed to compel all servants to shoot with it on holidays and holy days. The heads of the cross-bows were to be well boiled or brazed, and hardened at the points with steel; all heads otherwise manufactured were to be forfeited, and the makers imprisoned; all arrow-bowcases, moreover, to be made of wood, and marked with the mark of the cross-bow. Henry V. ordered the sheriffs of several counties to procure feathers from the wings of geese, picking six from each goose. Two-feathers in an arrow were to be white, and one brown or grey; and this difference in colour informed the archer in an instant how to dispose his shot. At the time of Edward IV. an act passed ordaining that every Englishman should have a bow of his own height; and butts were ordered to be constructed in every township for the inhabitants to shoot in. As a mark of trust, it was neglected to use his bow, the penalty of a halfpenny was incurred. An act, 1 Richard III., complains, that by the seditious confederacy of Lombards using divers ports of this realm, bow-staves were sold to an outrageous price; that is to say, to eight pounds a hundred, whereas they were wont to be sold at forty shillings. This act provided that ten bow-staves should be imported with every butt of malmsye or Tyre wines, brought by the merchants trading from Venice to England, under the same penalty as the importation of the said wines in case of neglect. By 6 Henry VIII., chap, 2, all male servants were to provide themselves with one bow and four arrows, which their master was to pay for, and prevent the purchase of any more, and the sales thereof. Another statute, enjoining the use of archery more strenuously, was passed in 33 Henry VIII. It ordained that every man under sixty, except spiritual men, justices, &c., should use shooting with the long-bow, and have a bow and arrows continually in his house; that he should provide himself with bows and arrows for his servants and children; that every servant, above seventeen and under sixty years of age, should pay 6s. 8d. if he was without a bow and arrows for one month. The inhabitants of every city, town, and place to erect butts, and practise shooting on holidays, and at every other convenient time. Latimer, in one of his sermons before King Edward VI., published in 1549, enforced the practice of archery from the pulpit. 'Men of England in times past, he says, when they would exercise themselves (for we must needs have some recreation, our bodies cannot endure without some exercise), they were wont to go abroad in the fields of shooting, but now it is turned into glooming, evading, and whoring: That this is true, and still a more lamentable thing, he says, that the whole realm hath been in times past much esteemed in this realm: it is a gift of God that he hath given us to excel all other nations withal; it hath been God's instrument whereby he hath given us many victories against our enemies. But now we have taken up worse prayers in towns, and the children of the same, turned into schools of physicians, and维替治医术, and whoring within the towns: for they do not their duty. Justices now be no justices; there be many good acts made for this matter already. Charge them upon their allegiance that this singular benefit of God may be practised, and that it be not turned into bowling, glooming, and whoring within the towns: for they displease the magistrates that execute these laws of shooting. In my time, my poor father was as diligent to teach me to shoot, as my poor mother was to teach me to read, and so I learnt both, and taught my sons and children. He taught me how to draw, how to lay my body in my bow, and to draw with strength of arms as other nations do, but with strength of the body. I had my body made by the best bowyers; and by using of it every day, I increased in them, so my bows were made bigger and bigger: for men shall never shoot well except they be brought up in it. It is a godly art, a wholesome kind of exercise, and much commended in physics.' Holinshed reports that Henry VII. shot with the long-bow himself, and seems every reason to believe that it was practised by King Charles I. This monarch issued a proclamation in the eighth year of his reign, to prevent the fields near London.
memorizing ancient distances about 800 yards. The Baron de Tott says, in his Memoirs, Paris, 1785, tom. ii. p. 107, "Les empereurs Turcs ont eu presque tous la vanité de préférer un arc de roseraie à celui qui on de célébrité." Nearly all the Turkish emperors have had the vanity of wishing to acquire this kind of celebrity.

Ascham has enumerated fifteen sorts of wood, of which arrows were made in England in his time, namely, brazill, blackwood, buck, maple, cypress, cherry, oak, service-tree, alder, blackthorn, beach, elder, aspe, and salow. Of these, sap and ash were preferred to the rest, the one for target-shooting, the other for war. Whistling arrows have been once twice found on fields of battle of the time of Edward IV. The English archer in former times bore chiefly, 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 made of hard iron, and sometimes of lead; but had 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. Bank'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 the late le Bow (de Archibus), from which place it was removed about the year 1567 to the Common Hall of Doctors' Commons, where it is now held. The acting judge of the court is termed Official Principal of the Court of Arches. By reason of the great importance of the Court of Arches, of its high authority, and of the singular character of its jurisdiction in all spiritual causes arising within the parish of St. Mary le Bow and twelve other parishes, which are called a deanery, and are exempt from the authority of the Bishop of London. The Court of Arches has also a general appellate jurisdiction in ecclesiastical causes arising within the province of Canterbury, and it has original jurisdiction on subtraction of legacy given by wills proved in the prerogative court of that province. The Dean and Chapter of the Archbishops of Canterbury is the only other body, with the exception of Doctors of Law practising in the Ecclesiastical and Admiralty Courts, incorporated by royal charter in 1678, end the advocates and procurers who practise in these courts receive their admission in the Archbishops Court. The judge is the deputy of the archbishop, who is, in legal consideration, the judge of the court. The Dean of Arches has always been selected from the College of Advocates. There are four terms in each year, and four sessions in each term. Causes are commenced and decided by the judge, who gives his opinion by articles, according to their respective nature. Responsive pleas are termed allegations. Depositions of witnesses are taken in private by examiners of the court appointed for that purpose by the registrar, with the approbation and sanction of the judge and archbishop. The appeal is brought before trial by the judge, or read over at the trial, and the case argued by counsel, judgment is pronounced in open court. For the last twenty years and upwards, reports of decisions in the Ecclesiastical Court have been laid before the public, which was not the case formerly. Execution of the sentence may be enforced by the compulsory process of contumacy, significant, and attachment. An appeal lay from this court to the Court of Delegates, or more strictly to the king in chancery (st. 25 Henry VIII. c. 19), by whom delegates were appointed to hear each cause, the appeal being to him as head of the church in place of the Pope. By 2 and 3 Wm. IV. c. 29, appeals are transferred from the Court of Delegates to the King in council. The ecclesiastical courts are competent to entertain criminal proceedings in certain cases, and also to take cognizance of causes of defamation; for which last offence persons were formerly directed to do penance, but this has very rarely been required since this statute. The late His late many years presided in the Archbishops Court; the late Judge had no salary attached to the office of judge; and his income arising from fees, as also that of the registrar, is very small. One judge has for many years presided in the Arches and in the Prerogative Court. It is the custom in the Prerogative Court by which this court, in common with all the ecclesiastical courts, will be much modified.

A'RCIAS, A. LICIPIUS, a Greek poet of Antioch in Syria, whose name would never have reached us if the bestowal on of his name, pronounced in his defence. We cannot, however, regard him as anything else
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 he ever received the different degrees of philosophy and rhetoric (Arch. c. 1), 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 ceremony of Catiline—and nothing more was required to excite the interest of the great company. He came to Rome in the consulsipship 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 the Cimbri. He was, in fact, the post- landlord favorite of all the emperors, and we find him chanting the praises of that luxurious Roman in a poem on the Mithridatic war. It was chiefly through the influence of Lucullus that he was admitted into the society of the well-to-do, and the fashionable 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 Oratius 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 consulship of M. Furius Philus, was that Archias was not genuine, that the jury rejected 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 Anthologia Graeca, were his productions, we should fully believe that Archias was the orator. 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 Ilgen, Antimardes, Histoire, et Crit. in Cic. Orat. pro Archia, Erfurti, 1797; and by Hülsenmann, in his edition of Cicero's Oration for Archias, Lemgo, 1800, 8vo. We may observe, that lately an attempt has been made to prove that this oration of Cicero in defence of Archias is not genuine; we think that the prosecution of Angelo Mai, in the Ambrosian library at Milan, of a commentary on the oration by Asconius Pedianus, who flourished A.D. 30, puts the matter beyond any reasonable doubt. (See the work to which we allude by Schroeter, Oratio quaerul fortuna pro Archia rec. et nauseas Observationes adject. Lips. 1818; and the opposite view of the question by Platz, in the Krit. Bibliothek von Seebode, 1820.)

ARCHIATR (in Greek ἀρχιάτρος), an honorary distinction given in physicians in 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, not mentioning the peculiar respect shown them among the Romans at that time, and the Greek physicians whose works in Rome were not at first favourably received. Julius Caesar 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 Tiberius gave the title Archiater (chief of the physicians) to his medical attendant, Andromachus the elder, well known as the inventor of a celebrated compound preparation called Therisca. It is probable that the Emperor only intended to express, by this title, the consideration which the Roman people show, in general, to physicians; and that, soon afterwards, the Archiater were charged with some kind of superintendence over the medical profession. Thus Galen says of Andromachus: "It appears to me that he was appointed, in the time to reign over us;" and we also find that the word Archiater was trans- lated into Latin by the words superpusitus medicorum, 'superintendent of the physicians.' At a later period, however, the rank or office of Archiater seems to have under gone great alterations. Under many of the emperors it was distinguished, viz., the Archiater, of cities, and those of the court. The first law regarding the Archiater of cities (Archiatri populares) was given by Antonius Pius. He ordered each special province to have ten physicians, distinguished by the same name, and wholly exempted from the payment of taxes and public burdens; thus it appears that the exemption of all practitioners, if it ever existed, was found too extensive a privilege. At Rome, there were fourteen Archiatri appointed by the consul, besides one for the vespas virgins, and another for the gymnasia. They were to be chosen by the citizens and proprietors, and approved by their colleagues. In later times, the Archiater of a higher rank appear to have had the sanction of the emperor; and it is not improbable that this was the sort of appointment requisite for their admission. Besides enjoying the privileges alluded to, the Archiater derived from the towns certain remunerations in kind (annonaaria commoda), as well as salaries. It was their business to treat poor patients gratuitously, and in the exercise of their profession. They formed medical committees or colleges in each city, and superintended the public health, and the state of the medical profession, and the possession of every species of medicine. 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 Archiater, showing that the Romans regarded 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 Archiater, and also had the privilege of being acknowledged in 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 Court of the Archiater is a most curious chapter of Roman life. They were put on a level in rank to the dukes and to the vicars of the emperor. In modern times, the name of Archiater has, in imitation of the antique 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 Archiater still exists, as the highest honour conferred on medical men: in Sweden there are only two Archiater, 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 Prochides, 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 Zeuxidamus, succeeded to the throne when his grandfather, Lycotyches, was put to death from Sparta, and during his reign was the first to cut off the head of Muhammad II in Thessaly 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 that of a man of courage, of an independent spirit, and foresight, steadiness of purpose, and grave 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 joyfully to seize, with the hope of regaining their independence. The presence of mind displayed by Archi- damus on this occasion saved what remained of the city from the hands of an enemy, and it was not till ten years had elapsed, that this Third Messenian War, as it is called, was brought to a close, when the Messenians evacuated their citadel, Ithome. (Diod. Sic. i. 64. Thucyd. i. 103.) On the part which Archidamus took in the affairs of his country, both during his own reign and that of his son for nearly ten years; nor does his name again appear till we find him pleading the cause of peace in the important council held by the Laconomarchs before they resolved on the Pelo- ponnesian war. Such was the conduct of Archidamus, 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 well served by his general and his soldiers till B.C. 400, when he was defeated in the battle of the pedias (B.C. 438); but it is unnecessary 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. 439; see Thucyd. iii. 10. 3, 4, 5.

ARCHIDAMUS III. the son of the celebrated Agis, succeeded his father B.C. 361, and died A.D. 338. We find him in command of the Spartan troops during his
father's lifetime, n. c. 367, and gaining a battle against the Arcadians and Argives, which is known in history as the battle\textsuperscript{1} of Poenae (near Delphi). Not one of the Spartans died as a dy\textsuperscript{2} of dishonour to his family, but when he had fought bravely at the head of his troops; and a statue was erected to him, at Olympia, by his countrymen. He was succeeded by his son Agis in the Canaan and Cape Verde Islands. The colouring matter of these plants appears to be a peculiar vegetable principle which has been called ery\textsuperscript{3} thrine: 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 when it is exposed to a pure light, it changes its hue to blue, irradiated by candle-light. Acids reden the colour of litmus, and this effect is produced even by the weakest of them, as carbonic acid and sulphured hydrogen; when mixed with the latter, and kept for some days in a well-stopped bottle, the colour of the litmus is again restored by exposure to the air, the colour is restored. Sulphurous acid and the hypochlorite also bleach litmus. These effects appear to be the result of deoxidization, for the blue colour is restored by the addition 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 which has been dyed and dried is preferred. and is well known to those districts of the Roman Catholic church, answering to that of Father Provincial among the monks and friars of the Roman Catholic church. The archimandrite is a superior abbot, having under his jurisdiction several convenants or houses. The Russian church, which is a branch of the Greek, has its archimandrites, as well as the Greek church in Hungary and other parts of the Austrian empire.
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 Sicily, in the Corinthian colony of Syracuse, in the turn of the fourth century. The town was then ruled by the Romans under Marcellus, B.C. 212, aged seventy-five years. Eratosthenes died about the time of the birth of Archimedes, and Apollonius of Perga 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 Hesicles, but the work is not come down to us, and all that is known of him has been collected from secondary works. The most ancient of these is the biography of the second century, Livy, Plutarch, and Cicero. We, once for all, acknowledge our obligations to the life of Archimedes in Riviul's edition of his works, Paris, 1615; and also to that in his Polybius, see Gazeta, Praetoria, 1848.

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 his patronage. All that we know of his life during this period, independently of the results of his studies, of which we should, presently speak, is very largely drawn from him. 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 to the latter time be found to be wanting. The workman cunningly replaced 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 up into a regular figure. For silver being, when 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 bath, and on stepping into the bath, u Gold, observed by him, that the water rose, as 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 writings of Vitruvius, 'As soon as he had upon his method of detection, he did not wait 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 he sought, and he ran into the granary saying, "Eureka! 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 method of detecting the exact quantity of air, see Gazeta, Praetoria, 1848.

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 be readily 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 pulling a single rope. It is said that when Archimedes showed to the king a machine which he had invented, the king pressed him to exact himself in contriving machines for the defence of the city.

The king is said to have travelled into Egypt, and while there, observing the necessity of raising the water of the Nile, he invented the screw which bears his name (see SCREW OF ARCHIMEDES). Archimedes, in mentioning this screw, says it was employed to drain the hofs of ships. Diodes (I. 34) expresses archimedes to have invented a machine in which the object was the 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 the doctrine of the cylinder and cone in Egypt.

After the death of Hiero, 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 certain:—that it lasted three years in spite of the utmost efforts of the besiegers—and that Archimedes went principally, owing to 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 unceasing efforts of the besiegers. Polybius states that catapults and balistae of various sizes were successfully used against the enemy; that in their nearer approach they were galled by arrows shot not only from the top of the walls, but through port-holes constructed of numerous panels of stone or lead with not less than ten talents, discharged their contents upon the Roman engines, which had been previously caught by ropes; that iron hand (or hooks) attached to chains, were thrown so as to catch the prow of the vessels, 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 give 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 others for the fact. But Gelon, in the second century, though he was a most unwise warrior, having been defeated, and the enemy's ships on fire, says it was done with slogan, which may refer to any machine or contrivance throwing lighted materials. Lucian also, who lived in the second century, says that the ships, however, did not burn, but that it was effected. Montuola 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 burned the Roman ships by two 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 illusory man will stop: thus Riviul, in 1615, was of the opinion that Archimedes, written upon a paper, could be carried by the wind, and that language the lives of the Sicilian martyrs, that one 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 which he was engaged in solving, and being asked to explain to him his occupation, said very briefly, "I am a mathematician." When asked the 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. In this mark it was afterwards found, covered with debris, 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 EXHAUSTION which he made use of, and in the second by his 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 ancients who sought everything to demonstration from evident first principles; indeed, down to the time of Newton, 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 first is the one called thelicon and is not the one called thelicon.

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 radius and altitude, and that the surface of a sphere in the same base and altitude—that the surface of the circumscribing cylinder (the base included) is half as great again as the surface of the sphere, and consequently that the surface of the cylinder (not including the base) 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 to find a sphere equal and similar to one given, and forming with it a segment 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 its inscribed cone.

3. On Conoids and Spheroids.—By a conoid is meant the solid formed by the revolution of a paraboloid or hyperboloid about its axis. Spheroid has the usual meaning. Archimedes here shows that a segment for 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, and that the axis of the conoid being the parallel to the principal axis through the center of the base; and 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; if the ratio of the segment of an hyperboloid conoid to its inscribed cone be equal to that of the common sphere to its base, 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, while it itself revolves uniformly 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, how to find the centre of gravity of the other. Then he proceeds to 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. Pneumatics, better known by its Latin name Aenaria.—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 immovably in the centre of the spheres; and 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 instrument employed by him in his work whatever could measure the sun as far as it is now known—that仪器 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 incomparably so. By means of careful measurements, he asserts that the apparent diameter of the sun, and making arbitrary suppositions 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 is able to show that the people will assert the diameter of the sphere of the fixed stars to be greater than 10,000,000,000 of stadia. Then supposing a stadium to be 10,000 finger-breadths, and a sphere, which is only the 40th part of a finger-breadth, to contain as many as 64,000 grains, Archimedes shows that the number of grains of sand on the sea-shore is greater than the number of grains of sand that would be contained in a sphere of the diameter of the sun. In the same way, he shows that the number of grains of sand on the earth would be greater than the number of grains of sand in the sphere of all the fixed stars; and, in proportion, the number of grains of sand on the moon, &c., would be more than the number of grains of sand in the sphere of the sun. There is besides a number of ciphers, &c., on the constitution of the sun and moon, &c., on the comparative sizes of the sun and moon, &c.

7. On the Quadrature of the Paraboloid.—Archimedes here shows that any segment of a paraboloid is four-thirds of a triangle, having the same base and the same altitude. In the third book, he shows how the circumference is greater than the diameter by an amount expressing a ratio, by which a number in our system is less than 1 followed by 63 ciphers.

8. Two Books on Bodies floating in a Fluid.—This work does not exist in Greek, but was translated by Tartaglia from a mutilated Latin manuscript. The book was published in 1643 as a work together in 1645. The Archimedes did write such a work is certain, from the testimony of Strabon (Casaubon, p. 54). These two books contain the conditions of equilibrium of a floating body in general, and are addressed to deal with the places of the centre of gravity 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 Archimedes 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 few, if any, ciphers. Everything has been published in the Greek by 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 founder of geometry, has made a simile 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 Ptolemy 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 planets. The doubt is from Delambre, who does not, however, appear to have remembered that Cicero (Tusc. Quest.) says that Archimedes 'ruere, nullus, quinto errantium, mutus in spherae ultragavit.' Pappus cites a treatise of Archimedes on the construction of this sphere, as also does Proclus. A large number of works which have not come down to us is attributed to Archimedes and his school, and a list of which may be found in Fabricius; particularly a treatise on Sphaerics, published at Basle, and an httia, a treatise on the sphere and cylinder, published at Louvain in 1548. There is no great evidence 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 Tertullian; a machine called the helix, or screw, for launching ships, according to Athenaeus; and a machine called loculus, which appears to have consisted of many 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, seldom clearly shows the impression which his name left on posterity.

Among the principal editions of the works of Archimedes we must notice the partil edition of Tartaglia, Venice, 1535; the full complete edition of Regiomontanus, accompanied by the commentary of Eutocius; the whole Greek and Latin, Basle, 1544. This last edition does not contain the treatise on Floating Bodies, nor the Lemmas. Vossius states that the manuscript which had been brought from Constantinople was measured by the Dominici, and measured into Germany by Regiomontanus. There is also an edition by Commandine, Venice, 1585, containing only part of his works; by Rivault, Paris, 1615, containing the Greek and Latin editions of Tartaglia; and the edition of Monardus, containing only, the demonstrations being the Latin of Rivault, except in the Aenaria, which is complete; this edition has been much censured by several more modern editors, but Mon-
After the death of Voltaire, the last-mentioned edition was purchased by the University of Oxford, after the day of the various readings, and is the only one which contains the various readings. We have also the Latin translation of Borelli, 1681; the paraphrase of Mauritio, 1670, the whole edition edited by the Academy of Athens, and the definitive edition, which was reprinted in 1681; the abridgment of Barrow, in 1675; and finally, the French translation of Pouyat, Paris, 1609, undertaken at the request of the Institute of Turckia. Delambre is generally agreed to be the most complete version which has yet appeared. A German translation of all the works of Archimedes, by Ernst Neisse, appeared at Stralsund in 1824, in 4to.

Montrucia cites the following lives of Archimedes: Musa-chidas, 1730; and Eutocius, 1735: and an unfinished work of M. Melot, Mem. de l'Acad. des Belles Lettres, vol. xv.

ARCHIPELAGO is a common term given to many clusters of islands; the group 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 principle of which are the Aegean, Chagos, Sooloo, and the like.

The present archipelago is—Aegean, with Asia Minor and the Adriatic; the last forming part of Polynesia. The origin of the term archipelago appears rather doubtful: the second part of the term certainly is pelagia, the sea, a Gregory of which the first part is possibly a corruption of Αἴγινον. [See AEGEAN SEA.]

ARCHIPELAGO, ALETUAN, or FOX ISLANDS, an extensive group on the N.W. coast of America. [See ALETUAN ISLANDS.]

CHAGOS, in the Indian Ocean, extends from the south end of Diego Garcia (or Chagos) Island, in 7° 20' S. lat., to the north end of Speaker's Bank, in 4° 40' S. lat., and from the meridian of 7° 15' to 7° 17' 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 cocoa-nut trees. These islands abound in land-crabs, green turtle, and have a plentiful variety of fish; fresh-water may be had by digging eight 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.

ARCHIPELAGO, DANGEROUS. This appellation has with good reason been given to a group of half-formed islets in the South Pacific Ocean, lying eastward of the Society Islands, and between the parallels of 14° and 26° south. They are exceedingly numerous, and probably many yet undiscovered; the principal of which are noted, many of their formations, 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 elevation of a few feet, the inhabitants push the coral in broad ribands, and they all have the pandanus, and some the cocoa-nut trees 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 deposite all floating substances, among which are the seeds of trees, on the eastern side of the island.

Salas Rock, Pitsarn Island, and Gambier's Group, are volcanic; and it may be presumed that the same con- vulsions which have given rise to the 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; occasionally 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 off. The surf has been broken by a jetty, unless the island is well covered with trees. Half a mile from the reef the sea is fathomless. The western sides are, as we have remarked, always less perfect, and some admit of a passage for ships into the lagoons, which become safe havens when dearth and pestilence threaten the archipelago. They carry a fine variety of blue, scarlet, and orange flowers, which are of good quality, and much prized by the fishermen. 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 bream and mullet both red and grey, which are large and well flavoured. The men are a fine, handy, and athletic race, and their insular position renders them necessarily habituated to the sea, they are justly considered good sailors. The women are of small stature, and have their dress composed of a large skirt, and a waistcoat, a collar, very full brown, 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, though they are of the same family. The women of 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 same race. Canoes driven on the Society Islands have frequently been a source of danger on this coast, a tide-rise of from three to three and a half feet, but this surf obstructs the direction of the tide from being ascertained. Plovers, ringdoves, curlews, and sandlings, terns, tropical birds, and gannets are found among them; and the specimens of shells are various and beautiful.

ARCHIPELAGO, 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), Delphi and the Aegus, the latter belonging to the ancient 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 length of 380 (statute) 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 into 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 coast of Asia Minor obtained the name of Sporades, or scattered islands. Of the Cyclades the frequent and principal are—Santorin (2), Siphnos (4), Delos, Saros, Delabraumeck, (3), Cos (3), Thira (17), Corfu (36), the Palaeos, Zosa (19), Jura (20), and Andros (21). Of the Sporades the principal are—Piscopi (22), Nisiri (23), Cos (24), Callysis (25), Patmo (26), Naxia (27). There are also on the Asiatic coast the large islands of Samos (28), Theso (29), Megara, or Mount Parn (30), which are, however, more nearly to the Greek coast. The islands of Imbros (32), Samothraki (33), Tenedos (34), Mustselin (35), Skyros (36), and the Skiathos (37) group off the Trikiri Channel. Many of these islands are of volcanic formation; the rocks are composed almost entirely of porous matter, of which the Parian, from Paros, where it 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, mastic, raisins, figs, silk, honey, wax, olives, and various fruits, especially the lemon and orange: cotton is grown in small quantities at Milo and other parts of Sporades, and may 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 long been established among the Sporades, and the winter is noted for an abundance of the current, and is considerably diminished by the surges, which are at so low an ebb, that commerce is chiefly the interchange of articles of daily consumption, and is carried on principally in small kelps, in which the larger islands are in the habit of always being able to reach a port in the event of being overtaken by bad weather. These kelps are open boats, sharp at each end, and carrying one large spritsail, part of which is always dragging in the water.

All the islands are thinly peopled, and some indeed may scarcely be considered inhabited. As their religion implores on the people four lents a year, when meat may not be eaten, fish becomes more a necessary than a luxury, in consequence the majority of the men are employed in fishing, or as fishermen. 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 bream and mullet both red and grey, which are large and well flavoured. The men are a fine, handy, and athletic race, and as their insular position renders them necessarily habituated to the sea, they are justly considered good sailors. The women are of small stature, and have their dress composed of a large skirt, a collar, very full brown, 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, though they are of the same family. The women of 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
antient 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 such 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—threshing 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 sirocco, with its oppressive state of atmosphere, does not blow in the Archipelago; and it is curious to observe the sea-breeze 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 Caloyeris, 30 miles west of the south point of Scio, rise up almost perpendicularly, till they are almost as high as the South Pole.

Throughout the Cyclades more especially, the Daranelles current is felt, and sets strong through the narrow channels between them; but to the north, along the coast of Rozelone, a kind of slinking current arises to the eastward.

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, more properly is there a chain of lakes, Therissos, Thera, and Thrace, however, the Peneus, the Axios, the Strymon, and the Hebrus, admit the larger class of kaihs, though in all of them the mouths are much obstructed by shoals and sandbanks. In 1666, James, the third Duke of Monmouth, and his...
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 few and scattered. They are distinguished for their love of gold, and their taste for flowers; they cultivate 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 stems and sternposts prolonged to a great height, and are fastened by two rudders. In battle the natives use slings chiefly, but also darts and tomahawks, and a wooden shield for defence. The group is contained between 9° 40' and 12° south lat., and 146° 50' and 154° 40' east long. (Bougainville, Cook.)

ARCHIPELAGO, MALDIVES, in the Indian ocean, to the S.W. of Ceylon, a chain of innumerable low, islands and rocks, extending about 470 miles nearly on a meridian line. The large islands abound in 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 unfathomable 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 exceed a depth of thirty fathoms, and contain on the average a 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; some of the channels are wide and safe for navigation, and close to 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, sail to Bengal in cor, 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, QUEEN ELIZABETH'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 intense 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 undiagnosed; it is composed of lat. 51° 20' and 32° 42' S. lat., and 74° 07' and 75° 10' W. long. ARCHIPELAGO, RECHERCHE DE L', a very scattered and intricate labyrinth of reefs and islands on the south coast of New Caledonia, in the line of surveyed coast. It is separated from the main island by a narrow passage, and from the north by a principal passage, which is about four miles in length: they are all barren and arid, producing little vegetation, and nothing excelent. They have attained some elevation from the accumulation of sand, like the islets on which we approach to them, but no part of land is sufficiently elevated for residence. Wood and water, both in small quantities, may be procured on some of the islands; penguins, seaulls, and sharks are very numerous; the only quadruped seen by those who have visited the spot is the kanganoo. This group was so named by D'Entrecasteaux in 1792, when his search of La Perouse: the largest and the western portion of the islands lies off the bay of Separene; the rest lie scattered to the eastward. The whole are included between lat. 18° to 35° 29' 30' south, and meridians of 121° 35' to 124° 3' E. (Australian Memoir; D'Entrecasteaux's Voyage.)

ARCHIPELAGO, SOLOMON'S, a chain of large islands, east of New Guineo, some of which are sixty miles in longitude and have in them some rich islands, and others which are not. The islands, however, are not so numerous as those of New Caledonia, and there is no 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 the people of the Greek have blue eyes. They make their clothes of native products, 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. Both sexes go entirely naked, except a scanty girdle round the hips or waist, or a belt made of reeds; 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 in 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. (Smeaton, N. Z. Jour.)

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 Soloo, Beac, and Bascelean, with many smaller ones, and coral reefs, separated from the mainland. They have 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 bear appears common, with lories, cockatoo's, and aquatic birds; there are also large palms and a paradise apple. 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 the Archipelago. (De Eusebio.)

ARCHIPELAGO, SORCELO, is 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 Soloo, Beac, and Bascelean, with many smaller ones, and coral reefs, separated from the mainland. They have 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 bear appears common, with lories, cockatoo's, and aquatic birds; there are also large palms and a paradise apple. 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 the Archipelago. (De Eusebio.)

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 architecture is *apokrion (architecton,** which we find employed by Herodotus (iii. 60) in the same sense as the word *architect* used now by us. In ancient times they are generally high, and there are several good harbours; bullocks, pottery, and other live stock, with fruit and vegetables, may be had in abundance; but the natives are treacherous, and small vessels should be on their guard against attacks. There are gold mines, and 7° 0' N., and long. 118° 30', and 122° 30' E. See Soloo (Horsburgh).

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An excavation in a rock is not an architectural work, unless it possess a certain symmetry and certain ornaments which characterize other similar works, so as to enable us to refer to some kind of construction. Which instances of excavations occur, the ornamental or architectural part is obviously only the copy of models in wood or stone previously erected on the earth. Such is the character of the rock temples of Elephants, and the rock-cut tombs of the ancient Hellenes. But the ruins of Türynk in the Peloponnesus, and other similar structures in Italy, possess a distinctive character, which is seen in a more advanced and improved state in the military fortifications of Mycenae, where we find also the oldest instance, as far as we know, now existing in Europe, of a construction in stone combined with the sister art of sculpture. We refer to the sculptured figures in high relief, commonly called in art, 

The most remarkable of these monuments, both for preservation and arrangement, is Stonehenge on Salisbury Plain in Wiltshire. This is one of the largest stones, placed upright in the ground, and forming a series of concentric circles. They are not merely rude masses, like those of Avebury near Silbury Hill, but they have evidently undergone some shaping and rubbing down so as to form tolerably regular prismatic columns. We may observe also two stones placed upright, like posts or pillars, and another large stone placed over them like an architrave or lintel: the lintel is also secured by means of mortises and tenons: all this indicates we find among these very large monuments, placed upright in the ground, and forming a series of concentric circles. But, with the exception of a few intruders who are, perhaps, disposed to over-value Celtic remains, can any 

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. A few remarks, 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 even the latter and Cambolic, architecture, it is apparently discussed under those separate heads. It is difficult to conceive that a Greek temple is anything else than the improved and decorated form of a wooden construction. That wood was used for the ordinary construction of dwellings, before baked clay or stone, seems natural; but seeing it is more easily worked and more readily adapted to any required form. A rude cubbin 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 portico 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 prototype of the stones used for ourcharset="gb2312"'> the arc 283    A R C    A R C    A R C

earth, timber, or stone, into the form of mounds, huts, caves, and walls. Thus we do not admit such mounds of earth as those of Ayasoo, classed among the antient Australites, or of Silbury Hill near Marlborough, to possess an architectural character. Neither are the kraals of the Hottentot, nor the rude huts of other nations, entitled to this name, though such habitations undoubtedly have in each nation a particular and a tolerably unchangeable character. These arcades were designed to protect from the weather, and to provide for the means of living, but not to exhibit and preserve. 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 now exhibit a character very different from the models of Greek and Roman buildings. They gradually deviated from the heavy and rounded Norman arch, the type of which is undoubtedly adopted by the Romans in their lightest constructions generally denominated the Gothic. These former ornaments of a barbarous or at least incongruous style, were occasionally mingled with them by the numerous architects of the middle ages, cannot be denied; but still in the early biological and also 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 Europe, especially in the Peloponnesus, that it is of opinion that the Gothic or pointed styles of England, and various continental countries, have each a separate character, though they may all have had a common origin. The observation of Mr. Herring has accordingly led him to assign to English architecture a distinct character and style. As England, then, possesses an architecture of her own in the numerous antient structures that adorn the country, and as the principles of Greek and Roman architecture have, especially within the last two centuries, been more carefully studied, and their general character and details more extensively diffused, we may reasonably expect that all our new public structures will not only be constructed with a regard to the ancient modes of 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 endnote characteristic of a people, and may be considered as an index of the state of knowledge and social progress. Some speculators, indeed, would regard the noble monuments which decorate our own country, only as the marks of alavian submission to a hierarchy. But it may safely be asserted that both the structure and the use, of these buildings are 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. A few remarks, 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 even the latter and Cambolic, architecture, it is apparently discussed under those separate heads. It is difficult to conceive that a Greek temple is anything else than the improved and decorated form of a wooden construction. That wood was used for the ordinary construction of dwellings, before baked clay or stone, seems natural; but seeing it is more easily worked and more readily adapted to any required form. A rude cubbin 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 portico 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 prototype of the stones used for ourcharacte...
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 epiphit myths 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. (*Odysseus*, 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 ancient 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 sculpture 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 ARCHITRAVE, &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 species of architecture will be thus distributed:

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<th>Babylonian Architecture</th>
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<td>Celtic</td>
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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 by the Greeks and Romans epistylion, or that which is on the columns. Thus, when pillars support an arch, the voussoirs (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 Pæstum), or as two beams, the upper of which projects a little in front of the lower, as is G 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 'Arshe', 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 **archeion** seems, in its primary signification, to mean 'a council-house or state house,' or 'a body of public functionaries,' as the Ephor at Sparta. (See Aristot. Politic. book ii.; and Pausan. iii. 11.) Others derive it from era, a chest; such being, in early times, a usual depository for records. So Isidorus, Orig. lib. xx. c. 9. —**Archa diaeta, quod arcessit visum siqque prohibet.** Hinc *et archivum, hinc et arcanum, id est secretum, unde ceteri accentur.* It is called Archivum, because it does not allow (era-ext) us to see what is in it. Hence also Archivum and Arcaum, that is, a thing kept secret, from which people are excluded, (area-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 Hôtel Soubise at Paris; those of the Courts of Justice, in La Sainte Chapelle at the Palais de Justice.

**ARCHIVOLT, or ARCHIVAUlT, means, literally, the principal turning; or arch, and is applied to any ornamental band or moulding which runs round the lower part of all the voussoirs 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 Merseenne 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 arcielluto. 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 Luscinus does not notice the arci-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. *Vit. 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 told of thirteen hereditary archons, after whom the chief magistrate was appointed to his office for ten years, but was still taken from the Medontids, or de-
ascendants of Medon. We have the name of Charops and five others after him as decennial archons. (Vell. Patere. 1, 8.) Another revolution, which is placed by Nesiotes, (Plut. Vit. Arist. c. 481, 608,) and of the office, and 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. Hence
they are sometimes mentioned by the Greek writers
under the general designation of The Nine. Those officers
had their distinguishing titles and duties, of which we shall
presently speak, when we have carried a little farther the
general history of this new experiment in the government of
the whole body of the people, which 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 a single ruler. Their names and
number, and in great measure the particular civil duties
assigned to them, remained unaltered whilst Athens con-
cluded to possess an independent government; but the course
of events wrought the most important change as to their posi-
tion in the state. This change, 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, and was given more effectual expression in the revolu-
tion opened by Cleisthenes, and was confirmed by the consequences of the
Persian war, by which the thetes, or lowest class of citizens,
which supplied the naval strength of Athens, were taught to
fight, and give their confidence to the new system. (Aristot. Pol. c. 4.)
In the 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
proclaim; it was inevitable consequence was, that the archon
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 re-
public. They read 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
history. A satisfactory explanation of the apparent
inconsistency 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 Salamin, were taken from the 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 authority of much weight. The establish-
ment by Solon of a, timocracy, or government in which
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 of the nation, the modern writers, not at all in error.
probably still continued chiefly to supply the archons for each
year, till the celebrated law of Aristeides, enacted about
B.C. 479, threw open the office of state to the whole body
of the people. (Plut. Vit. Arist. c. 1 and c. 28.) From this
time the archon was no longer considered as 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
archons, in the eparchia, or the period of elections, but 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 ap-
pointment remained the same. It is probable that, at
least as early as the first Persian invasion of Greece, the appointment
was by lot. The case of Aristeides seems to have been an
exception to the general rule, and may be attributed, per-
haps, to his high character and eminent services. (Aristot.
Pol. Pol. 2, 9, 2; Herod. 5, 169; Plut. Vit. Arist. c. 481,
608.) But in that case he was chosen again by popular election.
This was the form of procedure which enables us to fix the time when the change
of archons was effected. It has been attributed, with some probability, to
Cleisthenes, but we know only with certainty that they were
at one time elected, and at some subsequent period ap-
pointed. Hence it was generally the custom for all the citi-
zens were eager to avail themselves of the double opportunity
offered by the new mode of appointment and the law of
Aristeides. It seems that the poorest of them declined the
hazard of this second experiment. We have heard how
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 epónynus (επώνυμος), or name-
giver, because the year in which he served the office was
called by his name, as among the Romans the year was
distinguished by the names of their 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 (βασιλεύς),
another the polemarch, and the last six had the general title
of thesmothetes. Before admission to their office they were
subjected, like other public officers, to the examination, called
dohimasia (that is, trial or examination,) for the purpose of
eliciting the most important qualities or character of the
people. (Aesch. contra Tim. c. 3, 33,) they were especially pro-
tected by the laws from all insult and outrage, and were
exempted even from those public burthens which were not
included in the general exemption granted to their most
famous citizens, such as the archons and Areopagites.
(Deeem conra Lecr. p. 462, 20; and p. 465, 17.)

There is reason to believe that they were members of the
council of Areopagus by virtue of their office. (See Arco-
pagus.) It is certain that they passed from their annual
magistracy to a permanent seat in that council.

Their public duties had reference for the most part to
the administration of justice. In some courts, and in cer-
tain causes, they were the presiding judges. On some
occasions they had the execution only of the sentence pro-
nounced by other judges; but it seems to have formed a
large if not the most considerable part of their legal duties
to bring causes into court (διάγγελος, Dem. contra Lecr.
p. 910, 20) to be tried before the proper tribunal, not in the
character of public prosecutors, but an application from
the plaintiff or accuser, in which case their province was
similarly somewhat like that of an English grand jury in
finding and ignoring bills. Sometimes, perhaps, the applica-
tion was brought to them as the result of an accusation made
as to the responsibility of the archon, that in that
English law of suing out a writ. To each of the first three
archons, and collectively to the six thesmothetes, a dis-
cretionary power, the eucharist, or special orders, to refer
any incidental notices of these are to be found scattered over
the Greek classics, especially in the Attic orators; more systemat-
ical accounts occur in the earlier lexicographers and anti-
quarians, among whom Julius Pollux may be particularly
mentioned, who would adduce many of the regulations of
the archons in our language is that of Archbishop Potter. We shall
present our readers with only a brief outline, sufficient to
convey a general view of the separate jurisdiction of these
magistrates in the later times of the Athenian republic.
It seems to have been made use of in the time of Athens,
or ephynus, to throw his official protection around those whose
interests were most liable to be overlooked in the ordinary
execution of the law. Hence he was the appointed guardian
of the honor of the Spartan nation, which he was the
chief of the general superintendence in matters which concerned
the safety and good order of the state than was committed to
his colleagues.

The king archon was more especially concerned with re-
ligious matters. He was required to preside at the per-
formance of the most solemn sacrifices. He had a certain
control over the ministers of religion, and either himself
tried offenders, or originated trials, in cases of impurity. It
is hardly necessary to observe that in the early periods of regal government, kings were almost universally the chief ministers of a child's education; but 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 doubled in its first instance, so 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 of archon, and that of a general in 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 cognisance of matters which concerned the state, as a magistrate, but not in a judicial capacity, this in the respect, not unlike that of the prætor perennis at Rome.

The theomachus should, according to the meaning of their title, have been legislators, or public authors. It was not, however, their office to introduce laws, but rather to watch over the conduct of those who put themselves forward as legislators, and also annually to examine the existing laws for the purpose of removing contradictory and superfluous provisions. The exercise of this function, which was not incompatible with that of a public author, is the subject of a book in a pure and consistent style. (Dem. contra Lacer. p. 940, 10, and 12; contra Zenob. p. 890, 10; Lys. contra Anabol. p. 104, 15; Herod. 6, 109, 111; Lys. contra Puncta. p. 166, 32, and 40.)

The office of archon was sometimes assembled in council (Dem. contra Medl. p. 542, 2); but we have no information respecting the authority which they collectively exercised.

For further information on the various and important duties assigned to the different archons, in addition to this brief and general notice, the reader is referred to the authorities mentioned above; but we would remind the young student, in his inquiries, that the reliance to be placed on the accuracy of even a credible and well-informed authority must depend in some measure on the circumstances under which his information is given; and this should especially be kept in mind when, as in the subject of the present article, all our information, so far as it is supplied by the Greek classics, is obtained, not from regular essays, but from inci-
dental notices. Our meaning in this caution will be best explained by an instance. The subject of inquiry may be the manner in which certain officers were appointed; and this, as in the case of the archons, may have varied at different times. The mode of appointment may, according to a common practice with the Athenians, be implied by an epithet familiarly joined with the title of the office. Now, it is possible that an author, who writing professionally on this subject, must, if he wished to render his book interesting to the reader, and make it useful to himself and to his contemporaries, may use this epithet, familiar to him, inaccurately, with reference to the times of which he is speaking, if the circumstance indicated by it is of no importance to the life of the country, and if the circumstances of persons from a casual expression must often be taken into account, but then it should be carefully rated at its proper value.

ARCHYTAS, a native of the Greek city Tarentum in Italy; of whose life we can give only a very unsatisfactory account. His father's name is variously given as Hesiteius, Mnosearchus, or Mnasorgoras; but however that may be, all ancient accounts concur in considering him a man of extraordinary talents, uniting the merits of a philosopher, mathematician, and an orator. His name ascribed to him, and that at which he lived is disputed; but if the ταύτης Αρχιτερός, το Σφαίρασις, signifying Archytas, he must have been contemporaneous with the young Dionysius (Phut. Dion. 20.) and was, Archytas, according to the Pythagorean school, and was himself probably the founder of a sect. He is distin-
guished more particularly for his knowledge of mathe-
matics.

Te mahe at terre nombreuses cœurs et sares
Amoureuse et sensible, je suis
Le reflet d'un coeur, le triomphe de ma voix,
De mes pensées, de mes vers.

Le pire de tout une douceur confiante,
And near vous avec de la chair, se
Et dans le monde du silence, où les
A la danse, ou dans le rire, ou dans la poésie, on

Le sang, le sole, les croissants dans les yeux,
D'un cœur sous la voix, ou dans la mélodie, ou dans la peau,

Poète d'une figure, dans le monde de l'amour,
Dans un monde de douceur et de chaleur,

De mes pensées, de mes vers.

The poor gift of a little dust confides,
And near you the face above the earth, who

And in the heart, in the beauty, who

The sea, the earth, and the sea which none can tell,

The wind of love, by Helen of Troy, London, 1638.

And for his discoveries in practical mechanics. In what way
he contrived to communicate the power of flying to his wooden
pigeons, we are by no means able to state, but it seems to
have been a great source of wonder to the ancients. (Aul.
Goll. x. 12.) Probably this Archytas is the person recorded
in Aristotle (Polit. book 8) as the inventor of that useful
instrument of war, the fire-bomb, which is said by him to
have been invented by Archytas, as well as that of the
torch, or on the Nature of the All, published in Greek by Came-
narius (Lips. 1564. Venet. 1571), and a fragment on Mathe-
ematics, edited, with some other epistles, by Stephano
Palsiius (1557), respecting the introduction of the sinking
ment of the works attributed to Archytas are chiefly known
from the quotations of Stobaeus. (See Schmidt, Diss. de
Archytas Tarentino, Jena. 1683; Navarro, Tenlamen de
Archytas Tarentinii Vita aquae Operum, Hafn. (Copenhagen).
1860. Methuen, Mathematics, vol. i. p. 143; Frangen-

ARCIS-SUR-AUBE, a town in France, in the depart-
ment of Aube, and the capital of an arrondissement to which
it gives name. It is thirty-three miles E.S.E. of Paris,
and sixteen miles N. of Troyes, the capital of the depart-
ment. It is on the S. or left bank of the Aube, which
begins to be navigable here, and by means of this river it
carries on a considerable trade with Paris—corn, wine,
aud handkerchiefs, and wool. There is a court of justice
in the town; and the judicial acts of the district of
Paris. The population in 1825 was about 3000.

In 1284, Archytas of Tarentum was called to France,
and has been much enlarged and improved: 48° 32' N. lat., 4° 52' E. long. from Greenwich.

The arrondissement of Arcis comprehends ninety com-

ARCKENHOLZ, 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
a la Suede, in which he spoke unconcernedly 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
apologise to the cardinal minister. King Frederic L, of the
house of Hesse Cassel, appointed him, in 1748, librarian
and keeper of the cabinet of medals at Cassel, where he
remained for twenty years. He wrote, in French, the
Memoires de Christiane, Reine de Suede, 4 vols. quarto, Am-
sterdam, 1751, also Lettres sur les Lettres et les Sciences,
8vo. Frankfort, 1756, and Recueil des Sentimens et des Pro-
pos de Gustave Adolph, Stockholm, 1769. From Arcken-
holz's MS. account of that prince, joined to other Memoirs,
a history of Gustavus Adolphus was compiled by M. Maur-
tien, and published at Paris. Afterwards it was trans-
ferred into German under the title of Gæ-
scblieh Gust. Adolph., 2 vols. 8vo. Breslaw, 1775. Ar-
ckenholz's manuscript on France and Sweden was published
by the scholar H. Bülching in his Historische Schriften, where
he has been commissioned by the states of Sweden to write
the history of Frederic L, but he never completed it, his mental
faculties having grown weak; he died in 1777, at the age of
eighty-two.

ARCOLI, 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 river Adige. There are several hamlets 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 impervious
marsh, intersected by two or three causeways, one of which
leads to a narrow bridge over the Alpone, and the other
leads to a narrow bridge over the Arcole beyond it. This
was along this causeway that the French, under Bonaparte,
having crossed the Adige at the village of Romco, advanced on the morning of the 15th No-

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being taken. At last General Guyeux, with 2000 men, having crossed the Adige farther down, at the ferry of Albarèdo, below the confluence of the Alpone, marneled by the left bank of the latter stream, where the ground is firmer, and took possession of Arcoe. General Alvinci, however, having crossed the Adige opposite the village, and moved with greater rapidity, made the later entry, and took possession of the village. Next day (16th) the battle became general between the two armies, and the village of Arcoe was again the main point of the contest. The French attempted repeatedly to carry the failure with effect against the Austrian infantry, which was formed with a column by the left bank, whilst another column advanced by the famous causeway. The latter was repulsed as before; but Augereau, after a sharp contest, succeeded in gaining possession of the village. General Alvinci then made his retreat upon Monteberlo and Vicenza. This was the hardest fought battle in Bonaparte's first Italian campaigns, and one in which he showed great personal courage. The Austrians lost about 4000 killed, and as many were taken prisoners. Charles X., in his message, ascribed the victory, in a highly extemporaneous tone, to the Austria's want of discipline, and adding, that the Austrian generals had been unable to design a plan of campaign, and that the Austrian line was too long. In the end, the Austrians were entirely disconcerted and unable to retrieve the situation. The French general returned to Arcole, where he had been before, at the beginning of the siege. As soon as the ice began to thaw, the Austrians disengaged themselves, and retired. After this, the Austrian and French generals were again on good terms. [See ARCOM, NAPOL.]

**ARCON, JEAN CLAUDE D', a native of Pontarlier in Franche Comté, in 1733, showed an early inclination for the military profession. He became an expert engineer, and was one of the first to use machines, amongst which he originated, Correspondance sur l'Art de la Guerre, and Réflexions d'un Ingenieur en réponse à un Tacticien, duodecimo, Amsterdam, 1773. In 1760, 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 incendiary and not to sink. His scheme being approved, the French had the advantage of the distance, and 600 to 1400 tons were cut down, each forming a battery of nine to twenty-one guns, and manned by crews of from 250 to 760 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 prevent combustion from red-hot balls, a reservoir was placed in each battery from which the water raised by pumps could be discharged into the ship's sides, to cool the flames. Pumps were fitted by the French with the most mechanical and efficient parts, 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 400 yards distance from the wall. The fire disabled and caused the attack of 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 expedition, 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 repaired to the spot to witness the attack, and the Count d'Arco (since Charles X.) and the Duke of Bourbon went from Paris for the same purpose. The attack was, however, precipitated through fear of the approaching stormy season, and the expected arrival of a British squadron. When the vast armament was set in motion, the pumps occasioned such a flow of water into the interior of the vessels that the commanders became apprehensive lest their powder should be spoiled, and they therefore contented themselves with keeping the outer surface wet. The batteries were placed off by the 17th, 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 movements of the two largest, the Talla Piedra 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 Elliot fired on the floating batteries with red hot balls, which seemed to have no effect, till seven o'clock in the evening, when the Talla Piedra, in which D'Arcon was embarked, 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 new battle, the smoke concealing the operations, and the secret of the plan concealed by the smoke of clouds, we became too much exposed, and it was found impossible to extinguish the flames. The smoke proceeded first from the outside, and after spreading itself through the Intelli, the other batteries were destroyed. This hidden confabulation, which could easily have been avoided by moving to a distance from the constant fire of the garrison, continued in a smoking state for six hours, and did not become unmanageable till after midnight. D'Arcon had recourse to a plan of retreat, by 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, and panic and confusion had seized them when they found that the batteries were not incendiarious. D'Arcon repaired at midnight to the admiral's ship, but was referred to the general-in-chief, who was absent; he was, however, informed that orders had been given to abandon the ship, and destroy the batteries. On the 18th, the whole, the Talla Piedra 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 sur l'heroïque Siege de Cadix du 7 au 18 Novembre 1793, published at Cadiz, in 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 Spaniards. There was mismanagement, no doubt, and a want of discipline, but D'Arcon himself was evidently mistaken with regard to the security of his batteries against red-hot balls. D'Arcon afterwards served in the French army at the time of the revolution, and assisted in the conquest of Holland. In 1793 he published Considerations Militaires et Politiques sur les Fortifications, in which he condemned all that he had previously written on the subject. He was made a senator in 1799, and died the following year at his estate near Auteuil. The passage above is included in the second and third parts of the Kings of Spain in the House of Bourbon; and Captain Drinkwater's Account of the late Siege of Gibraltar, &c., Lon. 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 Arcoit; both of which are under the government of the Madras presidency. They are situated between the parallels of 16° and 20° north latitude, and 76° and 78° of east longitude. Northern Arcoit 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 Arcoit; and on the west by the country of the Kings of Chingleput, and the land of Cuddapah. Southern Arcoit is bounded on the north by the northern division of Arcoit; on the east by the sea and the Chingleput district; on the south by Tanjore and Trichinopoly; and its western boundary is formed by the districts of Salem and the Balaghast 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 and denied to the French from 1758 to 1762, by the treaty of Paris, was restored to France on return for services rendered to his father and himself, but was also formerly included within the limits of Arcoit. It was doubtless owing to the frequent wars of which that district was a scene, that Arcoit was, in the first time during the infancy of the British empire in the Carnatic, that the condition of the country and its inhabitants became so deplorable. The agriculture of Arcoit depends for its prosperity upon irrigation; but it appeared, upon a survey made in 1817 and 1818, that of the 412 villages present, 417 were without repair, and of 1322 smaller tanks the still greater proportion of 510 were useless, while 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 management having been adopted by the Company's government about the time mentioned, the prosperity of the district has been in a great degree restored. At that time (1818) the northern district contained 2659, and the southern district 2998 villages; the gross collection of the public revenue amounted, in 1817, to 1,382,279 pagodas, about 550,000£.
Five years after that time, in 1822, the total population was stated by the Company's collectors to be 1,547,312, nearly double the number then inhabited in northern Arcot. The lands throughout the districts are for the most part held by an industrious race of yeomanry or small proprietary cultivators, either in severality, or in joint village communities, and a part of the produce is set aside to make revenue chargeable on the land which they occupy, direct into the treasury of the state, without the intervention of any zemindars or great proprietors, as is the case in a large proportion of Hindostan.

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 company for the annuities of 340,000 pagodas which, in an annual revenue of 340,000 pagodas was set apart. Commissioners were in consequence appointed both in India and in London for the investigation of the claims, and these boards have been in existence and in operation since 1805, endeavouring to unravel the intricacies in which the accounts were involved for fraudulent purposes. Out of a sum exceeding thirty millions sterling claimed against the estate of the nabob, the commissioners have set aside claims to the amount of upwards of twenty-seven millions on the grounds of fraud, and of that very common crime in India, forgery.

The northern and southern divisions of Arcot now form separate collectarities under the Company. The northern division includes the districts of Pudukkot, Chunda, Palaur, and part of Balaghat, and the western pommies or zemindaries. The southern division includes Cuddalore.

The chief rivers of the district are the Palar or Punnair, which flows into the sea in a south-easterly direction till it falls into the sea at Cuddalore after a course of about 250 miles from its sources. The Palar or Milk river has its source very near that of the Puanar, but, taking a different course, flows first to the south, and then to the northern coast, and after a winding course of about 220 miles falls into the Bay of Bengal near to Sadras. [For a description of soil, productions, and face of the country, see Carnatic.] (Rennell's Memoir of a Map of Hindostan; Hamilton's Indian country; and a report of the Committee of the House of Commons on the Affairs of India, 1832.)

ARCOT (City). The Mussulman capital of the Carnatic is built on the south side of the Palar, in 19° 54' N. lat. and 79° 23' E. long. It is a place of very great antiquity. For an Indian fortress, Arcot was a place of some strength, having been a regularly built citadel. Since thecession of the district of Arcot to the East India Company, the principal depositories have been destroyed 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 whose 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 former nabobs of Arcot; the principal gateway of the palace is entire, but the rest of the building is a heap of ruins.

The nabob, Anwar ed Deen, was killed in battle, and the place was taken in 1749 by Chundra Saheb, 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 Sepahis 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 Cooke, in the beginning of 1750, after the battle of Wandiwash. In 1780 it surrendered to Hyder Ali, and suffered greatly, both while it was in his hands and afterwards, through the mismanagement of the nabob's government. From the wretched state it fell, the English have been unable to improve it since it passed, in 1801, into the possession of the English. The principal inhabitants are Mohammedans, who speak the Hindostand dialect. The bed of the Palar, which is held by the extractors at 21 and 22 yards deep, is so swollen by the rains that its waters would inundate the streets but for the embankments already described.

Arcot is 73 British miles from Madras, 722 miles from Bombay, 1070 from Calcutta, and 1160 from Agra. (Mill's History of British India; Rennell's Monument to Hindostan; Report of a Committee of the House of Commons on the Affairs of India, 1832.)

ARCTIC CIRCLE. The term arctic is derived from the Greek and signifies a limit or demarcation to the bear, 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, which just touches the horizon vertically above it, and which therefore separates those parallels which lie above, from those which are partly below and partly above, the horizon. Thus every different latitude had a different arctic circle; and in the latitude in which the sun's rays were 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 very 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 of the same length, being exactly below it, and which therefore separates those parallels which never rise above, from those which are partly below and partly above, the horizon. Thus every different latitude had a different arctic circle; and in the latitude in which the sun was first cultivated, the great bear just swept the sea, and did not set, whence the boundary circle obtained its name.

We need hardly say, that at the day of the winter solstice in the northern hemisphere, there is a day of twenty-four hours in length at the arctic circle.

Fig. 1.

Fig. 2.
not see the sun, and the rotation round the axis, P.P, brings every part of the earth under O Y when its night begins. M N and m n are the arctic and antarctic circles. By cutting out a semicircle equal to O Y, and placing it in different positions on the second figure, the following will appear, on a little consideration.

1. At the summer solstice (when V is at U) all circles above M N will be in light for twenty four hours, and all below m n in darkness; and vice versa at the winter solstice.

2. At the equinoxes (V is at A) every circle will be in light twice a day, and be entirely in darkness in the next quarter of the year. And vice versa for the passage from the equinox to the winter solstice (when V moves from A to W).

4. No circle lying between M N and m n 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 two days light. For example, the north point of Zembla (latitude 75°, polar distance 15°) has perpetual light between May 1 and August 12, 1834. For the time of perpetual darkness do the same with the winter solstice; thus the dark and light of the above-mentioned place from November 3, 1834, to February 9, 1835.

The north polar distance of the arctic circle is equal to the angle HOB, the greatest declination of the sun, or the obliquity of the ecliptic. The south polar distance of the antarctic circle is the same. This quantity changes very slightly from year to year. It is as follows:

January 1, 1834, 25° 27′ 39″ - 86
January 1, 1835, 25° 27′ 39″ - 81

decreasing about half a second yearly.

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 1/4 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 Maestlron whirlpool, the mouth of the Oby, Behring's Straits, and the south of Melville Island. For discoveries of land within the antarctic circle, see Arctic 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 it above his head, and could not see the sun at midnight. But 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 FOX, in zoology, a small species of fox (Canis lagopus) described 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. In summer, it is usually blue in summer, and pure white in winter. It is 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 soles of the feet also are at all seasons similarly colored with a tinge of grey; but the coat of 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.]

ARCTOSTACHYS PHYLLOS, 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

beet-berry. A. uva ursi, 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 cases and the diseases arising from obstruction of the kidneys.

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, which means bear, and our, which means above, or, the opposite of the term equinoctial. It is situated in the latter constellation, it is very nearly in a right line drawn through the two hinder stars of the tail (ξ and η). It rises N.E. by E. Greenwhich, and is on the meridian in about 1 1/2 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:

The North Ascension. Declination.

January 1, 1834, 14 8 5′ 26° 8′ 1° 55 N.
January 1, 1835, 14 8 8′ 3′ 20 42 57 N.

Its annual increase of right ascension is 2 7′; its annual decrease of declination 18′.6. This is not all owing to precession and nutation, as the star has a proper motion, as the change in the place relatively to the surrounding stars, which (Mem. Roy. Astron. Soc., vol. v. 160) caused a decrease both in right ascension and declination, as follows:

Average yearly decrease of R. A. Dec.

<table>
<thead>
<tr>
<th>Year</th>
<th>R.A.</th>
<th>Dec.</th>
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<tbody>
<tr>
<td>1755-1800</td>
<td>1° 9′ 4′</td>
<td>1° 14′ 1′ 99</td>
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<tr>
<td>1800-1830</td>
<td>1° 9′ 4′</td>
<td>1° 14′ 1′ 99</td>
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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 overturned by the fact that there are much smaller stars (Cassiopeia, for example), which have much larger proper motions.

ARYC, GROTTO OF, 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 mile south of the little town of Vermont. A narrow path over a hill covered with wood conducts to the entrance of the grotto, which contains a number of apartments, some of which are more than 1800 or 2000 feet long; but they were rarely more than 200 feet wide. In the first apartment were the apartments by eight folds or masses of stone lying in greater or less confusion on the ground; and in the second apartment is a small pond about 120 feet in diameter, the depth of which is not known. Its waters are very clear and sparkling, and the bottom, often covered with moss or grass, is distinguished by the number and variety of the crystallizations which either hang from the roof (stalactites), or rise column-like from the ground (stalagmites); they are formed by the water which filters through the over-arching rock, 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 rising from below are thus exactly under the ground, and from the roof, they frequently unite and form pinnacles, which appear to be the mouth of some cavern. Many of these crystallizations are capable of receiving a polish.

In the Dictionnaire Universal de la France (Paris, 1804-5), there are cavities described as abounding with curiosities, 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, entering the hill a little above the entrance of the grotto, undergoes a large succession of rapids, and is in the other side, and having sufficient stream to turn a mill,) and to other subterraneous waters. It is acknowledged how, that the stone with which the cathedral of Auxerre is built, was taken from the river, and that the caves, to whatever their origin may be ascribed, have been at least enlarged in some parts by the hand of man. (Encyc. Methodique: Dict. Univ. de la France; Malte Brun.)

ARD, LOC. [See Petru.]

ARDAGH, now a decayed village in the county of
ARD

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 that county has been 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 of antique architecture; it is supposed 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 the vicar of Ardagh. There are two fairs, viz., August 5, and August 26.

The see of Ardagh has undergone great changes. It was founded in the middle of the fifth century; united in 1658 to the see of Kilmore; separated in 1692, but reunited in the third year of the protectorate by the terrors of the Commonwealth. Ardagh is in 53° 38' N., lat., 7° 39' W. long.

ARDA (Vieillot), the heron, a genus of birds under which Linneus comprehended the cranes and several other allied species divided into five divisions by different naturalists. M. Vieillot 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. Vieillot, which has been partly followed by Lesson, Dopsiey, and Baron Cuvier. The genus Ardea, as limited by Vieillot, is thus characterised: Bill short, straight, or slightly curved, compressed, serrated, the lower mandible being sometimes forked or scalloped. The wings are membranous somewhat channelled, and usually notched towards the tip; nostrils on the side, almost at the base, slit lengthwise in the groove, and half shut by a membrane; eyes with a naked circle round them extending to the bill; legs long, slender, and either half-naked or feathered down to the tarsus (tarsus); the middle toe-toe united to the outer one by a short membrane; the foot-toe articulated inferiorly, and upon the same level as the others; the second and third quills feathered, the wing-strokes long and elegant.

Among the genera separated from Ardea, are Anthropodites, Balasares, Grus, Cariama, Nycticorax, and Ciconia; but considerable difference of opinion exists as to the division between these genera, and a few other allied genera which have been separated from the river Ganges. The great principal distinguished from the herons, cannot, we think, with much propriety be separated from Ardea.

ARDEBEIL, one of the principal towns of Azerbaijan, is situated, about 15 miles N.E. of Baku, and 1417 ft. lat., and about 48° 19' E. lon. from Greenwich, in a fertile plain encompassed by hills, at a distance of thirty hours' march from Tauris (or Tebriz), and about seven and a half from the western border of the Caspian Sea. Montezine gives the lat. at 38° 10' 20"; Olearius at 38° 5'. A chain of hills, which separates Azerbaijan from Gilan, keeps off the noxious winds that prevail in the sultry lowlands of the latter province; it is probably in allusion to this circumstance, and to its advantageous situation both to the dynasty of Qajars and to the old dynasty of Persia, that the name of it is thus translated by the Persians into the Pahlavi: Ar-deh, 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 the snow has completely melted, and, which shows that the temperature of the place is much affected by its position near the mountains. The town is of importance as an emporium in the caravans of Tiffas, Derbend, and Bakub, with Isphahan and Teheran. In history, Ardebil is remarkable as having given rise to the dynasty of the kings of Persia; two of the ancestors of this family of kings, Sheikh Saifeddin and Sheikh Heidi, are buried here; and their tombs are held in high veneration, as the sepulchres of the Muses of the Mahommedan world. Ardebil contained a fine library, which was sent to Russia when the place surrendered to Count Soukhaltine. This library is described by Olearius (lt. 638, Amsterdam ed.). A small river, the Balulukh, runs through the town, which is subject to inundations when the snow on the surrounding hills begins to melt. The great mountain of Salivan, near to Ararat, perhaps the highest in this country, is only twenty to twenty-five miles from the town; but Ardebil is separated from the range of the Cévennes by the valley of the Ouaneghen, which is separated by the range of the Cévennes. On the west it has the department of Látroë, and on the south that of Gard. The eastern boundary along the whole length of the department, from the eastern extremity of the town of Adria, to the town of Turón, is a naturalists.

ARDÉCHE, a department in France, including nearly the whole of the former district of Vivarais (so called from the town of Viviers); the remaining part of the Vivarais, which is of small extent, is included in the department of Haute Loire. Ardèche is bounded on the north and northeast by the department of the Rhône, on the north by the department of the Drôme, and on the south by the department of the Cévennes, which it is separated from by the range of the Cévennes. On the west it has the department of Lozère, and on the south that of Gard. The eastern boundary along the whole length of the department, from the eastern extremity of the town of Ardelbi, to the town of Turón, is a square mile.

The geography of this district is of a very interesting character from the abundance of volcanic phenomena which it presents. (See Vivarais and Cévennes.) The principal towns areiturans, the department lies in the chain of the Cévennes, which, as just on the boundary, is 5420 feet in height, and Gerberg de Jones, from which the Loire rises, is 5125 feet. (See also Largon, and the Notes on Europe; Adria, W. for 1823.) Indeed, the western part of the department is equal in elevation to almost any in central France. From these high lands descends the stream which by their union form the Cane, the Doux, the Ercal, and the Arèche, which fall into the Rhône in the order from north to south in which their names occur. Of these the Arèche alone appears to be navigable. The northern and western parts of the department abound in granito and sandstone, and yield rich iron ore, coal, and limestone, the last a very productive. Near Turón, on the banks of the Rhone, 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 Rhone, 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 pastures to herds of cattle. The districts of St. Pierre and Camboulit are fertile, and on the lowest summits the snows lie 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 4060), which lies on the river Ceuse, 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 not united in population to Annecy in the north, and Aubenas and Le Bourg St. Andeol in the south of the department. These have respectively 8000, 5000, and between 4000 and 5000 inhabitants. Aubenas is the great mart for the wine and chestnuts of Ardeche. It has two important fairs 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 saw-mills. The three rivers, Ardeche, and the two streams which join it from the south, 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, Argentières L' , Tournon, and Aubenas. Near the banks of the Vivier, about half a mile south of St. Andeol 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, Argentières L' , Tournon, and Aubenas. Near the Vivier, about half a mile south of St. Andeol 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, Argentières L' , Tournon, and Aubenas.

ARDÉCHE, a river of France, which rises in the Cévennes, and flows through the Mont Aigoual, 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 Ardeh.
ARDEEN, a mountainous, or rather hilly region on the northern frontier of France, between Picardy, Meuse, and Moselle, and part of the Duchy of Luxembourg and the Grand-Duchy of Luxembourg, in the Rhenish provinces of Prussia, and in Belgium. The name of the region is antient; the Arduenna Silva is mentioned by Julius Caesar (Bell. Gall. i. vi.) by Strabo (Geog. i. iv.), and by Tacitus (Ann. i. 20). Ardenes is the name of one of the northern departments in the modern subdivision of France, and is a part of the antient provinces of Picardy and Champagne. The Ardenes, or, as they are usually called, the Ardennes, extend 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 Duchy of Luxembourg, as well as the mountainous parts of the Grand-Duchy of Brunswick, are covered with numerous extinct volcanos, belonging to the same system.

The mean elevation of the Ardenes, according to Dumont (Mémoire sur la Constitution Physique de la Province de Lorraine), is 680 feet above the sea. The highest point, La Baraque Michel, is 860, or 2230 feet. The mountain Schneifel, in the environs of Prum, according to Steiniger, is 2135 feet. Omnium de Halloy, in his Mémoires Géologiques, observes, that those hills 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 intermediate of rivers which flow into the Seine, the Aix, and the Loing, 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 1462 feet above the level of the sea, whereas the river Meuse, which rises at the foot of it, traverses, between Mestrezé and Givet, 136 miles to the north, a table-land which has an elevation of more than 1640 feet. This elevation is very slight, and is occasioned by the great mountains; 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, there are table-lands, the Mantz, the Haine, the Wargue, and the Roer, the surface is broken into a multitude of valleys, and extremely deep and often very narrow gorges, with steep sloping or precipitous sides, 550 feet high. These great water-courses form, as it were, principal trunks from which a number of secondary valleys branch off, ill putting the whole surface of the neighbouring country. Thus the Ardenes 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 Ardenes are clay-slate, grauwacke-slate, grauwacke, conglomerate, quartz-ock, and quartzose sandstones in various modifications of colour and internal structure, with and without, 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 structure.

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 without to the left of the river, from the facility of the river-navigation. Excellent whitestones, both for coarse and fine cutlery, are largely exported. The Ardenes have, hitherto proved but poor in metallic substances except iron; but the lead mines of the Ardenes are long since extinct, and the antimony mines, though once very productive, are now very poor. Neirixne, an oxide of manganese is worked.

Upon the division of England into shires, this immense wild was divided between different counties, and only that part which was adjacent to the forest, though perhaps 'Dean,' the name of a forest on the borders of Gloucestershire and Monmouthshire, may be a relic of it.

Although there is no longer a continuous forest in this district, yet it is still the best wooded part of the county, affording plentiful timber, consisting of almost all kinds of forest trees, but especially oaks.

Several places preserve the name, as Henley in Arden, Hampton in Arden, &c. (Drayton a Poly-albion, with Selborne's illustration of Warickshire and Leicestershire; Report of the Agricultural Society of the Midland Counties.)
in a mine open to the day. On the borders of the region towards the west there are some rich iron mines. The celebratory custom of the issue flats these slaty rocks.

The country of the Ardennes is in general sterile, and even in the best part of it, which constitutes the French department of Ardennes, there is only about a third of the land in cultivation. There are vast heaths and extensive marshes which give colour to the land. Fishes and fish are productive only in 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; more rarely, of elder, ash, and birch. Pine and fir are more seldom. The people of Belgium, living on the borders of the Ardennes, call them the Neur-P'ai, that is, Noir-Pays, 'black country,' because it contains no limestone, and because it is the birthplace of the cultivated beech. Around the villages there are patches of land which have been brought into cultivation by means of a process of paring and burning, called escaillage: 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, ry, 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 a rotation of forty years, not even with temporary crops. Meadowes 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 not for its abundance. The chief manufactory in this land is the cheese of ewe milk; that 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 high in the time of the chief toward the seventh century, for: at the time of the invasion of Gaul by the Romans, the cavalry of the Treveri, in which this particular breed was employed, was esteemed the best in Gaul.

ARDENNES, a department in the north of France, on the frontier. It is bounded by Meuris and N.E. by the kingdom of Belgium, E. by the department of Meuse, S. by that of Aisne, and W. by that of Maine. Its length is about sixty-five miles N. and S., and its breadth sixty miles from E. to W. Its superficial area is 1,962 square miles, and the population about 235,000, being about 144 to a square mile.

This department is traversed by ridges which may be regarded as remote branches of the central range, that parforce the waters of the basin of the Meuse from those of the Seine. The streams which flow from the N.E. slopes of these ridges fall into the Meuse; the Bar (which is navigable for several miles) just below Huy, the Vieux-Meuse, the Meuse and the Parc, which fall into the Viron, a considerably way further down. The Meuse itself traverses the department in a direction S.E. and N.W., nearly parallel to and not very far from the Belgian frontier; it flows along the N. and N.W. of the French territory which projects into the kingdom of Belgium. It receives the abovementioned streams on its left bank: on the right it receives the Semoz, which has the greater part of its course in the Belgian territory. The Aisne forms an arc in the southern part of the department, flowing in a direction which may be described as, on the whole, E.S.E. and W.N.W.; it receives the Vaux on its left bank from the range of heights above alluded to; and falling into the Oise, far beyond the limits of the department, ultimately joins the Seine. Its navigation begins at Chateau Portien, a little before it leaves this department. Some of the other feeders of the Oise rise just on the eastern border of Ardenne.

The elevations in this department appear from their steep declivities and rugged summits, to be more lofty than they really are. They afford excellent slates, equal in quality to those which are produced not so far off in depth. (Encyc. Method.; Géog. Physique, Art. Ardoises.) Slate and stone are quarried to a considerable extent. Coal, iron, and some lead, are also worked: the great quantity of wood which the department produces, furnishes fuel for considerable iron.

These heights were once covered with an immense forest. Caesar (Comment. de B. G. lib. v.) describes it as spreading 'in vast extent through the middle of the country of the Treveri and the Alemanni.' It existed, as it appears, as late as the thirteenth century. It stretched from the banks of the Rhine to the country of the Remi (the people about the present town of Rheims). In another place (Comment. de B. G. lib. vi.), he speaks of it as 'the greatest forest in Gaul;' and says 'it stretches from the banks of the Rhine and the country of the Treviri, to the lands of the Nervii (who dwelt in the present country of Flanders), and extends above 500 miles in length.' But this measure is so great that some error in the text has occurred. The Roman army, under the command of the German em-}

* * *
ARDGlass, a town in Ireland, in the barony of Leacal, county of Down, a short distance E. by N. of the town of Kilkough, which is 100 miles N. by E. of Dublin. It lies upon the site of the town of Leacal, which separated the bay of Kilkough from that of Ardglass; 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 rocky ledges. The 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 well practicable for navigation as low as neap tides.

The harbour, however, is far from secure when the southwest wind, 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 576 in the year 1841, 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 5th of April, 1839, there were employed within the district 288 sailing vessels, and 300 row-boats; 2441 fishermen, and probably about 300 other persons, as fish-curers, net-makers, cooperers, sail-makers, and other artificers connected with the fisheries, and depending on them for support. In 1832 there were the 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 in the town a school on the foundations of Mr. Smith, the whole of which was built by Mr. Ogilvy: it contained in 1825 about 120 pupils, half of whom were boys and half girls.

Ardglass was once a corporate town of considerable importance, with courts of assize, the sea of coroners, and a military post. 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, Carrickfergus being the first. Several remains attest its former strength and greatness. A range of buildings 324 feet long and 20 broad in the clear—(250 feet long and 24 broad, according to Seward, Topog. Hibern., which are probably the exterior dimensions of the exterior structure, which was crown-walled 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 square and oval windows; there are also three, two connected with the building, the third, now a little detached, which probably at first constituted one extremity, as the remaining two towers occupy the centre and the other end of the building. The whole building has been divided into small apartments in two ranges, one to the north, 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 wall. These rooms, 10 by 30 feet, ten feet square, with broad-flagged floors supported without any timbers. The building is surrounded 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 trace 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. About ten feet within the fort is a square tower, forty feet by thirty, (we know not whether these are the inside or the outside dimensions, but we believe them to be the latter,) consisting of two stories, and called Horn Tower, from the quantity of horns of oxen or deer, and other animal bones, found among the merchants' dining-hall and kitchen, from the fire-places and other marks about. These are at Ardglass three castles, called King's Castle, Cowed (or Coud) Castle, and Jordan's Castle. The King's Castle is a finer 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, Mountjoy.

Ardglass is in the parish of Ardglass (one of the united parishes) of Ballyphilip, 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 Ardglass was last repaired in 1824, was considerably decorated by the dreadful massacre of the whole congregation at the Christmas midnight mass by the septs (clans) of the McCar- tanes. (Anent and Present State of the County of Down; Seward's Topog. Hibern.)

ARDNAMURCHAN. [See ARGYLLSHIRE.]

ARDDOCH, 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 state of preservation, and situated on the outer rampart of a temporary Roman camp. 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 Knaik or Nannoch, a few miles from which are the ruins of King's Castle, a fort of the Romans, about 270 ft. The said station is supposed, by General Roy, to be the Lundie 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 Knaik immediately below the station. The accompanying plan, from General Roy's Military Antiquities of the Romans in Britain, will show the great pains taken to strengthen it. Its form, according to the general practice of the Romans, is rectangular; its dimensions are about 500 feet by 430 within the entrenchments; and its four sides nearly face the four cardinal 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, but the aggregate breadth of the works on the east and south sides is about 130 ft., and that of the works on the north side, where intersected by the line CD, is more than 270 ft. The prætorium, or general's quarter, is near the centre, but not in it; it is about 130 ft. by 90 ft., with some parts 70 ft. round about them, and is about 130 ft. round about them, and is about 70 by 70 ft.; 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...
on the west by the modern military road from Stirling
towards Inverness. Three of the gates remain. The en-
trance at the praetorium 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 (decuman) gate is not clear from
the plans. The Roman stations and camps had usually
four gates: the praetorium, in front of the praetorium 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
praetorium, 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 praetorium a subter-
naneous passage, supposed to extend under the bed of the
river, but the entrance having been closed about 1720, to pre-
vent 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 neighbourly
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 Sherrif-
muir 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 2600 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
gento eminence; the only thing of the kind in the tem-
porary 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 first. The eastern and western sides remain entire. Its length is 1910 feet, and its breadth 1340, and it would contain about 14,000 men, according to the Roman method of encamping. The area is drier than that of the great camp. These camps Roy supposed to have been formed and occupied 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 part of both, where they approach the river Knaisg, 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 900; that would contain about 9000 men. Its eastern side is 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 Ardrossan. One of them, at Strageth or Strathgirth, on the river Earn, about six miles and a half N.N.W. of Ardrossan, is thought to be the Hienna of Richard of Cirencester; and between this and Ardrossan, about two miles and a half from the latter, is a small post called Kaim'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 Deilgin Ross, near the junction of the rivers Raugh Hall and Earn, about eight miles and a half S.W. of N.N.W. of Ardrossan, and eight miles and a half from Strageth. Near it are the remains of a small temporary camp, whereof great part of the intrenchments and the four gates (which are covered in a manner singularly curious remain entire). This station, General Petten assumed to be the Victoria of Richard of Cirencester, and that the camp of the ninth legion, which was attacked by the Caledonians in the sixth campaign of Agricola. About half a mile S.W. of Ardrossan, at the Grinnick, a small circuit of trenches, is called the Roman Remains of Oldbury Antiquities of the Romans in North Britain; (Sir John Sinclair's Statistical Account of Scotland).

About a mile west of Ardrossan was a cairn of extraordinary dimensions, viz., 182 feet in length, 30 feet in sloping height, and 45 feet in breadth at the base. (Gordon's Itinerarium Septentrionales.) The stones have been now mostly carried away to form enclosures for the neighbouring farms; but a large stone coffin, in which was a skeleton seven feet long, has been brought together with other large stones from it. (Sir John Sinclair's Statistical Account of Scotland.)

ARDROSSAN, a sea-port and parish in the district of Cunningham, the most northern division of Ayrshire in Scotland, county of Ayr. It has been a sea-port since ancient times. 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 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 Johnston, 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 attractive as a watering place.

The remains 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.

The parish 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 3494. Ardrossan is in the presbytery of Irvine, and the synod of Glasgow, and is a small barony.

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 of the earth, was determined by the survey, 13 2990117 English feet; and the are is a square, the side of which is 10 metres long. The following denominations are also used:

- Decare = 10 are
- Hectare = 100 decare
- Chilare = 1000 are
- Mynaire = 10,000 are
- Deciare = 1/10 of an are
- Centiare = 1/100 of an are
- Milliare = 1/1000 of an are
- The are = 100 square metres, or 947.06173 French sq. feet, or 12.2907 metres.

The hectare is generally used in describing a quantity of land. It is 24710563 English acres, or 4041 hectares make 1000 acres, which disagree with the first result by less than 1 part out of 25,000.

A.R.E.A. The word are is 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, and '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 mathematical 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, as it 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 plan of the front of a house to be drawn so that a 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 250,000 to 9. Similarly, if the real height were 20 times as great 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.

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 BC, 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 BC. Thus, if A B be 30 yards, and C D 16 yards, the triangle contains 480 square yards.

2. Measure the three sides, A C, B D, C A, 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
root of the product; this gives the number of square units in the triangle. For instance, let the three sides be 5, 6, and 7 inches; the half sum is 9: which, diminished by the three sides respectively, gives 4, 3, and 2: 9, 4, 3, 2, multiplied together, give 216, the square root of which is 14.7, or 14 1/2 very nearly. The triangle, therefore, contains about 14.5 square inches.

The following rules may be applied in the following cases — for a parallelogram, multiply AB by CD, its perpendicular distance from the opposite side — for a rectangle, multiply together adjoining sides, P Q and FR — for a four-sided figure, in which RT and SV are parallel, but TV and RS converge; multiply RS, one of the converging sides, by YZ, its perpendicular distance from the middle point of the other. When R T and S V are perpendicular to RS, 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 355; then divide by 7, the number of the sector O A D B, see Angle. 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 curves 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, 1 q, &c. parallelograms. It is plain that the area sought, 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

\[ A p, 1 q, 2 r, 3 s, 4 t, 5 u, 6 v, 7 D. \]

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

\[ C p, p q, q r, r s, s t, t u, u v, v D, \]

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 set out, 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 such a 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 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

\[ \int y \, dx \]

or, in the language of fluxions,

\[ \frac{dy}{dx} \]

A process similar to the preceding is employed by surveyors in measuring a field whose boundaries are curvilinear. [See Surveying, Opp.]

The investigation of the area of a curve was formerly called the quadrature of the curve (quadratvm, 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, areas 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 enclosing one seed only. The leaves of all the species are pinnated, with their stalks rolled up cylindrically at the base.

_Arecaceae_ is described by Dr. Roxburgh as being the most beautiful palm in India, with a trunk sixty-five feet high, and in general about twenty inches in circumference, equally thick in every part, and smooth. All the leaves are from three to five feet long, and widest at the point, where they are acute and serrated. It is cultivated in all India, and the sauce of its nuts, which are about the size of a hen's egg, of a reddish-yellow when ripe, and with a firm fibrous rind about half an inch thick, is this nut, which, under the name of pinnated, is universally introduced in the cookery of India. It has an astruse and astrin gente flavour, and is not edible alone; but mixed with lime, which no doubt destroys its aci dity, and with the leaf of the betel pepper, it becomes milder and pleasant. The mixture is, however, all so hot and acrid as to be unfit for the use of any but persons accustomed to it; it is said to be aromatic and stomachic, and also to produce intoxication in beginners, but it is very doubtful whether all these qualities are not rather to be ascribed to the betel pepper leaf than to the nut of the palm. It, or rather the mixture of the three substances, stains the saliva and teeth of a deep red colour. It is to the stems of _Acrea catechu_ that the common black pepper vine is more correctly referred. (Roth.) The astrin gente substance called catechu was once supposed to be produced by it, but this was an error, as has been already explained. [See _Cacticatechu_.]

_Arecaceae_ is the only other species of the genus _Arecaceae_ which is worthy of notice. This plant must be familiar to most persons in consequence of the allusions to it in the tale of _Paul and Virginia_, and from the often repeated fact that a tree of the growth of half a century is sometimes cut down for the sake of the single bud which terminates it, and which is called the cabbage.

The species is found in great abundance in the mountainous parts of Java and other East Indies, growing as high as from one to three feet, with a trunk not more than six or seven inches in diameter. This gives it an extremely graceful appearance, especially as the leaves grow from the top only, in a kind of tuft or plume, to the length of fifteen feet; these leaves are divided in a manner, and their divisions are deep green, and several feet long. The unexpanded leaves are arranged so closely one over the other as to obstruct all access of light, which causes them to be of a very tender and delicate nature. They are sometimes used for the cultivation of the cabbage, and a great delicacy, either raw or boiled. The nuts, which are about the size of a filbert and covered with a yellowish skin, are produced in great abundance upon a very long and broad leaf. The kernel is white and sweet.

Independently of the use of this palm as an article of food, its trunk when felled and exposed to the air quickly rots in the centre, and becomes a natural hollow cylinder, which, on account of the hardness of its outside, forms a very durable water-pipe, often as much as a hundred feet long, and is said to be burned, when buried, almost as hard as iron. [See Stone's _Jamaica_, vol. ii. p. 116.]

AREMBORG is a considerable duchy close upon the Dutch frontier; it consists of the sovereignty of Meppen, which formerly belonged to the Westphalian bishopric of Münster, but is at present within the Hanoverian dominions; of Reccklinghausen; of another sovereign domain in the circle of Westphalia, which forms part of the Westphalian and of the imperial possessions in the Netherlands. The ancestors of the present duke were created counts of the Roman empire in 1549; they were advanced to the rank of princes in 1576; and were ultimately created sovereign-dukes by the emperor Ferdinand III. in 1644. As a compensation for the loss of a considerable part of the duchy upon the Upper Rhine and in the Netherlands under the stipulations of the treaty of Luneville, the then duke received Meppen and Fröndenberg, which are six miles apart, for the sake 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 43,000; and its revenue amounts to 26,000l. and 27,000l. a-year. The chief town, which lies at the confluence of the Hase and Ems, and 10 or 11 miles north of Lingen, in the bailiwick of Osnaburg, bears the same name as the duchy; it is a poor town, which is composed of two parishes, two manufactories, two churches, a hospital, bleaching-grounds, and some external trade. Its population is 2300: 52° 41' N. lat., 7° 19' E. long. Haseline, on the Hase, is the seat of the ducal court of justice, and manufactures agricultural implements; it has a conven, and about 1700 inhabitants.

The earldom of Recklinghausen, which constitutes the remaining portion of the duchy of Aremberg, so far as respects Germany, belonged to the electorate of Cologne until 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 Aremberg and Düsseldorf, 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 47,000. The face of the country is a plain, intersected with gentle eminences; the Lippe, which divides the northern districts, is watered by the Emster. 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. The principal produce is wool, 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 34,000l. a-year, and nearly 16,000l. of which in external trade. The duchy of Aremberg, at the foot of the Hard, the highest spot in the earldom, is about 50 miles N.E. of Cologne, on the Lippe. It has a ducal residence, two churches, an asylum for females of noble birth, some linen manufactories, and a steel mill, in 1821, and a population of 14,347 N. lat., 7° 19' E. long. The other towns of note in this earldom are Dorsten, population 2295; and Boar, which, with its dependencies, contains above 4000 inhabitants. The latter
ARENARIUS, literally, relating to the sands, a work of Archimedes. [See Archimedes.]

ARENG is the botanical name of one of the palms that produce sago, and from which palm-wine is obtained. The only species, Arenga saccarifera, is described as a plant of an ugly appearance, having a trunk twenty or thirty feet high, covered almost entirely with coarse 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 finely coated with ash-coloured mealy matter. The stalks of these leaves have intermixed with their coarse hair stiff fristle 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 medium, 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 flow in great abundance from the wounded branches of the infrutescence about the time when 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 astrignency; 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 botanical garden at Calcutta. (See Roxburgh's Flora Indica, vol. iii. p. 627; and Rumphius' Herbarium amboinensae, vol. i.) The former calls this palm Sagurus Rumphii, the latter Arenga Rumphii.

ARENSBURG, the capital of a circle in the large island of Ossel, or, as the natives call it, Kuren-Saar or Saare Ma, at the entrance of the Gulf of Riga, and within the limits of the Swedish government of Livonia, is situated in about 51° 44' N. lat., and 27° 4' E. long. It lies on the Peulov, a small river on the S.E. side of the island, and has a harbour, too shallow for large 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. Valskodron, a fortified castle, was 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 it was converted into a town after the building of a strong-fortified castle by Hermann, bishop of Ostnaburg, in 1334. Charles XII. afterwards added greatly to its strength and embellishment; but part of the works were destroyed in the course of the operations which preceded its capture 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 and a Lutheran church, a town-hall, public-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 fair days 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, and Herodotus, in his history, speaks of the pitiful condition of the inhabitants of the place, which had been destroyed by the Persians, in consequence of their not having sufficient numbers to form a resistance. The circumstances which connected the place with the God are variously told. It was the hill of Are, according to some, because the Amazon Arachne, who in their invasion of Attica pitched their camp on it, wore descendants of Are, or reassuring, according to Sophocles (Halirrothius). But it is certain that they performed sacrifice to the God in that place; according to others, because Are himself was there tried for adultery; or lastly, to follow the more popular story (Plut. i. 2, 9), because it was on this hill that the God was brought to trial by Poseidon (Neptune) for the murder of his son Halirrothius. In short, the place was called Areopagus, and, in process of time, these legends were invented or employed to soften the severity of facts and subsequent information.

AREIOPAGUS, 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 (9 Luft. 654), 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 Ceramicus (Paus. i. 3, 4). Its high unani-mity may be inferred from the well-known legends respecting the causes 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 (Archem. Burm.) but its authentic history commences with the age of Solon. There is, indeed, as early as the history of the Messenians, a story that something like a great fame, 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 Lacedaemonians, involving murder, 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 (Phyl. Vit. Sol. c. 19). It seems that the name of the Areopagites was lost in that of the Ephetae, 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. 392, English translation.) Solon, however, reformed its constitution, so completely that it was 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 title Areopagite, or Areopagite, which light which it throws on the views and character of Solon as a legislator. It was composed of the archons of the year (see Acrimon), and of those who had borne the office of archonarchon. The council itself was reformed 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 criminal or unhoning conduct was sufficient to exclude them in the lists of candidates, and to prevent their admission. Various accounts are given of the number to which the Areopagites 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
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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 De Areop., 15.) It may be proper to observe, that modern historians of this council do not commonly give the actual archons a seat in it. They are, however, placed there by Lyssias the orator ( Aristocr., ii, 14), and there is no reason to doubt 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 authority of great extent, judicial, political, and censorial. As commander-in-chief, 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 interfered, at least on many occasions, in the internal 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 people, but it was not the case of the council. 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 men of the highest rank, and who were chosen by the people, with a certain proportion of the oldest nobles by blood. The strength of the democracy lay in the ecclesia or popular assembly, and in the ordinary courts of justice, of which the dikasts, or jurors, 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 proves, that in the shape in which it 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 to which the Areopagos was first attached, and the most of 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 never recovered from the blow which he inflicted upon it. At this time a law was passed, according to which Epialtes 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. xi, 27). Plutarch, who has told us more than others (Vit. Cim. c. 13; 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 (sacriatibus) were not included; for Demosthenes has assured us (Contr. Aristoc. p. 641-2), that none of those of its 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 is attributed to it; and there is as little evidence that it lost at this time any portion of that which it had previously exercised. Lyssias observes (Areop. p. 110, 46), that it was in his time charged especially with the preservation of the purity of the inhabitants, which was the source of its impolicy. It possessed, also, long after the time of Pericles, in some measure at least, the powers of the censorship. (Atenaeum 4, 64, ed. Diodor.)

Pericles was struggling for power by the 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 a considerable original authority, and the approbation of the revenue; though Mr. Mitford and others, in saying that it controlled all issues from the public treasury, say perhaps more than they can prove. In later times many members of the council were deprived 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 im-
Cic., c. 54). It long after remained in existence, somewhat superior in dignity, and perhaps equal in power, to a modern court of aldermen in a municipal corporation. The old quaint style of court, with its ceremonial and its degeneracy, nor is it easy to say what were substituted for them. Later times saw even a stranger to Athens among the Areopagites.

No part of 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 court was held in an uninclosed space on the Areopagus, and in the open air; which custom, and the solemn manner of conducting its business, had much contributed to the repute and authority of the court. If we may trust the assertion (De Cond. Herod., p. 130) attributed to Antipater. The Areopagites were later in times, according to Vitruvius, accommodated with the shelter of a roof. The prosecutor and defendant stood on opposite sides of the open space, which contributed to the health of the inhabitants. An elegant bronze fountain inssou stands in its place, 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 all manufactured at Arequipa, and export them 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. (Ullas.)

Mollendo, 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 town, though small, and very ill-proportioned. As the town is open, 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. (Ullas.)

ARES (Areop., 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 therefore highly probable that he was the god particularly 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 (iv. 62), may have been of the form of an iron scimitar, to which horses and other quadrupeds were annually offered; and also every hundredth man of captives taken in war. In the later genealogy of the gods he was considered the son of Jupiter and Juno, and, as such, took part in the war against the giants, and slew Minas and Pelorus. 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 Ulos and Ephialtes, the children of Atalantes, by whom he was imprisoned for thirteen months. To a still later period we must refer the murder of Hallirbottius, and his trial before the court of Areopagis, as well as his combat with Heracles.

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 but few temples erected to him, and the few that existed were of the most simple character, and not at all possessed of the importance, or peculiar beauty, of other buildings. The most magnificent temple, however, which was erected to the god, was that which was dedicated to Mars in his capacity of god of war, at the town of Areopoli on the river Cala, in Arcadia. These temples were called Areopagites. It seems, however, no usual pastime with the Athenians to attend the trials on the Areopagus as spectators (Lys. Conr. Theron., p. 117, 10). We suspect that few of this light-hearted people could be moved to any such an extent as to wish to hear such speeches as were delivered, and see nothing. Perhaps there may be no better foundation for the story, than that for the notion, till lately so generally entertained, that the same gloomy custom 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 36 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 Chili, and has a considerable commerce in wine with the adjacent provinces; coquinas is also produced, and there are some good vines, though not of quality. It has a good anchorage, with pleasant landings, and shipping. It has excellent pastures for wild cattle of good quality, and produces wheat, maize, and sugar. It is backed by the Andes, offsets from which come down to the sea coast, and form a succession of islands.
Aretæus, surnamed CAPPADOX, or the CAPPADOCIAN Aretæus, being one of the mostvaluable medical writers 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 circumstances of his birth, but a tradition exists to the effect that he was solely on the fact of the medicinal preparations of Andromachus, physician to the Emperor Nero, and the medical dignity of the Archiatri, being mentioned in his works; whilst, on the other hand, the name of Aretæus occurs in the writings of Oribasius, which it is supposed to have been written during the reign of Vespasian. Hence it is concluded, that Aretæus wrote shortly after the time of Nero. He takes notice of the wine of Fälerium, and other Italian wines, and also of the water of Acquino, and the notion that his remedies must have been in Italy. The learned have found some difficulty in fixing upon the sect, or school of medicine, to which Aretæus belonged. P. Petit considered him as a follower of the dogmatic sect, who founded their explanations 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 founded by Aetius, which embraced a considerable proportion of men of other sects. Aretæus is supposed to have lived. It seems to be a peculiar merit of this physician, however, to have remained free from the predominant influence of any one of the prevailing theological precepts, and therefore to have preserved an independent observation and treatment of diseases. Aretæus 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 indebted to his own personal experience.

Aretæus regarded a knowledge of the structure and functions of the body as a necessary step towards the study of symptoms and of causation; but, however, he was sufficiently the imperfect state of this science in his time. He concurred 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 serra portarum, and regarded 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 bleeding. Aretæus looked upon the liver as the organ destined to prepare the blood, and his work is fitted into the scheme of his views, and regarded 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 glandular structure, and that they were organs of sensation and motion. The fact that injuries of the head are apt to produce paralytic affections on the opposite 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 X, whilst the nerves arising from the spinal marrow proceed directly to the organ for which they are designed. Notwithstanding these curious remarks on the distribution of the nervous system, Aretæus evidently did not make any clear distinction between the nervous and tendinous parts; the latter are undoubtedly alluded to, when he says that, besides the nerves proceeding from the brain, there are others which pass from one bone to another, and are the principal sources of motion.

The descriptions which Aretæus has given of the diseases to which the human economy is subject are accurate delineations, evidently due to his habit of study. He is peculiar in his mind, elegance, and conciseness of diction. He is thought to have excelled all antient authors, not excepting Hippocrates, in the art of describing diseases, and also in relating a number of cases of the same species of literature. His account of epilepsy, tetanus, acute and chronic headaches, hemoptysis and consti, or burning fever, are peculiarly happy specimens of his manner of writing.

In the treatment of diseases, Aretæus regarded experience as the best guide (επειδὴ εἰς τὸ ἔρμα), and he repeatedly refers to the necessity of following the hints which nature gives to the physician. His methods of treatment seem to have been energetic where it appeared necessary, but always simple; and he was averse to that farfetched abuse of medicines, which, the use of which some of his contemporaries were addicted.

He frequently employed emetics, purgatives, and aperients; and he was aware that emetics not only evacuate the contents of the stomach, but often pernicious. He also is aware of their efficacy from the shock which the act of vomiting produces in those parts. He was fond of bloodletting in chronic as well as acute diseases, but cautious with regard to the quantity. He thought that the blood which should be taken during sweating, and recommended not to take away too much blood at one bleeding in apoplexy. He also mentions the practice of opening a vein on the back of the hand, and he practised the operation of arteriotomy. Aretæus is often accused of not having sufficiently distinguished the symptoms of his disease, and by this mark. He is the first author who mentions blistering with cannulae; as he recommends this practice as preferable to other rubeficients, without mentioning it as having been formerly in use, it appears probable that we are indebted to him for this most important remedy; nor had the tendency which it sometimes has to injure the functions of the urinary organs escaped his observation; he enjoins, therefore, milk to be drunk in large quantities before the blister is applied.

Scarce any internal medicines were employed by Aretæus in the treatment of acute diseases; but he paid strict attention to diet and regimen; among his digesive precepts, this is the first that deserves to be mentioned. In treating chronic diseases he more frequently had recourse to the aid of medicines; we find him prescribing diuretics, sudorifics, and several of the compound stimulating preparations which we in modern times employ. One of the substances he most frequently prescribed is castor oil, which he regarded as very efficacious in various affections of the nervous system.

Of the writings of Aretæus, only four books on the causes of the symptomatic and anatomical nature of diseases, and seven on the treatment of acute and chronic diseases are extant; or have they been preserved in a perfect form: chap. i.—iv. and part of chap. v. of the first book on the causes, and several passages in the books on the treatment, of diseases are lost. In this work the author alludes to his treatises on surgery, on pharmacy, to fevers, and on the diseases of women, of all which works not a single fragment now remains. Had they been handed down to our times, they would have formed most important additions to medical literature. Aretæus wrote in the Ionic dialect of the Greek language, which at his period had nearly ceased to be employed in writing; but he was, probably, induced to adopt it by the example of the older medical authors, and his works were also used in the schools of his successors, who wrote in this dialect, which was also used in the ancient sentences of the school of Cos.

The eight books of Aretæus were first edited from the Parisian MS. by Dr. de Joanne, in the Acta Medica, Part 1554, 8vo. The standard edition is that of Mr. John Wigan, student of Christ Church, Oxford: it was undertaken by the advice and with the assistance of Dr. Freind, and printed at the Clarendon Press, 1729, 8vo. Wigan gave a very good Latin translation, notes, and a valuable dissertation de Aretæi antæ, acuta, in rebus anatomiæ scientiæ, et curandœ ratione. This edition is scarce. Only 300 copies were printed. Both works were again revised under the superintendence of Boerhaave, Leid. 1751, folio: the greater part of it had been printed as early as 1719, before the publication of the Oxford edition; and the text, as well as the Latin translation, are such as they had been before Wigan's labours. Boerhaave added, however, the valuable critical commentaries of Peter Petri, a Parian physician, which had remained in MS. for nearly seventy years. Aretæus also forms the 24th volume of Kühn's edition of the Greek medical authors, and contains the Greek text and Latin translation, Wigan's preface, notes, and dissertation, Boerhaave's preface, Petri's commentaries, Thiler's conjectures and amendments, and several English translations. Two English translations of Aretæus, by John Moffat, was published at London, 1785, 8vo.
the manner of her change into a fountain, and the pursuit of her by the river-god Alpheus from Eleusis below the sea to Sicily, see Alpheus, and Ovid, Met. v. 572. Pausanias tells rather a different story; he says that Arethusa passed over into Ortygia, and there was changed into a fountain (v. 7). The fountain where she now appears is very frequent in Italian cantos, sometimes she is called Arethusa to gratify Diana, after one of whose names the island was called Arethusa, and to whom it was consecrated. He calls it 'a very large fountain,' and adds, that it is bordered with square stone-built shrines, and surrounded by trees; 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. 2). Cicero speaks of it as ' a fountain of sweet water of infinite fertility, also to satisfy hunger, where the sea is 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 regulated by a Celebrated cap of some kind. Though, after the Sicilian manner of washing, perform the operations standing up to their knees in the stream. Over the arch is a rude image of the Madonna, which the Syrians pretend to be a statue of the nymph Arethusa. (Magnus Graecus.) It was commonly said that things thrown into the Alpheus would reappear in this fountain. Strabo asserts that a cup did so. Secker 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. Quest. iii. 30.) Moschus intimates a similar belief in his seventh Idyll. In the middle ages it was met with the change of religion, and the fountain was said to cast up leaves not known to grow except on the river Jordan. (Mariottii, Cron. Antiche 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'Oceho della Zitella. The Syracusan poets, Theocritus and Moschus, make frequent mention of it. Thucydides proposed that Arethusa should be imitated by Minerva, and given to Samos, and another in Euboea. (Schol. in Theoc. i. 117.) ARETINO, PIETRO, an Italian writer of the sixteenth century. He was born at Arezzo in 1492, and was the natural son of Francesco Perugia, a painter, who 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 neglected, 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 when nothing but the produce of his work enabled him to travel, he 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 ‘his books’ in a magnificent house on the banks of the Tiber. He afterwards went to Leo X., and to Cardinal Giulio de Medici, afterwards Clement VII., in whose service it appears he remained seven years, but in what capacity is not known. A circumstance which strongly shows the prodigies produced the fountain of Arethusa is recorded by Poggio 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 somnolent letters. The court of Rome, being informed by the Medici, that the said 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, however, have misgivings; Melchior, the famous captain of the Florentine republic, and in France 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 cantos in terza rima, burlesque comedies, and sonnets. He published letters which he addressed to all the princes and great men and ladies of his time, sometimes flattering them, sometimes praising himself, and generally asking money or some other favor in exchange for his praise, or for the dedication of some of his works; and sometimes threatening them with the vengeance 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 to gratify not only his own taste for luxury, but also his passion 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, through which 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 Solyman, Sultan of the Turks. Owing to the favor he received, he was never passed over, 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. Piero Strozzi, who was a well-known French ambassador 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 his bed; and the threat was fulfilled. He shut himself up in his rooms; and would not trust any one within as long as Strozzi remained in the Venetian territory. Aretino still cast a looking eye towards Rome, in expectation of dignities and emoluments. For this purpose he wrote several compendious 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 compositions were not very remarkable, but were perhaps the last, utterly contemptible both in their conception and style. 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 secento. He wrote with great facility, but at the same time with carelessness, and his taste was coarse and trivial. The Duke of Urbino applied in his favour to Pope Paul III., and even seemed to be moved by an ardent desire for the credit of the Roman hierarchy, the pope would not listen to such a suggestion; and it was perhaps in recentness of this, that Aretino unmercifully lashed the pope's enemies. He was summoned by Julius III., who was a native of Arezzo, was addressed by Aretino in a letter of congratulation, accompanied by a sonnet characterized 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 1532, 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 for some time, and died on the 15th of March, 1556. He was buried in the church of St. Lucas, at Venice, where a monument was raised to him, which Sansovino mentions in his Fornarina Illustrata; it was afterwards removed in the repairs which that church underwent. The work was re-engraved by many biographers and travellers, and by Missen among the rest, was never placed on his tomb. Pietro Aretino must not be confounded with the historian Leonardo Bruni, also called L'Aretino, nor with the poet Piero Strozzi. A speech of Aretino, as given by travelers, 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, states that Aretino himself was 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 those in
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particularly, have been re-published separately at different times, notwithstanding the censure of the Inquisition, and have been sold under the severest penalties. The following are the best specimens of his poetry: they are partly satirical and partly loutary of several conspicuous characters of his age—Charles V., Catherine of Medicis, Pope Julius, and his rival, Guibeline, an historian, an historical tragedy in blank verse, one of the earliest Italian tragedies. His five comedies in prose,—Il Filostrato, La Cortigiana, Il Marsicano, L’Ipocrito, and La Talanta,—are not without some merit in the invention, but, like most of the old Italian comedies, contain much rhetoric, and objectiveness 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 Arezzo. His last book is a catalogue of the cities which he visited and formed 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 was later restored. His last book is a catalogue of the chief towns of Tuscany. He died in 1527, and his monument is in the cathedral of Arezzo. After his death there came fresh dissensions among the citizens, and new wars with the Florentines, which did not cease until 1544. Amidst the disorders of the times, Ingelram of Coucy, a famous Condottiere of the times, who sold Arezzo to the Florentines for 40,000 golden florins. After more than a century Arezzo revolted against Florence in 1592, was again taken, and treated with great severity. In 1529 it opened its gates to the army of Charles V., which was then besieging 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 1779, they rose against the French who had occupied Tuscany: the following year, after the battle of Marengo, being attacked by a French army, they received a signal victory, and were being stormed on the 19th of October, 1806, a dreadful scene of violence and slaughter ensued.

Arezzo is situated on two hills, and in the middle of the plain. It is the ancient city of the Chindi, 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. Arezzo and the Chindi 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 cathedral is a large Gothic building, besides which there are several other public buildings and various handsome palaces belonging to the nobility. But the handsomest structure in Arezzo is that called La Logge, by the side of the town-house on the principal square, which has a fine portico nearly 400 feet long. It contains a theatre and the custom-house. It was built by Vassari, who was a native of this place. Arezzo has produced many other distinguished men—the monk Guido, the first restorer of modern art in the church of S. Guido; and Pietro Aretino, a celebrated Petrarch, who was born here, though of Florentine parents; the historian Leonardo Bruni, Pietro Aretino, Pope Julius III., the naturalist and physician Cesalpini, the learned Redi, &c. Arezzo has about 16,000 inhabitants, and its country or territory, 17,000 more, according to Professor Giulii’s Statistica della Val di Chiana. But Arezzo is also the chief town of one of the five comar- timenti, of provinces, into which Tuscany is now divided, which includes the large district called Val di Chiana, once a marsh, 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 Albatico, 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.

ARGALI. [See Sheep.]

ARGAND LAMP, so called from the name of its in- ventor, who lived at Trapani. The lamp has been 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 cistern B, which is thence conveyed to the lamp. The basin of the lamp is D, containing the wick, placed between two tubes and im- mersed 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 fitted into the basin D, and the upper part 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 channel A 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 tubes 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.

ARGII, 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 Peloponnese; Agamemnon is styled the sovereign of all Argos and the islands. (See Strabo, viii. 369.) The capital of Agamemnon's kingdom of Argos, which certainly did not comprise all the Peloponnese, was Mycenae. Homer often qualifies it with some epithet, as Achaeicum (Ibid. ix. 141), when Argos of the Peloponnese is meant, and Pelasgicum when the Thessalian city or district of that name is intended. Strabo (viii. 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 this has with the several cities named Argos, the geographer does not think proper to inform us, though he may perhaps intend us to infer that they were so called from being situated in a plain. Pausanias (viii. 7) mentions a plain (called the melos aphyus) 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, Pelasgi. (Strabo, viii. 371; Eurip. Orrest., 931; Ischyl.,
SUPPL. 968.) the arrival of Daccais from Egypt, accordan-
sing to their tradition, caused their name to be changed to Danai, a term that occurs in the Iliad, but the mass of the popula-
tion no doubt still remained the same. Eighty years after the Trojan war, or c. 1104, the invasion of the Pelopon-
nesian, and the subsequent occupation of southern Greece, was obliged to submit to the Doriens. Still this was only a change of dynasty, and all the other Achaeans inhabitants were not compelled to
leave their country. From this time the names Argos and Achaia were extensive in use; but Argos itself continued an important place under this new race. [See ARGOLIS, ARGOS, and ACHAIA.]

ARGEMONE, the name of a small genus of the poppy tribe, originally the American species are commonly con-
spicuous 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 brown veins; the flowers are white or yellow. The commonest species is A. Mexi-
cicana, from the seeds of which the Mexicans obtain an oil very useful to painters; the handsome A. grandiflora, the flowers of which are pure white, and 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, and planted out after the last frosts. See FUCHSIA. [BOYER, 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 1717, and was destined for the bar from his birth, because his father, who was Procurator-General of the parliament of 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 design 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 profession. He did not scruple to waste the 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 opportu-
nity 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 pleasure, and was more than once in danger of experiencing the severity of Turkish retribution. He was tired of the bingle and endless changes. He desired to change the scene, and to fix his attention on some
many useful observations, and as he always attached himself as much as possible to the best informed and most respect-
able persons of the embassy, he was introduced by them into the society of ladies. The result of his attentions to the ladies was, that his 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 ability for so young a man. Upon his return to France, he
began to lose his taste for military life, and he went to study painting, in which he became very skilful.

The same propensities that drove him from home com-
pelled him to return, by exhausting his funds, and subject-
ing himself to the disgrace of a second marriage. He
visited 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 enabled him to turn to his own
purposes. This was the famous trial of the Jesuit Girard before the Parliament of Aix, for seducing Mademoiselle La Cadrière, his pedestrian. The decision of this case was un-
satisfactory 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 so many ingenious analyses. He
went to Paris, obtained a commission, and was slightly wounded at the siege of Philippsburg. At the siege of
Kehl he received an injury by the fall of his horse, which
was repaired, and he returned to France; but he quitted the
army without having distinguished himself as a military man.

In the meantime he had been guilty of his usual impruden-
ties, and his father, thinking him incorrigible, disburse-
ed him, and reduced his pecuniary allowance to half its former amount. He was not, however, without other
circumstance to abandon the fashionable world, he retired
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 Journe 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 and philoso-
phize 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.

After the death of his father, the perpetuity of the herita-
tion 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; of the French, English, and German Academies; had
an income of 800 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 disinterested as to refuse, addition to his emoluments, telling his ma-
jesty that he had many others who served their king spiritu-
ously 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 also
proved it. The marquis, being a prisoner, and not being
amours ended in a marriage with Mademoiselle Coelhois,
a dancer. When it took place is not known. His biographers
choose to call it a sexual adventure, but it is certain
that this lady accompanied him to France in 1742. In
the latter part of the marquis's life, the health and spir-
its appear to have failed together; he became unwilling
to exert himself, and was too often absent from the royal
supper parties under pretence of illness. He felt it was
his duty to retire to his brothers, who lived near him,
among his own relations. His brother, who had become pre-
sident of the parliament of Aix, had honourably given him
up a family estate, and built a house upon it for his recep-
tion. An accident happened which made him think that he should be allowed to retire when he had com-
pleted his sixtieth year, and he demanded the fulfilment of
the bargain. It was, however, with great difficulty that he
obtained only a leave of absence for three months, in 1769,
under a solemn promise to return; this he meant to keep,
and, though in bad health, he began his journey to Berlin,
and reached Bourg en Bresse, where he was detained by a
long and serious illness. Unfortunately, his wife neglected
to write to Berlin, and a letter of commotion from a friend
there missed him. The king, thinking he had broken his
word and did not intend to return, hastily cashiered him, and
the marquis, on hearing the news, hastily returned to Aix,
where he died five days after. But the king, not only not
informed of the event, but arrived at Paris before the leav-
ture from Berlin, he returned all the letters which he had at
various times received from the king, telling him, in a well-
written letter, that he thought it might not be right in the
present state of his health to carry the marquis to his
jesty's confidence into a foreign country. The king re-
turned the letters, with a reassurance of his confidence in
the marquis. He died in 1771, while on a visit to his sister,
while attending an opera at Paris.

It is stated by all his biographers that he maintained the
character of a good husband and master, and that he was
always firm in his friendships. The natural arduosity of his
mind led him to make considerable acquisitions; he under-
stood several languages, and was a proficient in music, and anatomy, was a great reader of the fathers and doctors of
the church, and of all sorts of polite literature. His works are
1. Mémoires de Monsieur le Marquis d'Arago, avec quelques Lettres sur divers sujets (fourteen not in the collections of his works); Londres, 1736, 12mo. (certainly a foreign print—Hague); 1787, Londres, 12mo.—1907, Paris, 12mo.
2. Mémoires du Marquis de Miramon, ou Le Philosophé Solitaire; 1736, 12mo. An interesting work.
3. Mentor Cavalier; 1736, 12mo.
4. Du Cabinet de Voltaire, et des Lettres du Comte de Bonneval, published sous le nom de Mirone (perhaps the name he took in Holland); 1737, 4 vols. 12mo. Les Mémoires de Bonneval is an inferior work by another writer.
5. Lettres de la Comtesse du Vauxer, or Le Feux Rabbi; 1737, 12mo.
6. La Philosophie du Bon Sens; 1737, 12mo.—1769, with Nos. 8, 15, and 16; called his works in 24 vols. 12mo.
7. Triomphe de la Vertu, ou Voyages sur Mer, et Aventures de la Contesse de Bressel; 1741, 3 vols. 12mo.
8. Lettres Juives; 1742, 5 vols. 8vo.—1754, 8 vols. 12mo.
9. Lettres Philosophiques et Critiques, par Mad. Cochois; avec les Réponses de M. d'Arago; 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 sources. The Lettres Juives and Chinoises 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; 1756, 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, nor indeed anything more to the purpose. See also Letters in No. 1.
15. Lettres Caballistiques; 1754, 7 vols. 12mo.—1759, 7 vols. 12mo.
16. Oeuvres Chinoises; 1755, 6 vols. 12mo.
17. Oeuvres Lucanes, Gr. et Fr.; 1769, 8vo.
18. Timée de Locres, Gr. et Fr.; 1763, 8vo.
19. Défense du Paganisme, par l'Empereur Julien, Gr. et Fr.; 1764, 5 vols.—1768, with des Notes de M. de Voltaire. These traductions des Dissertations et 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'Esprit et du Cœur that bear his name; he has no part in the rest.
21. Letters printed in the Works of Frederick the Great. The editor of his Mémoires (Paris, 1807) has collected what was necessary to complete his life, and has reviewed some of his greatest and most sublime productions, and not without censure where it is due. But where he accuses the marquis of making insidious attacks on religion through its priests, he expressly alludes to the religion of the church of Zara, and not the Greek branches of it, as it is alleged by all his 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' name was again brought forward when, as we are told, it was nearly forgotten in France, by the well meant zeal of certain disciples against the licentious opinions of the philosophers introduced during 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'Arago was associated with 'atheists and desolators 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 old French government. More impartial writers, however, in speaking of a man so little of whose 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 the 'insect of insinuations;' or, 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 clearst notions not to believe in the existence of God;' he never abjured 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 expect much of him were not acquainted with 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 denunciations against him comes from the General, 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 whole portion of that valuable comb which, while 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'Arago, a desolator of government, according to their ideas, was his confidant, 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.'

ARGENSOLA, BARTOLOME' LEONARDO DE, was a native of Barastro in Aragon, and descended from a noble family, originally from Ravena in Italy. He was educated at the university of Alcalá, 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 Naples, and remained in Italy three years after his death. In 1616, having spent some years in the cities in Italy, he returned to Spain, and was made a canon of Saragoza, in which town he died, according to some authorities in 1633, and according to others in 1631.

ARGENSOLA, LUPERCIO LEONARDO DE, brother of Bartolome, was born in 1655, and began his studies at the university of Huesca. He afterwards went to Saragossa, where he studied Greek, history, and rhetoric. Before he had attained the age of twenty, he wandered about, where his patroness, the princess Maria of Austria, had fixed her residence, and he was made her secretary. The archduke Albert of Austria made him his chamberlain, and Philip III. honored him beyond all the other writers. His genius was remarkable for its purity, and 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.

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ARGENTAN, a town in France, in the department of Orne, 115 miles W. of Paris, twenty-five N. of Alençon, and thirty-four S. by E. of Caen: 4° 44' 44" lat. 6° 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 considerable, and the cloth made here is of good quality. A considerable quantity of poultry is raised in the vicinity. The Orne is indeed there is a fine mead in no great distance. The village of Rye, in the neighbourhood, was the birth-place of the historian Mezery. The population of Argentan is about 6500.
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 traced to the Celtic names which occur in the map of Gallia: Argentomagus (Argenton), between Poitiers and Bruges, Argentoratum (Strasburg), &c.

ARGENTEUIL, a town in France, in the department of Seine and Oise, on the right bank of the Seine below Paris, 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; it is the produce of which forms the chief trade of the town. There are also in the neighbouring 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 Abelard.] 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 CODEX, 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 Mino-Gothic language, preserved in the library at Upsala, in Sweden. It is believed to be a relic of the Gothic Bible, or all the greater part of which was translated by Ulphilas, bishop of those Goths who were settled in Mosia and Thessalonica, and who lived under the various 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 leaves, 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 was translated nearly as nearly as we can judge of the time of Ulphilas, 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 Ulphilas's Gothic version, and have offered arguments to prove, that it is rather a venerable fragment of some very antient Francic Bible: but they have been confuted by Knittel and others. The letters used in the Gothic Gospels, being twenty-five in number, are formed, with slight variation, from the capitals of the Greek and Latin alphabets, and are believed to have been really the invention or application of Ulphilas. See the notes to Bishop Percy's Translation of Mallet's Northern Antiquities, vol. i. p. 366.

The Gothic letters of this Silver Book are first printed in types approaching to a fac-simile, by Junius, in 1655; again in common type at Stockholm, in 1671; by Mr. Leye at Oxford, in 1710, with a Gothic Grammar prefixed; and at London, for Wescott, in 1736.

Palimpsest fragments of this Gothic version of the Scriptures, though not in the silver character, have been since found in other places. Knittel printed a fragment, containing part of the Epistle to the Romans, which was discovered in the library at Wolfenbuttel: it was reprinted in 1763, by Professor Ibre; and again in the Appendix to Lye's Saxon Dictionary. In 1819, some further fragments were published by Angelo Mai, and Car. Oct. Castelloni, in 4to, at Milan, containing portions of parts of the 23th, 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.

A Dissertation on the Argenteus Codex, by Ericus Sotberg, printed at Stockholm, in 1752, contains two of its pages in fac-simile. Knittel and Mai have also engraved some of the palimpsest fragments which they respectively published.

ARGENTIERA, an island of the Greek Archipelago, so called from its having been supposed to contain a vein of silver. It lies to the N.E. of Melos or Milo, from which it is separated by a narrow strait, Carum, 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 fathom's water over it. The extreme length of the island is five miles, and breadth three miles and a half; it has no port, but one small village, standing on an eminence at the S.E. side of the island, in 36° 49' N. lat., and 24° 35' E. long. It consists only of a few miserable huts; the whole population of the island does not exceed 600 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 half-loads of wine; for other articles the inhabitants visit Milo. The island generally is high; the hills rise to an elevation of 500 to 1000 feet. The antient name was Kimilos, 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 Creta Cimelhia.)

ARGENTIERE, L., the capital of an arrondissement, in the department of Aisheche, 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 Aisheche: 4° 52' N. lat., 4° 17' E. long.

L'Argentehe 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 6000 volumes was established in the town as far back as 1784.

The arrondissement of L'Argentehe contains 104 communes and 85,000 inhabitants. (Dictionnaire Geograph. de la France: Maitre Brébion, Geographe de la France.)

ARGENTINE REPUBLIC. [See La Plata.]

ARGENTON SUR CREUSE, a small town in the department of Indre, in France. [See Indre.]

ARGHI [See ALUMINA.]

ARGO, the ship, a southern constellation, the greater part of which, containing all the more important stars, is not visible in this country. It has one star of the first magnitude, Canopos (which) is one of the stars which is visible in our latitude may be found in and above a line drawn through Orion's belt, and continued beyond Sirius. The star Cor Hydrie is just above the end of the mast, and the direction of the mast is that of a line passing through Regulus and Cap. Hydrae. The latter comes on the meridian at six in the evening in the middle of May. For the mythological story connected with Argo, see ARGONAUTS.

The stars in Argo are as follows, in which, as before, the
Owing to the extent of this constellation, it is suitable to subdivide it into four, between the stars of which dotted lines are drawn in the preceding table. They are named as follows: Argo, Argo in Carina (in the keel), Argo in Puppis (in the stern), Argo in Velorum (in the sail).

The stars which to a note of interpolation has been placed are those about which some mistake has arisen in the catalogues. Thus the star which, according to Flamsteed, is No 11 Argus, is really No 123 Argus; and 3 Argus, to which Flamsteed has affixed the letter r, Lacaille has affixed f; while r Argus, according to Lacaille, is No 579 of his own catalogue. (See Memoirs of the Astronomical Society of the British Association, 1838.)

ARGOLIS, one of the ancient divisions in the north-eastern part of the Peloponnesus: it is of a peninsular shape, being bounded on the south and north-east respectively by the Argolic and Saronic gulfs. On the west, it was separated from Arcadia by a range of mountains, which, shooting off from Cyllene, now Zygia, the highest mountain of the peninsula, not far from the frontiers of Achaia, run southwards, and were known by the appellations of Artemision and Parthenium. Pausanias (vii. 6) mentions several passages from the plain of Argolis into Arcadia, two of which were respectively over the ranges of Parthenium and Artemision. The present detail of the history of Corinth has been taken, and in part, from twenty-first century works. Argolis lies between 39° 12' and 37° 46' N. lat., and extended from 22° 33' to 23° 33' E. long. Its greatest length, measured in a straight line along its western frontier from Luconia to Corinthium, was nearly thirty-eight miles, and the peninsular form is brought about by an isthmus of about twenty-five miles. It is 14 miles wide at its broadest point. Mr. Clinton calculates (Fasii Hell. i. 385) its area in English square miles at 1059.

Argolis is traversed by a ridge of mountains which runs nearly in a curved line through the peninsula, from Cyllene on its western frontier eastward to Cape Scyllium, now Skyloé: these mountains are intersected by deep valleys, through which flow rivulets, generally dry during summer. Arganachous is the ancient name of this range, which was crossed on the road from Argos to Epidauros. The valleys are most numerous and of greatest breadth on the southern side of the ridge, but none of them are of any great extent. That in which Argos and Mycenae were situated is the largest; and through it flowed the ancient Inachus, now Bénitsa. The coast is of an irregular shape, with numerous indentations, and it is generally low. The only good harbour is Nauplia, now Napoli di Romania, at the head of the gulf of Nápoli; 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 Peloponnesus near the Ionian sea. In the time of Pausanias, it consisted of three independent republics, Epidauros, now Pídhavro; Trunson, now Danasela, and Hermione. In the mountains to the west was situated Philipus. The only other city of some importance in Argolis was Tiryns, the mythological birthplace of Hercules, and known for its Cyclopic walls. (See Tiryns.) The district of Cynuria, which was long a subject of contention between Argos and Sparta, lay on the west side of the Argolic gulf, on the borders. (Thucyd. ii. 26, iv. 26, &c.) It was finally ceded to the Argops by the Romans. (See Argo and Argos: and Gell’s Argolis.)

ARGONAUTA. [See NAUTUS.]

ARGONAUTS, a term signifying the crew of the Argo, or members of the Argonautic 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 great deal of truth lurks behind the larger element of fiction. Anterior to these events (it is placed by Newton a.c. 237, by Blair b.c. 1263), the Argonautic expedition has a larger share of what is purely fabulous; the license of the poet being of course curtailed as the poets passed down through ages. No story has been more frequently treated by Greek writers. We shall give a brief outline, and then offer a few remarks upon it.

Jason, the son of Aeson, king of Iolcos in Thessaly, having been deposed of his father’s kingdom by his father’s brother Pelias, in hope of recovering his paternal inheritance, undertook to bring from Colchis the golden fleece of the ram
which carried Phrixus thither. Argus, the son of Phrixus, by the help of Athene (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 wished to include its own national hero among the band; but by general consent the most distinguished warriors, as Hercules (Herakles), the Iacchus, the Dioscuri, Orpheus, Theseus, &c., were on board the vessel, which was steered by Tiphys, an old man. (Or they say, Aphegas, departure.) They steered first to Lemnos; thence to Myosia, where Heracles remained behind, seeking his favourite Hylas, who had been carried off by the Naiads, and drowned. (See Thespis 513.) They touched at Scyros, then at the island of Anyus, king of the country, was slain by Polydoukes (Polux), in boxing with the cestus, or weighted glove. (Theocr. Idyl. 92.) Apollonius next conducts them to the coast of Bithynia, Thessaly, and the island of Zenos. Theseus and the westernmost of Boreas, discovered the sea Phineus from certain winged monsters called Harpies, and in return he gave the Argonauts instructions for the conduct of their voyage. (Apoll. Rhod. ii. v. 178-442.) The entrance to the Euxine sea was failed to be closed upon certain rocks, called Symplegades, clasheas, or Planktai (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 not even the birds could escape. (Keightley.) They touched at Circe, who was also, 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 herculean crew, though so nearly the rocks carried away part of her stern-work. Thenceforward they remained fixed. The expedition reached the river Phasis without any more adventures worthy of notice. Astetus, king of Colchis, hearing from the strangers the cause of their armed vessels, sent for 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 the same with corn, or the cornelian, 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 Astetus, who fell in love with him, placed the fleece, which Astetus 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 Eレス, the island of Circe (see Od. xii. 69), which by Homer is placed in the westernmost part of the Mediterranean, and by Diodorus in the neighbourhood of the island of Rheneum, on the Latian coast. Hence they passed all the wonders of the western world described by Homer: the Sirens; Scylla and Charbydis; Tartarus (Silicia), the island of the Aetolians; and Crete, with the city of Gortynia, or of the Sporades, they narrowly escaped shipwreck, but were saved by Phoebus. They touched at Crete, proceeded to Euboea, thence to Iolcus, where Jason delivered up the fleece to Pelias; after which he sailed to the Isthmus, and dedicated the Argo to Poseidon, or Neptune.

For a full account of the adventures of the Argonauts, see, besides the passages referred to, Pindar. Pyth. IV.; Apollonius Rhodius; the Orphic mythologies; Diodorus, iv. 37; Theogn. 992, and Ovid, and the Latin poem of Valerius Flaccus, entitled Argonautica.

The road was readily understandable that it was a difficult matter to get the Argo home from Colchis to Greece, by way of the Mediterranean. Besides numerous large streams, two very great rivers, the Ister and Tanaïs (Danube and Don), flowed into the Euxine sea, from the west and north-east: they, in addition, in a large lake, in the coast of Thracia, called the head; and the name of Argo to be connected with and derived from the ark itself. The reader will find this question discussed with great research and ingenuity in his Ancient Mythology; but the author's prejudices in behalf of one
ARGONNE, a woody district in France, on the frontier of the ancient provinces of Lorraine and Champagne, and extending into each of them. It is now included in the departments of Meuse and Artois, and 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 Outline the lands in their neighbourhood; but the badness of the soil, and the quantity of deer, and animals of that kind (bêtes sauvages), render the cultivable province an unprofitable, and lead the inhabitants to attend rather to the rearing of stock. The country, and Artois. It is about

ARGOSSA, the great sea-scene of operations in the Duke of Brunswick'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. (Encyc. Method. Dictionnaire de la France.)

ARGOS, called also Argy by Latin writers, the most ancient city of the Peloponnesus, the chief city of Argolis, is situated in the plain east of the river Liris, near Larissa, on which was its citadel 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 fix its exact period. It is, however, well characterized by its regular courses, and by the accurate fitting together of the stones. In the mythological age it was inhabited by kings, of whom Inachus was the first, or, according to other accounts, the son of the rivergod, and his son Phoronessus was the first king. (Paus. ii. 15.)

DAUANA, from Egypt, afterwards formed a new dynasty by wresting the sovereignty power from Gelacorn, a descendant of Phoronessus. Herodotus, in the story of Io, whom he calls the daughter of Inachus (c. 1.), a story in itself of no historical value, states the general belief as to the importance of Argos at that remote period, and indicates that it was known to merchants of Phoenicia. Herod. ii. 58, Strabo, ii.

ARGOS, in Amphilochia, a town near the S.E. angle of the gulf of Arta. Its ruins are supposed by some to be those at the bottom of the gulf of Karavasas. (See Lond. Geog. Journal, vol. iii. p. 85, and the article Arta.) This Argos was founded, according to tradition, by Amphilochus, a chief of the Peloponnesian Argos, after his return from the war of Troy. (Thucyd. ii. 68.)

ARGOS, a ship of great burthen, whether for merchandise or war. See aargos, in his Merchant of Venice (Act i. Scene 1) says—

Your mind is tossed on the ocean,
There is a fury Argos, which is full sail.
Like ships of war on the open sea,
Or sailing vessels, with a rising breeze.
Do ever see the peaceful traffickers?

It is mentioned in the same sense by Chapman, Drayton, Beaumont and Fletcher, and other writers. In Ruyau's Maritime of Turkeys it is boldly, cautiously, and with a sort of carracks called Argoises, which are so famed for the vastness of their burthen and bulk, were corruptly so denominated from Ragouses, i.e. ships of Ragusa, a city and territory on 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 Argosse derived its name from the classical ship Argos. Indeed Shakespeare himself has hinted as much in the phrase just quoted, when he makes Grisiano, in allusion to Antonio's argosy, say (Act iii. Scene 2)—

We are the Argosse; we have won the sea.

Sandys, in his Travels, p. 2, applies the term argosy to a ship of force. Describing the galleys and galleons of the pirates in the Adriatic, he observes, that from the timorousness of others they 'gather such courage that a little frigate will often not venture to approach an Argosy.' (See Cephalonia.)

ARGOIN, or ARGUIM, 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 diameter, and would be of little use for the variety of masters to whom it has been subject, and the loss of life incurred there. It was discovered in 1444, by Nunez Tristão, and in 1461 a fort was erected for their conduct were ascribed to 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. 145—152.) A few years afterwards, n.c. 496, we find them at war with the inhabitants of Myckon, who had refused to receive the presents of sacred things sent to them by Argos. These myckon fell, and it never again rose from its ruins. (Diod. Sic. vi. 63.) See Myckon.

Though Argos did not distinguish itself in the early period of the Peloponnesian war, its feeling were at all times opposed to the Spartans, and she at last took an active part with the Athenians. The defeat, however, of the Argians at Mantine, n.c. 418, dissolved the confederacy, of which she was the head, and Argos was compelled to accept an aristocratical constitution. (Thucy. v. 53-51.) She subsequently shook off the yoke, and we find her assisting the Thesians at the battle of Mantine, 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, n.c. 263, and in 138 to its final dissolution by the Romans. (Strabo, viii. 377.)

The great deity of Argos was Hera (Juno), and it seems probable that a great catalogue of the priestesses had been preserved, which we have exhibited in the shape of a table attached to the previous page. The plain 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 appear to have been as abundant in ruins as that of Corinth, which Pausanias assigns a mythological reason (ii. 13: but compare Strabo, p. 371.)

A ruined castle, of lower Greek construction, which now occupies the summit of Larissa, still preserves some remains of the famed Accropolis of the Peloponnesian Argos. For a detailed account of the Argiope siante ruins, see Leake's Travels in the Morea, London, 1839; and for its ancient history, Manner's Geographic des Griechenlandes, Leipzig, 1829. (p. 365, n. 155; Brevier, Montfaucon, ii. 19, etc.)

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the protection of commerce, then consisting of gold and negroes, which were sold in exchange for cloth, knives, glass, lead, bells, &c. The Portuguese remained in quiet possession till 1638, when they were driven out by the Dutch, who established a traffic with the Moors in gum Arabic, and claim the merit of being the first to introduce this into Europe. The hay also was found in abundance in the fish, which they cured with salt, obtained from the opposite shore and exported to Holland. In 1665, the fort was destroyed by an English squadron; but the Dutch, recapturing it, had it strengthened, and kept it in their possession much, entered into an alliance with the Moorish chiefs, and by giving a high price for the gums greatly injured the trade of the French Senegalese Company. In consequence an expedition was sent as far as the Dutch coast, and the island was ceded to the French by the treaty of Nijmegen. It appears that in 1690 the French exported hence a thousand tons of gum Arabic, with many chests of ostrich and herons' feathers, and a quantity of ambergis.

The Dutch, however, still carried on their trade in spite of the French company; but in 1722 they were finally driven away, and the gum trade gradually merging into the establishments on the Senegal, Arguin has been abandoned, and subsequently to the treaty of Versailles in 1763 the forts have been demolished.

The opposite coast of the main land is only a barren tract of sand; but the country inland is described as being fertile, yielding corn and fruit in abundance. The country of the greatest excellence is the Argyleshire, in the lower Kylgraff. The anchorage was good, and the hay afforded plenty of turtle and fish.

Arguin has been supposed by Major Rennell to be the site of the Canarios; and Bourginville asserts that the cisterns found there are of Carthaginian construction. The largest of these cisterns (evidently an artificial work) is 96 feet long, 60 wide, and of considerable depth: it is situated about 400 yards from the ruins of the fort. There is plenty of fresh water on the island.

An extensive and dangerous shoal, called the Arguin Bank, stretches thirty leagues along the land in a S.E. direction, from off Cape Blanco to Cape Minik; it is composed of sand, with broken shells on the bottom and strong currents along its edge to the southward. This was the scene of the melancholy wreck of the French frigate La Méduse.

Arguin is in 29° 24' N., lat., 16° 14' W. long.

ARGUMENT, in astronomical tables, is the angle on which the tabulated quantity depends, and with which, therefore, in technical language, the table must be entered. If, for example, a table of the sun's declination were formed, corresponding to every degree, &c., of longitude, so that the longitude of the declination might be given, opposed to it in the table, then the longitude would be made the argument of the declination.

ARGYLE, or ARGYLL, a shire in the west of Scotland, containing an extensive district on the main land, and several of the Hebrides, or Western Isles. The name is said to be derived from Barra Ghaidheal, the West Gaël's country. It is bounded on the N. by Inverness-shire; on the E. by Perth, Dumfart, and Renfrew shires; from the last two it is separated by Loch* Long and the Firth of Clyde. On other sides it is washed by the sea, but the islands of Bute and Arran, which form the shire of Bute, lie close to it to the S.E. To the line of the coast is very irregular. Deep indentations of the sea penetrate far inland. The principal of these, beginning from the N., are Loch Moidart and Loch Shiel (communicating with Loch Moidart by a narrow passage), which separate Argyleshire from Inverness-shire; Loch Sunart, which runs into the land in an eastern direction; Linne Loch, which runs nearly N.E., and the extremities of which are Loch Et (which runs first N.E., and then W. by N. till it approaches Loch Shiel), and Loch Levin; Loch Creran and Loch Estive are inlets of Linne Loch, on the right as you enter. From Linne Loch, the coast runs in a direction about S. by W. for a distance of between 80 and 90 miles (broken successively by the Laochs, Loch Fine, Loch Sunart, the Isle of Eigg, and the Isle of Rum), to the Moyle or Mull of Cantire. From this headland, the coast, after running eastward a short distance, returns N. by E. for about 35 miles to Skipnish Point, forming the narrow peninsula of Canna Island. Loch Fine runs inland first N. by W., then N.E., and has a subordinate inlet; Loch Gilp, * Loch in a lake, and also an inlet of the sea,

Lochs Riden and Straven also run N. by W., or N.; and the Firth of Clyde, with its terminating lochs, Long and Goyle, completes the circuit of the Argyleshire coast, the extent of which is estimated at more than 600 miles.

Authorities differ considerably as to the dimensions of Argyleshire: 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 Lochali to the Mull of Cantire, 115 miles.

Length from the point of Airdnamurchan to the Mull of Cantire, 101 miles.

[Statement in Dr. Smith's Survey of the Agriculture, &c. of the County (1798), 115 miles.

Breath from the point of Airdnamurchan to the border of Perthshire, near the source of the river Urrachy, 66 miles.

[The breadth is given by Dr. Smith at 68 miles.]

There is equal diversity of statement as to the superficial contents; Dr. Smith's calculation is as follows:

<table>
<thead>
<tr>
<th>Squ. miles</th>
<th>3798</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mainland, exclusive of Cantire</td>
<td>2475</td>
</tr>
<tr>
<td>Peninsula of Cantire</td>
<td>260</td>
</tr>
<tr>
<td>Islands</td>
<td>1063</td>
</tr>
</tbody>
</table>

But the Doctor gives this statement as conjectural, in the absence of good accounts; and after stating 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. 48, 58 (1814).

**ARGYL.**

Squad. * 1.010

| Land on the main | 2200 or 1,408,000 |
| Lakes | 60 |
| Islands | 594,560 |

1319 or 2,002,560, more than one-tenth of the whole surface of Scotland and its islands.

Of the land, the quantity in cultivation is

<table>
<thead>
<tr>
<th>Squ. miles</th>
<th>270,900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only on the main</td>
<td>163,970</td>
</tr>
<tr>
<td>Islands</td>
<td>107,020</td>
</tr>
</tbody>
</table>

13.5 parts in 100, or between one-seventh and one-eighth of the surface of the county; and between one-eighteenth and one-nineteenth of the cultivated land in Scotland.

The islands attached to Argyleshire are as follows. The length and breadth are given from measurement on the Society's map; the proportion of land in cultivation is from the General Report of Scotland; the population from the Census of 1831.

Canna: greatest length, 14/ miles, E.N.E. to W.S.W.; greatest breadth, 1 mile; proportion of land cultivated in Canna and its dependency, Sandy Island, 45 parts in 100; population, 56.

Rum: greatest length, 8 miles, N. to S.; greatest breadth, 71/ miles; proportion of land cultivated, 6 parts in 100; population, 134.

Rum is the most mountainious and rugged of all the Hebrides.

Muck, Muick, or Monk: greatest length, 2 miles, E. to W.; greatest breadth, 14/ mile; population, 155.

Muck contains good pasturage and excellent corn land. The above islands, with the island of Eigg and Iona, lie between Rum and Muck, but included in Inverness-shire, make up the parish of Small Isles, one of the most laborious ministerial charges in Scotland. The population here has been rapidly decreasing, as appears by the statement below:

<table>
<thead>
<tr>
<th>Population</th>
<th>1821</th>
<th>1831</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canna</td>
<td>435</td>
<td>264</td>
</tr>
<tr>
<td>Rum</td>
<td>394</td>
<td>134</td>
</tr>
<tr>
<td>Muck</td>
<td>321</td>
<td>155</td>
</tr>
</tbody>
</table>

1151 | 553 | 498

Coll: greatest length, 12 miles N.E. to S.W.; greatest breadth, 32 miles; proportion of land cultivated, about one-third; population, 1316.

Tiree, or Tir-y, or Tyree: greatest length, 13 miles, N.E. to S.W.; greatest breadth, 7 miles; proportion of land cultivated, 30 parts in 100; population, 4453. The dimensions of this island, which is not included in the So
city's Map, are given from Langland's and Son's Map of Argyleshire, 1841.

Full: greatest length, 29 miles, from Duart Castle, N.E., to the point opposite to Holmian Island, S.W.; greatest breadth, 28 miles; proportion of land cultivated, 8 parts in 100. The following islands are dependencies of Mull: Cruachan, 14 miles, N.E. to S.W.; greatest breadth, 14 miles; Ulva: greatest length, 5 miles, E. to W.; greatest breadth, 14 mile. Staffa: dimensions under a mile. Icolmkill, or Iona, antiently called Sodor: greatest length, 34 miles, N.E. 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, 14 mile; one-half cultivated, very fertile, population 1796.

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 Kerrers: greatest length, 41 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, 3 miles.

Scarsba: 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.

Colonsa and Oronsa: greatest length, 10 miles, N.N.E. to S.S.W.; greatest breadth, 3 miles; proportion of land cultivated, two-fifths; population, 893.

These are counted as one island, and their united dimensions given, as the channel between them is dry at low water.

Iosla or Ilay: greatest length, 26 miles, N. by E. 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 cultivated, 30 parts in 100; population, 534.

Sanda (a small island near the southern point, or Mull of Cantire): greatest length, nearly 2 miles N. to S.W.; greatest breadth, about a mile.

Several of these islands deserve further notice for their magnitude, productions, or other circumstances. [See lona, Iosla, Jura, Mull, and Staffa.] The settlement between the Argylies, as given above, amounts to 35,065: that of the whole shire, at the same period, amounted to 101,400, leaving 66,335 for the main land.

Argyle is mountainous; and presents an appearance more pleasing to the lover of the 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 21 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 invisible from the flattest in the shire. We subjoin a table of the principal:

<table>
<thead>
<tr>
<th>Island</th>
<th>Length</th>
<th>Breadth</th>
<th>Cultivated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben na Corna, or Ben Arthur</td>
<td>2369</td>
<td>2735</td>
<td>2537</td>
</tr>
<tr>
<td>Ben a Mor, or Ben Arthur</td>
<td>2366</td>
<td>2735</td>
<td>2537</td>
</tr>
<tr>
<td>Ben a Mor, or Ben Arthur, or the Cobbler</td>
<td>2366</td>
<td>2735</td>
<td>2537</td>
</tr>
</tbody>
</table>

* This is another Shona off the coast, N.E. of Lismore, and a Shona in Loch Moidart, between Argyle and Inverness shires.

Ben to Tan, S. of Loch Sunart | 2290 | 2,415 | 2,683 |

Crock Moy, in Cantire | 2290 | 2,415 | 2,683 |

Oreal, in the Isle of Rum | 1550 | 1550 | 1550 |

Ben Tureck, in Cantire | 1515 | 1515 | 1515 |

Ben Var, in Isla | 1500 | 1500 | 1500 |

Ile of Soarach | 1050 | 1050 | 1050 |

Ben Ronastill, in Isla | 1050 | 1050 | 1050 |

Ile of Canna | 710 | 710 | 710 |

Ben Tartevil, in Isla | 762 | 762 | 762 |

Ben Var, in Isla | 750 | 750 | 750 |

Ben Ono, in Isla | 500 | 500 | 500 |

Ile of Sanda, near Mull of Cantire | 300 | 300 | 300 |

The above, or those they have 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 Langland's Map of Argyleshire (1801).

The chief rivers in the county are, the Uchray, 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 importance are numerous, as 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 broad. It is thickly studded with small green islets, and 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 Ardnamurchan. Sunart, Ardgover, and Morvern. N.W. of the Linnhe Loch, which divides these divisions from the rest of Argyleshire: 2. Lorn, a large division, comprehending the subordinate districts of Appin, Benedaloch, and Muchairn; with Glen Urchy or Glen Crer肯, Glen Gair, and Glen Chlachlin; and those grouped together, as the islands of Lorn: 3. Argyll proper, or Inveraray; separated from Loch Lorn by Loch Melfort, 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 Kiiaslato), a long peninsula, formed by Loch Killipsort, the ocean, the Sound of Kilbrannan, and the Isle of Jura, which is the strait between the Island and the mainland, 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, Colonsa, and Oronsa, with a small part of the coast of Lorn and Cantire. Knapdale is divided between districts 5 and 6.

With respect to the geology of Argyleshire, granite forms the principal constituent of the mountain masses which stretch from the river Awe, N.E. in Perth and Inverness shires; it also extends along the N.W. shore of the Linnhe Loch in the districts of Morvern and Sunart. Mica-slate predominates in nearly every other part of the mainland, together with the islands of Isla, Jura, Colonsa, Oronsa, 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. Floats trap prevails in Canna, Rum, and the north side of Mull; in some districts, of no great extent, along the coast of Argyll and Morvern; and in the neighbourhood of Campbeltown in Cantire. A small extent in the last mentioned neighbourhood is occupied by the coal formation and the rocks connected with it, perhaps part of the great coal-formations 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 mineral wealth of Loch Awe is united to commercial purposes are numerous. There are lead-mines in several places, as at Strontian near the extremity of Loch Sunart; at Tynrum on the border of Argyll and Perth shires; and in the islands Isla and Coll. Copper was obtained from a mine in Kilmartin in the district of Argyll, 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,
but not sufficient to defray the expense of working them; heat is the common fuel, except in Inverary and Campbeltown, where men are beaten to death in the coal.

The slate-quarries of Easdale island have been among the most considerable in Britain; and there are quarries at Balclutha or Ballochmyle in Appin or Lorn. In the Appendix to the Report on Slate of 1814, the produce of the quarries in Easdale and the other islands of Argyllshire is stated at 5,000,000 stones; and the produce of those at Balclutha and other parts of the mainland of the same county, at 7,000,000 stones in 1813. Of the quarries at Easdale, those of various quality and colour, and among the most beautiful specimens is that of the island of Tiree, which is very hard, and takes a good polish. Limestone is abundant in most parts of the county. The granite quarried near Inverary is the best stone of its kind in the world, and is used in the highest degree of finish. A black granite of considerable quantity is quarried near the castle of that place is built, is one of the handsomest of the building-stones found within the borders. The earth strata take its name from the place so called near Loch Sunart, where it was found and first analysed. In Glenorchy in Lorn, speculum of colar are found; and the coasts of Cantyre towards the south end, and of the isle of Collona, abound with corn.

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 indentified, the temperature is mild. Frost seldom continues long on the sea-coast, and snow lies for only from one to two days at the most. Mildew, blight, and hoar-frost seldom do much injury to the husbandman. The north-eastern parts, bordering on the Grampians, have a colder climate; though even there the winter is less severe than it is in the surrounding districts, and the climate is 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. The summer crops, with the exception of barley, are not much grown; and the proportion of them does not vary materially; by the rivers and by the sea there is a light loam, mixed with sand or gravel, on a clay or gravelly bottom, while on the sides of the hills there is a light gravelly soil. Sometimes the soil of the lower grounds has a mixture of clay, and sometimes of moss. The pasture grounds differ much, and the difference is manifested by the produce; in one place there is sweet fine grass; in another, coarse grass and rushes. Moss and marshes occur occasionally, and a flat ground is a large portion both of the hills and flats. The tops of the highest hills are usually quite barren.

The farmers (with the exception of the tacksmen, a kind of lessers, who are engaged to make up the difference between the highest and the lowest parts of the farm) own the small 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, barley, and rye, a species of barley much used in distilling. Wheat and rye are cultivated in Cantyre, though to a small extent. Peas and beans are grown, but not to any 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 considerable extent. As late as the commencement of the present century, the old custom of ploughing with four horses abreast, and the former way of tilling the land 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 are mostly raised; the land is little intermixed with grass, and in the north Highlands crossing the, Locheaven in Balclutha, or Ballochmyle ferry, and Loch Eil at Carron ferry. Two canals, the Caledonian Canal (running through the great valley of Scotland from Murray Prin to Linlith Loch), and the Crian Canal (extending from Loch Lorien to Loch Eil), were made; the former partially and in a small degree, the latter entirely; but the traffic on these canals, though much increased by the introduction of steam-navigation, is not commensurate with the outlay. Steam-navigation has given a greater impulse 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 closer and more direct communication with surrounding spots, and with Glasgow, to which they can now send their stock and produce, with the certainty of finding a good market.
Argyllshire contains few towns. Inverary, on Loch Fyne, in Argyle proper (population in 1831, 1117), is the county town, and a royal burgh; Campbeltown, in county of Kintyre (population in 1831, 120), is likewise a royal burgh, and a very large place. Campbeltown. Oban, perhaps the next place in importance, is on the coast of Lorn, nearly opposite the island of Kerrera. There are no woollen markets in the shire; but eighteen fairs for the sale of horses, cows, coarse clothes, yarns, and food, during the year, at its principal places (Glasgow, Survey, &c.). The population of the whole county, in 1831, 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 Campbeltown, unite with Argy and Irvine (Ayrshire) to return another.

The chief landed proprietor is the Duke of Argyll, whose domains and influence were formerly such that he could bring 3000 to 4000 men into the field; and the name of Campbeltown, that of the ducal family, is by far the most prevalent. The marquises of Tweeddale and Breadalbane have also property in the county. The latter is a branch of the Campbell family.

The antiquities of 1831 contain the names of fifty parishes in the mainland and isles, but we have no information of the number of benefices. The great extent of some of the parishes has led to the erection of new churches and manses (parsonage houses) by the commissioners for building. High mountainous and small islands, churches have been built, all except one, with a manse; and three manses erected where churches were previously in existence, or have been built by private individuals. Of those eleven churches, six are on the islands of Mulla, Ulva, and Iona. Argyll 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 1831, five presbyteries, and thirty-nine ecclesiastical parishes. Some of the churches have been built, others are old. The number of the latter is now of course much increased. There are some cathedrals in the islands.

Argyllshire contains many antiquities. The ecclesiastical ruins in Iona will be mentioned in our notice of that island. There are in Ornsay the remains of a Cistercian priory, one of the finest religious antiquities of the Hebrides, after those of Iona. Of antient castles, may be mentioned Dunstaffnage, at the entrance of Loch Etive, a square building in a ruinous state, with round towers at three of the corners, having an old chapel of elegant workmanship near it; Ardenish or Ardornish, on the sound of Mull; Skipishn in Cantyre, Kilchurn at the east end of Loch Awe, and others, which will be mentioned in the article on Inverary.

There are in different places of the coast old "Duns" or Danish forts. Drudical circles, more or less complete, and cairns, are to be seen in different parts. Of natural scenery, the most remarkable are Staffa, Mull, and Iona. Mull,Staffa, and Iona, may be noticed some singular caverns in the parishes of Loch-Goyle-head and Strachur, both in Cowal.

After undergoing a variety of political changes, we find, in the middle ages, the territory of Argyll subject to thanes, powerful and in fact independent. The lordship of Argyll, with Mull and the islands north of it, were subject to the MacDougals of Lorn; Isla, Cantyre, and the southern islands, were subject to the Earl of the Isles, or 'Earls of Ross.' The nominal allegiance of these last to the kings of Scotland was unstable; 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 Argyll in favour of the Campbells of Loch Awe, weakened their sway still further, and produced the dissolution, and at last the annihilation of it. In 1614 the M'Dougals purchased the earldom of Conn- tiere to the Earl of Argyll and his relations, but the power of the Campbells prevailed. In 1748 all heritable jurisdictions were abolished by act of parliament, and civilization has been introduced, and the Gothic language still predominates in Argyll; but in Inverary, though in the Highlands, English is as much spoken as Gaelic. (Smith's General View of the Agriculture of Argyll, 1789; 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.)

ARLIE, a subdivision of the county so called. [See Argylsh.]

ARGYLE, DUKES AND MARQUIS OF. [See Campbell.]

ARGYRO (or ARGYHRO) CASTRO, an important town in the inland part of Albania, in Europe. 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 on 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 Vouissar, or Bogissa. [See Albania.] Several deep ravines approach each other at this spot, and the houses crown the summits 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 surrounded by the castle built by Ali Pasha, which is of great extent, 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 the open field, and on a steep, but appears to be commanded by some of the neighbouring heights on which parts of the town are situated. All erected a seraglio, or palace, within this castle, and there are also a mosque, barracks for 5000 troops, and subaltern and minor dependencies. 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 the streets so steep, that horsemen must dismount in order 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 chams, or ravines, are lined with houses intermingled with trees, along which the mountain torrent courses, which is melted by the snows, sweep through these ravines, sometimes occasioning fearful devastation.

The houses were estimates, when Dr. Holland visited the town in 1813, at 4000, and the inhabitants at 20,000; which agrees with the estimate of Sir John Hobhouse, 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 the principal depot for the internal commerce of the district, appears to have been considerable. M. Balli 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 nine. Their journey was in May, and they state, that it is not on the site of the antient town, which had successively the names of Phanote, Hadriarnopolis *, 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 bravest and most warlike of the Albanian inhabitants, and seized many of the prominent chief-men scattered about the country. The chiefs of this and some neighbouring 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 bold was given up to the Turks by his son Moustac, who deserted him in his hour of adversity. Most of the inhabitants 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. (Holland's, Hughes'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 Ariana, or Iran.  

* From this name Deropul seems to be a derivation. See Leake's Researches, p. 182.
and bordered in the north upon the Tapuri, Margiana, and Bactriana, in the east upon the Paropamisads, and in the south upon Drangiana, Karmania, and Parthia. Its situation corresponds to that of the modern Seistan and the southern part of Khurasan. Strabo (x. c. 10) calls Aria and Margiana the best provinces of this part of the earth. They are, he says, watered by the rivers Arius and Margos. The former of these, called also Arias, Aricius, or Arrianos, is described by Arrian (iv. c. 6) as a river not less than the Peneius of Thessalia, yet losing itself in the ground near the sea, which seems to have been early celebrated for its fertility.

Herodotus does not mention the country of Aria, but he enumerates the Arii (Arians) as constituting, together with the Parthi, the Chorasmi, and the Sogdian, the sixteen parts of the twenty satrapies into which Darius divided the Persian empire. (Herod. iii. c. 63.) The antient name of the Medes was Aria (Arians). (Herod. vii. 62.) Lassen (Indische Bibliothek, vol. iii. p. 71) supposes the name of the Arii to be etymologically identical with the word Arya, by which the following of the Brahmanic religion are designated in Sanscrit.

The importance of Aria, and the advantages which its situation afforded, are such as to suggest the question, whether it was mentioned higher than that of Alexander the Great, who here founded a town, named Alexandria Arii (Alexandria of the Arii). The situation of this town it is difficult to determine, in consequence of the various statements of the ancient authors. Ptolemy (Geogr. vi. 17) places Alexandria near the lake Arius, and consequently to this information D'Anville fixed its position at a place now named Corra, on the western side of the lake Zerzh. Ptolemy (Geogr. vii. 13) states that this lake was washed by the river Arius; and if we take this Arius to be the present Heri-Rud, the position of Alexandria will answer that of the present Herat. Besides the popular belief now prevalent among the Persians, which is in all probability supported by Erastosthenes' statement of the distance of Alexandria Arii from Baktra = 3870 stadia, and from the Caspian Pyle = 6400 stadia (Strabo, x. c. 6), which it would be impossible to reconcile with the assumption that Alexandria was near the lake Zerzh. (See St. Croix, Examen Critique des Historiens d'Alexandre, p. 822, &c.) Mannert, who takes the river Arius to be the present Ferass-Rud, supposes the present village of Pulik, at the south-eastern corner of the river Hermand, to be the situation of Alexandria.

The capital of the Arii, at the time of the Macedonian conquest, was Aretoeana; thus the name is written in the best MSS. of Aristotle. Arta, of Aretoeana, and Mannert prefers Artaecana, or Artacabane, from Pliny and Isidore. It must have been situated considerably to the north, as Alexander was able to reach it within two days from his march against Baktra (Artaeana, iii. 53). Ptolemy 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 Christie, at Dukabah, near the river Hermand, are those of Aretoeana. (See Aria.)

A'RIA, in music (Ital. air). (See Ari.)

A'RIA'NA is the general appellation given by ancient authors, subsequent to the age of Alexander the Great, to the country and westward of Drangiana, to the land of Persia. According to Erastosthenes (quoted by Strabo, p. 732, Casaub. tom. iii. p. 310, edit. Tauchn.), Ariana was bounded north by the Paropamisads and mountains, and westward by the Caspian Sea; south by the great sea (the Indian Ocean); and east by the river Indus, and on the west by the chain of hills which separate Partheneia from Medes, and Karmania. The Argaius and Cilicia are by some named Archean, by others Caspian, (c. p. 304, 305) compared to that of a parallelogram, the dimensions of which, reckoned from the mouths of the Indus to the Paropamisads, he estimates at 12,000 or 13,000 stadia; and in a straight line from the upper Indus Pyle to the south by the great sea (the Indian Ocean), is about 10,000 stadia (Strabo, loc. c. 4, tom. i. p. 101, edit. Tauchn.); the length of the southern coast from the mouths of the Indus to the entrance of the Persian Gulf is stated at 12,900 stadia (Strabo, x. c. 2, tom. iii. p. 305). The total of the distances mentioned above is 35,000 stadia, which Professor Alexander in Aria, Prophthisia, Arachoti (the town), and Ortopeia, to the confines of India, is in one passage of Strabo (x. c. 8, tom. i. p. 434, 435) reported, on the authority of Erastosthenes, to be 15,500 stadia, in another passage (xv. c. 2, tom. iii. p. 413) 14,900 stadia. 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 observes that Heri. t. iii. p. 311), that the name Ariana is sometimes used so as to extend beyond the limits above assigned to it, and to comprehend part of the Persic Medes and Med, and, towards the north, part of the Bactri and Arachoti and Garosan people; that is, the very nearly the same language (as that spoken in Ariana).

The countries properly belonging to Ariana are, according to Strabo, in the east, the Paropamisads, the Arachoti, and Godroseni along the Indus, proceeding from north to south; the Drange towards the west of the Arachoti and Godroseni; the Arii towards the west of the Paropamisads, but extending considerably to the west and south, so as nearly to encompass the Drange; the Parysene west of the Arii, towards the Caspian Pyle; and Karmania to the south of the Parysene. It is observed by Mannert, Geographie der Griechen und Römer, vol. v. part ii. p. 3, 4, that antient authors sometimes confound the country of Ariana with that of Parthia, which can only be understood as applying to the entire country.

The original form of the name Ariana in the Zend or antient Persian language is Airyana. From this seems to be derived the Persian name Iran, by which oriental writers designate the country between the river Araxes, and the Persian Gulf, the Oxus or Gihon, and the Indus. M. Eugène Burnouf (Commentaire sur le Yaqṣ, vol. i. notes, p. 62) thinks that, in some passages of the Zend-Avesta, the word Alvitya, which, properly the name of the river Araxes, might be taken as synonymous with Airyana or Ariana. He observes that the countries not belonging to Airyana are, in the Zend-Avesta, called Anašiyana and Amâvaš or Amâvâsh. (pronounce Dang-avâsh) t. n. Cte. The Zend-Avesta observes, that Altsirya or Airyana was given 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 (Journal des Savans, diverses Antiquités de la Perse, p. 54, &c.) in one of the Greek inscriptions of Naθaši, Pashian copied by Niebuhr, where the Sassanid king, Sapor, son of Ardashir, is called the king of the Arians and Non-Arians (APIANQN KAI ANAPIANQN)

A'RIANO, a town 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 Apen- nines, after a distance of 1732 miles. Ariano is about twenty miles to the north of the town of Foggia, in 41° 56' N. lat. and 15° 1' E. long. The road distance from Naples to Foggia, through Ariano, is about ninety English miles. It was built by the Greek governors of Apulia under the lower empire, as well as the neighboring town of Troja, and was reckoned important during the subsequent vicissitudes of the country on account of its situation, which enabled it to command the pass from the eastern into the western province of Italy. It was made the feudal county by the Normans. Ruggiero I., king of Sicily and Duke of Apulia, held at Ariano a parliament of the barons of the kingdom in 1140, in which he fixed the new coin of the realm. Ariano was a castle, which was retaken from the Saracens (1732), and was repeatedly taken and retaken during the wars of the Norman, Suabian, Angervin, and Aragonese dynasties. In the reign of Joanna II. the famous Sforza Attendolo bore the title of Count of Ariano. It is now a village, and is given to the crown, and Ariano became a royal town. It has long since declined from its former importance. It suffered greatly from earthquakes, especially from that of 1732. The population in the last century amounted to 14,000, but is now under 10,000. A recent state returns inform us that the population now can hardly exceed 7000.

Close to Ariano, and between that town and the head of the valley of Bovino, there is a village occupied by an-
ARIANISM, 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 have not always derived their notions from him. According to the residence of Arius (§ 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 working of his almighty power, he chose first an angel, under 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. Arius. l. 5.) The Arians formed 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. Orat. c. Arius. l. 6.) The Arians fully admitted that this Son was, in a spiritual sense, God, and they pretended 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 is greater than he. (John, v. 23.) Hence the Arians were accused by Athanasius of idolatry, because, according to their own notions, they offered to a creature a tribute which belonged to the Creator alone. The Arians distinguished the Logos from God from the Logos properly 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 Athanasius, that the Son was homocousios, or of the same essence, and the Son was 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 homoousios, or of the same essence, these, afterwards called semi-Arians, were first compelled, by the opposition of the Homoioussians, to join the Arians, but, owing to the persecutions which they suffered from the strict Arians (who asserted the Son to be diusus ex ipsis, distinct in essence), they were driven back into the orthodox church. The party of Aetius, and of his pupil, Eunomius, went a step farther than Arius, by asserting the comprehensibility of the divine essence, and by considering the precision of doctrine (Sevandos apsible, or of distinct essence, and the Word of God is the Son of the Antiochian church, under the Arian bishop Eudoxius, afforded an asylum to the ultra-Arian followers of Eunomius. The difference between Arians and semi-Arians became more evident after the Council of Chalcedon, where, for a 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 Pietanensis contra Aurenium (§ 6), the ears of the people were holier than the hearts of their priests. At Constantinople, however, a dogmatizing spirit pervaded all ranks of society. Of this we have a graphic description in the book of the Delegat of the Greek writers of the time, and of the work of Nyssa (Opp. t. iii. p. 460). 'The town is full of those who dogmatize concerning incomprehensible matters—they are in the streets and markets, among the clothiers, money-changers, and victuallers. 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 the image of 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. 797-904.) [See ARIUS, ATHANASIUS, EUNOMIUS, GREGORIUS OF NASI, JEROME, NYSSA, ARIANISMAS, LUCIAN.] ARIAS MONTANUS (Benedictus), in Spanish Benito Arias Montano, was a celebrated catholic divine and orientalist, who possessed vast erudition in Jewish antiquities, and who was distinguished as an interpreter of the sacred Scriptures. He was born, in 1557, of noble, but poor parents, in a village called Prexenal de la Sierra, which is situated in the province of Estremadura, near the Andalusian border, in a mountainous district; hence his family name of Montano. He was used to style himself Hispalensis, because at Sevilla (Hispalis) he laid the foundation of his future eminence as a scholar. During his stay at Sevilla he was supported by the magistrates of the city and other kind patrons; subsequently he took up his residence at Antwerp, and there obtained the degree of Doctor of Divinity. He specially devoted himself to the study of Scripture in the original languages, and in general to that circle of philosophy which he called aesthetic. He was well versed in the ancient languages, and consequently in the whole of the Bible. He had made a long stay in England, and laid in his library a collection of books on religious subjects, which were afterwards sold by John，在他的《通史中的基督》中，详细地阐述了基督的教义，以及他在教会中的地位。他强调基督的神性，以及他在创造中的角色。他进一步阐释了基督与父之间的关系，认为基督是父的体现。这种观点与诺斯底主义的教义有相似之处，但又有所不同。他指出，基督并非父的创造物，而是同父的。这一观点在当时的教会中引起了争议，但也得到了一些人的赞同。他指出，这种观点是一种误解，因为基督是从父发出的。他强调，基督并不是父的创造物，而是同父的。这种观点后来被称为“同父同性论”。他指出，这种观点是一种误解，因为基督是从父发出的。他强调，基督并不是父的创造物，而是同父的。这种观点后来被称为“同父同性论”。“同父同性论”认为，基督与父是同一位神，但有不同本质。这一观点在当时的教会中引起了争议，但也得到了一些人的赞同。他指出，这种观点是一种误解，因为基督是从父发出的。他强调，基督并不是父的创造物，而是同父的。这种观点后来被称为“同父同性论”。他指出，这种观点是一种误解，因为基督是从父发出的。他强调，基督并不是父的创造物，而是同父的。这种观点后来被称为“同父同性论”。
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ARI, in ancient military science, is the Latin name for the BATTING RAM.

ARILTA, in music (the diminutive of the Italian word orato), is an upright air.

ARILLUS, in botany, is a fleshy 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 it only meets with in a few cases of plants; its use is entirely unknown. The most remarkable instance of the arillus among species of common occurrence is in the spindle tree, Euphorbus Europaeus, in which it is a fleshy red covering of the seed that renders that plant so physiologically beautiful. Another familiar case is the arillus of the nutmeg; this substance is, when fresh, a crimson lacerated covering of the fruit which acquires its pale brown colour in consequence of the preparation and undergoes a partial change for market. Before the term was thus accurately defined, it was applied to a variety of parts of exceedingly different natures.

ARIMANES and AREIMANIOS are Greek corrup-
tions of the Persian name Ahriman or Ahriman, which, according to the antient 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, and occasional name next the Zend-Avesta, is Ahran Mainyu (pronounce Angro-Mainyus), a compound term, the meaning of which might be expressed by perhaps an etymological equivalent in the Greek Ἀποράσις, 'hostile', or the Zend original. The word Ormuzd is Ahuro Mazdâ, coming near the forms Omoruez and Omrasses, under which the name occurs in Greek authors (e.g., Pliatarch, de Ideo et Osr. p. 660. ed. Steph.) In the Samori paraphrase of a portion of the Zend-Avesta by Nebuchadnezzar, the Zend original, or the word Ormuzd, is represented as the king of great wisdom.' This interpretation is adopted by M. Eugène Burnouf, Commentaire sur le Vayu, vol. i. p. 72, &c.

The two individual beings Ormuzd and Ahriman were, according to the Zend-Avesta, the offspring of Zermuan-Akerene, the indefinite and impersonal divine substance and cause of all existence. Both were primarily equal in intelligence and power; but Ormuzd was, from the beginning, pure, good, and luminous; while Ahriman was dark, and wicked, and bent on destruction and mischief. Ormuzd is represented as the creator of the world: Ahriman constantly counteracts the designs of his goodness. Ormuzd created the birds, the beasts, the trees, and the vegetables; Ahriman, in opposition, created the snares and weapons to be subservient to his evil purposes. 'I produced,' says Ormuzd, 'a place of delight, Aitrâne-Vaejo, faster than the entire existing world. I acted first: then this evil one acted, whose soul is mortal. The first place is similar to the pure one which I made, I who am Ormuzd, was Aîryâne-Vaejo, created pure. Then this Paitaye-Ahriman, full of death, produced in the river which watered that country the great snake of winter.' &c. (Anquetil du Perron's Zend-Avesta, vol. i. part 2, page 262, &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 12,900 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 dogmas of the contest between Ormuzd and Ahriman, as the original documents in the Zend language, from which alone authentic information on the subject can be derived, have been lost, and what has been preserved of them is much is still wanted to a full understanding of them. The translation by Anquetil du Perron, though of invaluable service to those who wish to follow up the inquiry, has been found defective, and in some instances too incorrect to allow inferences 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. Procer. 2), distinguished them as φαῦς φαῦν and κακὸς κακῶν.

The most antient foreign authors that have given some interesting details regarding the doctrine of Zoroaster are the antient chronicles of the fifth century, especially the Elissaeus and Eran. See Elissaeus's History of Vartan, &c., translated by C. F. Neumann, London, 1830, 4to, and an extract from the Chronique of Eran, in the appendix to P. Perron, Grammar, 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 success of the campaigns of the Tartars, who have proceeded by the route of the regions inhabited by the Kirghises, and by intermarriage with the Catica-Tartars and Oitaks. They reside in an armik or small district, under the sovereignty of a head man, who is chosen annually 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 some affinity to the Oitak; the rest of his band resided in the Catica-Tartars.

ARIOCHARZANNE. [See CAPPADOCIA.]

ARIFON, a native of Lesbos, the inventor of the dilute-
joined the Venetians against his former allies, excommunicated the Duke of Ferrara for refusing to follow his example, and razed the palaces and other buildings in the territory of the Duke.

Ariosto was now sent again to depurate the wrath of the pontiff; but not succeeding, he had to make a hasty escape from Rome, as the pope had threatened to have him thrown into the Tiber, which he was not unlikely to have carried into effect.

The war continued, between the Duke of Ferrara and the French on one side, and the Venetians, the pope, and the Swiss on the other, till 1521, when Ferrara was delivered, as his bitter enemy, 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 admired and loved at Ferrara. Leo treated him most graciously.

He stopped from his pontifical chair, took him by the hand, and saluted him on both cheeks (Ariosto, Satira iv). Ariosto thought his fortune made; but he had 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 rima, on the fabulous 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 halls and gardens; and, when the expedition of Ferrara was at an end, he published his work under the title of Orlando Furioso (Ariosto, Satira v). The poem was printed in 1517, and was read 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 that ever rivalled or succeeded the Iliad and the Odyssey. It is a name, however, required for the proper understanding of the Furioso. In both poems there are licentious passages, which render them unfit for the purview 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 Gigli of Ferrara, for 28 scudi; about 15 pence per copy. He dedicated it to Cardinal Ippolito, who, after perusing it, is said to have asked: 'where had he picked up so many absurdities?' Whether this be true or not, it is certain that Ariosto gained no favour with his patron by this work, in which he had introduced his revenge of various injuries and affronts, which 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 more judicious in his behaviour.' (Ariosto, Satira v).

In 1517, the Cardinal, being about to set off for Grun 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 delicate. His brother Alessandro, however, accompanied 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 1521, Ariosto's fortunes were revived, but it was by his own service, in which he always experienced the kindest treatment. It ought to be observed, in justice to Cardinal de' Este, that, although he showed no sympathy for the poetical muse of Ariosto, he treated him, not otherwise, 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 spirit, or the means of executing his great work. Of the Furioso the greatest part of the gentry was a necessary encouragement to an author. The trilling pension of twenty-five scudi every four months, which Ariosto mentions as being stopped, was not the only grievance that the poet had occasion to complain of; but in his interest he enjoyed certain ecclesiastical perquisites, such as one-third of the profits of the archiepiscopal cantery of Milan (about 100 scudi yearly), although he was not ordained priest nor even subdeacon, but had only received minor orders which are not attended by binding vows, and wore the clerical dress. (Ariosto, Satira ii. and iii. and also Mazzuchelli, Scrittori d'Italia, Biography of Ariosto.)

Ariosto had also the reverie of the rectoryship of St. Agata, in Romagna, the inheritance of an old maternal relative, 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 in which he occasionally indulges in his satires, for the only way we can 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 corrections and alterations; this edition is now extremely rare, even more so than the first.

In 1522, having applied to the Duke for some more active and lucrative employment, he was sent as governor of the mountain district of Garfagnana, a dependency of Montecarlo, situated on the western slope of Apuan Alps, and bordering upon Lucca. This country had just returned to the allegiance of the House of Este, after having been occupied by the Pope and the Florentines. The people
were restless and quarrelsome, and the mountains were infested with outlaws. Ariosto humorously describes the treatment they met with in his Orlando Furioso. Near Castelnovoo, 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 the outlaws, he accidentally overheard one of their songs, and became so enthusiastic over the prospects of making war on some band of robbers, his new experience and reputation proving his protection; 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 Constantinople; it was chiefly language, though he was a good linguist, but many duties had been 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 sold his services to the city's notorious elogues, or poets and minstrels, but enjoying leisure for his studies. He now wrote his comedies, which were performed with great splendour before the court, in a theatre which the Duke built for the purpose. In October, 1532, 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, 39th, 40th, 44th, and 45th canto, which the editor and added to the other canto. Some stanza 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 laborious labour. The 4th canto of Ariosto contains the section 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, there was a naked man found in a wing of the ducal palace, and burnt the great hall and the theatre which had been constructed for the performance of his plays. After lingering several months, Ariosto died on the 6th of June, 1533, in his 78th year. He was buried without any pomp in the old church of San Benedetto, attended by the monks, who volunteered to do honour to his remains. Forty years later, after the church had been rebuilt, Agostino Mosti, of Ferrara, who had studied in his youth under Ariosto, raised a handsome monument to him in the right of the 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 monument 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 and published a few years later, several of his poems were published in various parts of Italy in his lifetime. Numerous editions followed after his death; all, however, more or less incorrect, and some of them purposely altered and mutilated. The Aldine edition, of 1545, is one of the best of the first editions. The 1st eight canto of the cantos, which are the beginning of a new poem, and were left in MSS. by the author, and delivered by his son Virginio to Antonio Manuzio. G. A. Barotti edited all Ariosto's works, Venice, 1766, six volumes, quarto, with many corrections and illustrations, and a life of the poet. Baskerville's edition, 1773, four volumes, octavo, with plates by Bartolozzi, is also much esteemed. The edition of the Classic Italian, 1794, four octavo, Milan, 1812-14, is valuable for the variant added to every canto, which the editor Reina has taken from the first two editions of 1516 and 1521. But the best modern edition of the Orlando Furioso is that of Milan, 1816, in quarto, in which the learned editor Morali has faithfully restored the original text of 1522. The Orlando Furioso has been translated into most European languages, though seldom successfully. Of the English translations, that by Harrington is spirited and much superior to Horace's, but the recent one by Mr. S. Rose is considered the best, and is generally faithful. Ariosto is considered one of the best Italian satirists. The tone of his satires resembles that of Horace rather than that of Juvenal. He introduces several of the principal occurrences of his life in various incidents (in modern manners and with a touch of his time and country). He speaks of popes, princes, and cardinals, with great freedom, but in language generally, though not always, decorous. His satires, seven in number, his brothers and other friends, were first published in 1534, after his death, and have been often reprinted, both separately and with the rest of his works. He wrote five comedies in blank verse, La Castellanata. He supplied Pope Paul IV with a number of cantos, and, at the request of Cardinal Bibbiena, Ariosto, and Machiaveli, all three contemporaries, were the first writers of regular comedy in Italy. They adopted the manner of Plautus and Terence, and the unity of place, though they sometimes turn chiefly upon the intrigues and stratagems practised by dissipated and needy young men, assisted by worthless domestics, to deceive an old miser, a jealous husband or father, or a watchful guardian of some good-natured beauty. Three of Ariosto's three plays were performed before the court and chivalry of those times. There are some other minor works of Ariosto, consisting of canzoni, capolodi in terza rima, sonnets, and a number of laudatory verses. The best of them are those 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 Latin poems on various subjects, and an epitalamium on Alfonso's marriage with the famous Lucrezia Bavaria. They are all found in the Venice editions of Ariosto's works of 1741 and 1706, edited by Barotti. Ariosto left two natural sons, Virgilio, whom he had legitimated by public act in 1530, and to whom he gave a canon of the cathedral of Ferraras; and Giovambattista, who was made a captain in the Duke's service. The number of commentators, critics, and biographers of Ariosto, is very large, as some of them have been mentioned in the course of this article. Baruffaldi junior has written all of Ariosto; Ferrara, 1807. ARISH, or EL ARISH, a small town on a slight eminence about half a mile from the shore of the Mediterranean, and one of the principal cemeteries from which the bones of the ancient Rhinocolura, which was often considered a kind of frontier town between Egypt and Syria; and, in connexion with Petra in the interior, was an entrepot of some importance (Strabo, 781). It stands on a small inlet of the sea, and near a scanty stream of water. The French took possession of it in February, 1799, in their expedition to Egypt, and kept it for some time. It was at Arish that Sir Sydney Smith concluded a convention with the French army, allowing them to return to France with their baggage and arms, which was subsequently disavowed by the British government. ARISTÈ/NÉ/TUS, a Greek writer, a native of Nicaea, about 1600 B.C., is the author of a very large and important work, which is now lost. It has been conjectured that the Aristœnetus to whom are attributed the Erotic or Love Letters (Erotopokë iarpaxai) is the person to whom several of the letters of Libanius are addressed, and who lost his life in the earthquake at Nicomedia, a.d. 358: some are inclined to place him at a later epoch. These Letters, of which there are two books, are a species of rhetorical exercise, and not real letters; they often exhibit very bad taste, but are of some value as presenting a picture of the manners, or at least of the literature, of the age. The latest and best edition is by Boissonade, Paris, 1822, 8vo. There is a German translation of Aristœnetus by Herel, Allenberg, 1776, 8vo.; there are also several French translations. ARISTEAS. [See SEPTUAGINT.] ARISTARCHUS of Samos, an astronomer, lived about the same time as Archimedes, and some say survived him, though this is not very likely. According to some there is an observation of the solstices made by Aristarchus, and preserved by Poleny, of the date n.c. 280. (See Ptol. Synth. iii, c. 2, tom. i. p. 163, ed. Halm.) Some accounts of the system of the earth, moon, and sun are necessarily incorrect. In Plutarch's treatise On the Appearances in the Moon's Disc, it is said that Cleaneites, the successor of Zeno in the Stoic school, asserted that Aristarchus deserved punishment for his opinions about the earth's motion. This treatise of Cleaneites is cited by Dio-
genes Laertius. Whether the charge was ironical or not (Montucla conjectures the former), it serves to corroborate the preceding date, since Cleantus succeeded Zeno about B.C. 264. We know nothing further of the life or death of Aristarchus.

Arriusudes (in the Areanarius) 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 sun remain without motion, but that the earth is carried round the sun, as in a concave 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 distance of the sun and the earth's orbit, than the diameter 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 hollow, and that the earth moved in an oblique circle (τετταρεια), 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 zodiac, 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 may have been written in the form of questions and answers, and was the result of his researches on the relative size of the sun, as compared with the size of the earth. The scope of it will be shown in the following translation of the introduction (from Wallis's edition). The brackets contain remarks, mostly from D' Album and others.

Now 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 eye of the spectator. [A very simple truth, but a great step forward into the modern mathematical science of the relative distances of the sun and moon, the principle of which was correct.]...
which he prefixed to the verses, and his explanations of doubtful passages, he appears to have given separately in another work of his which is stated to have 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 Homer, Aristarchus, Archelaus, Aristarchus, Sophocles, Pindar, Aristophanes, Aratus, and other poets. Of these latter productions of Aristarchus few remains have been preserved; of his Homeric criticism, however, a certain amount is in the Scholia to the Iliad and Odyssey, from which a tolerably complete notion of his mode of treating ancient Greek poets may be formed. One of the most remarkable features of his criticism is the boldness with which he condemned numerous verses as unworthy of Homer, and as not worthy of being retained in the Homeric poems. It is generally supposed that these judgments of Aristarchus 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 meaning of the relation; (as Aristarchus (says Cleoer, in his correspondence) 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.) (Epit. ad Pom. ill. iii. 11. and see Clinton, P. 494.) Aristarchus's Scholia in the Homeric poems to him 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 the 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 this very part of the MSS. nor should it be said with Cleoer 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 erroneous, and unhistorical, and, according to the general character of his poetry and his 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 over susceptible of proof, it can only be established by a more extended and independent inquiry, than 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, Thucydides, &c., in citing Homer, refer by description to the part of the poem which they mean, as the exploits, 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 Ionic migration, sixty years after the return of the Heraclids, or one hundred and forty years after the fall of Troy. (Iuncrdis de Hom. Poet., in Hermelis Hom., vol. v. p. 151, comp. Wolf, Prot. Hom. p. cvii.) His notes on the mythology and geography of Homer, preserved in the scholia, are very numerous. (See Lehrs. de Aristarchi Studii Homeric., Post. 1698.)

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. (Lehrs. p. 10.) The second edition, "Aristarchus to 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, it is of great importance. In the scholia to the Iliad and Odyssey, which are headed, a constant reference is made to the explanations and omissions of Aristarchus, whose opinion is often stated without the addition of his name, as if he were preeminently the commentator of Homer. (Wolf, Prot. ad Hom. vol. ii. p. 47.)

Besides his edition of Homer and his Commentaries, he wrote some short works addressed to individuals, as to Philetas and to Callinus, the chief cup-bearer of the king of Persia; and the "Iliad ad Hom. &c. (49.)

from the same man, and another on the Iliad and Odyssey, are also mentioned. (Lehrs. p. 21.) These writings, which probably were occasional productions, were considered less accurate and elaborate than his Commentaries (see Schol. ii. 111. Lehrs. p. 498.); but of his theories of a sort of criticism, against Crates the grammarian, who defended the principle of anomaly. (Wolf, p. 19.) He is likewise stated to have contended with Pergamus with Crates, who was a native of that town; andZenodorus of Mithus (a different person from his more celebrated namesake of Ephesus), a disciple of Crates, wrote a book in defence of the verses in Homer rejected by Aristarchus. (Suidas in v.)

Aristides, a statesman and general, who took a leading part in the business of Greece, after the death of Themistocles and before the Persian war, is stated to have been a student of Homer, and to have lived the life of a statesman. His school of books was called, and he was regarded with respect by the Athenians, as a schoolmaster. He was of the tribe Antiochis, and born in Alcipe, a deme of Attica. Some doubt exists concerning his endowments of wealth and birth—a question of so little importance that we shall not stop to discuss it. It is to be regretted that Plutarch, from whom we receive the most perfect history of this person, has not given us little information as to the steps by which he rose to eminence in the state. Several anecdotes illustrative of his probity are told by that amusing, but not very accurate author, who, according to this 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 Aristides, except when he employs the expression "chief 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 the two eminent statesmen of Athens, he was again restored to his office, 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 himself and his country a 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, &c. 490, upon the occasion of the Persian invasion under Dutis 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 dissidents with him. (For a fuller account of these circumstances, and the battle of Marathon, see Miltiades, and Historical Parallels, vol. i. 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 on account of his incorruptible honesty. But Herodotus, in his account of the same occurrence, 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 would imply that he needed to act so important a part in the action as his biographer would
have we believe. That he did distinguish himself in, however, rendered probable by his having been elected archon epednomos in the following year. (Plut. Arist. c. 5.)

Of the transactions of his magistracy we have no account. In general, however, according to Plutarch, it was marked by a 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 same success. (Herod. viii. 95.) Plutarch, in the epigraph furnishing the integrity of his rival, though so well recognized, according to a story told by Plutarch, as to have already acquired for him the appellation of 'the Just.' In the third year after war, it is evident that no trifling signal of the invasion under Xerxes took place. At the battle of Artemision, 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 passed from the island of Euboea through the Persian fleet, bearing intelligence to his countrymen that they were surrounded, and that flight, which they were then meditating, was a 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. 95; Plut. Arist. c. 485.) With respect of the conduct of the expedition, Themistocles's 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 Athenians. (Herod. viii. 95.)

Before the battle of Plataea, 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's 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 the Persians being divisible and without number, to count them, has burnt.' (Herod. viii. 143.)

Aristides was one of the ambassadors sent to remonstrate with the Spartans for their tardiness in sending succours to resist the threatened second invasion of Attica by Mardonius; and at the battle of Plataea, contrary to the general usage, he was appointed sole general (στρατηγὸς ἀνώτατος) of the Athenian troops, and signalized his moderation in a dispute with the Tegeatae concerning the right of occupying the left wing of the allied army, the second post in point of honor, the right wing being always held by the Lacedaemonians. 'We came,' he said, 'not to talk, but to fight. Since, however, the Tegeatae have advanced their claims to renown, both in old and new, it is necessary for us to do your bidding, and to explain to you 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 place. We are ready to obey you, Lacedaemonians, wherever, and against whomever, 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 Tegeatae to lead the left wing. (Herod. ix. 27.) It is to be 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 both occasions the people were influenced by the advantage of the character of the speaker; 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 destroyed in the interval of Aristocles'sinterval of Aristocles's exile, the office of Mistrustor came to be filled. It 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 some it was thought to have been the ambition of Aristides and his property were required as qualifications in candidates for the higher offices. It was now thought, either that in the great exertions made for the existence of the state, all had merited alike, and all were therefore entitled to an equal representation in the state, or that the state might be divided into 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 wealth or capacity. It was assuredly a liberal idea: Aristides was the colleague of Thucylides in an embassy to Sparta, when the Spartan government interfered to prevent the rebuilding of the walls of Athens, destroyed by the Persians. (Thucyb. ii. 91.) Ciceo relates a story (Off. ii. 16, 17) that he was sent to Athens by 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 no one could be trusted, or that the public body was not authorized to propose it. He entered the assembly, and proposed that nothing could be more advantageous, or less honourable; and the proposal was dropped without further inquiry. The measure proposed, according to Ciceo and Valerius Maximus (vi. 15), was to burn the Lacedaemonian fleet at Gythium; according to Plutarch, to burn the dock-yard of the Greeks (ναύστηθι τῶν Ἐλλήνων), by which we suppose the confederate fleet was meant. It is difficult to conceive how either measure could be received, any more than with justice. Diodorus (xi. 45.) has a different version still of the same story, agreeing in the one point of the proposal of Themistocles being referred to Aristides.

B.C. 442, the unpopularity of the Lacedaemonians, especially of the sons of Pausanias, forecast a greater revolt of the Ionian Greeks to decline serving under him. They offered the command of the confederacy to Athens, whose ships at that time were under the command of Aristides; and he, who was, as Plutarch and other historians do, entertained of the Athenian character, mainly through his virtues, that transfer of the command is chiefly to be ascribed, and the consequent establishment of what is called by historians the Athenian rule in Greece, which was overthrown seventy-two years after the battle of the Peloponnesian war. Under this new arrangement the Greeks of the west coast of Asia Minor, the islands, and Thrace, in conjunction with the Athenians, engaged to do nothing against each other, or 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 Hellenotamia, 'treasurers of the Greeks,' 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 recorded. He is however said to have depicted himself by a painting of his epitaph; and to have left a reward of 50 talents to him of which the deponent expresses even after he was dead. So does Plutarch quotes a story from Craterus of his having been accused of taking bribes from the Ionians to reduce their annual contribution to the common fund, and being fined five minas for which being unable to pay, he retired to Ionia, where he died. But the story is in itself highly improbable, and the silence of certain writers seems conclusive against it; and that Aristides himself argued against its credibility. He says also that the tomb of Aristides was in his own time to be seen at Phalerum, erected at the charge of the state, because the patriot died so poor that nothing was found in his burs, the ashes of his body having been deposited in another. While this story is not to be attributed to Lysias, 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. Lysias had a pension and a grant of lands at Estia in Euboea. (De-
It was the practice of Aristides and other rhetoricians of his age, often to choose their topics from the republican times of Greece, particularly for the most striking events of Athenian history. But instead of throwing any light on the historical events which they made their text, it is more frequently the case that in the effort after rhetorical effect, the truth of history is sacrificed to what were then considered the graces of style. The poverty of ideas in their declamations, and the total absence of the old Attic vigour of language, render them of less value in the judgment of the present age, than in that of the contemporaries of Aristides.

The latest edition of the Declarations of Aristides, together with his two books on Rhetoric, is by W. Dindorf, Leipzig, 1829, 3 vols. 8vo.

The statue which we have here assigned to Aelius Aristides was found in the ruins of Hermione, and is now in the Museo Borbonico at Naples. The height is about 7½ feet. It is called the statue of Aristides the Just by G. Furiati, in the work entitled Museo Borbonico; but from comparing the head with that of Aelius 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 Sturt's, 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 (Hiapi Mouseinq), in three books, is printed in the Collection of Metehelis, 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 Ischomachus of Athens. He met at Olympia, during the celebration of the Olympic games, (Plutarch, de Curiosis, c. 2; on Ischomachus, 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 from Cyrene to the Olympic festival, 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, B.C. 399; which would make his birth as early as B.C. 424 or 425. Lais, the courtezan, with whom he was in habits of intimacy, was born B.C. 421. (Clint. Fast. Hellem, part ii. introd. p. lv.); which agrees

chief authority, Plutarch, who is supported by the more scanty testimony of Herodotus and Thucydides, is one of the four to whose works he alludes. To his account of Athens, he alludes, 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 historian of the events of his times, and 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 it 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 unsatisfied might have failed to command.

The Elgin collection of the British Museum, there is a sepulchral stele, which bears the name of 'Aristides, the son of Lyseimachus, of Estine.' It is conjectured that this was the grandson of Aristides the Just. (See Egin Marbles, vol. ii., 149; Plutarch, Cornelius Nos. of Aristides; Milford, &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 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 Perisians: this picture contained one hundred figures, and was liberally paid for by Mnason, tyrant of Elatea. 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. Mummius, Polybius, 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. 361.) A Dionysus (Bacchus) by Aristides, and a Hercules struggling with the poisoned shift of Deianira, by the same artist, were treated in this shameful 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 Ceres was spoiled by a priest. M. Junius the Prefect had commissioned it to be preserved for its exhibition at the Ludi Apollinaris.

See a passage in Athenaeus (xii. 567) on other subjects pertaining to Aristides.

ARISTIDES, AElius, a distinguished rhetorician of the second century, was born at Hadriani in Bithynia, probably about A.D. 117; but, according to other opinions, A.D. 139. 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 Asclepius. He also opened a lecture-room and gained such reputation by his rhetorical pretensions, that by his contemporaries he was placed on a level with Demosthenes, the great Athenian orator. In A.D. 178, Smyrna was destroyed by an earthquake, and Aristides, by addressing a letter on the subject to the subjects in Pontus, induced M. Aurelius, induced 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 the Vatican (see Winckelmann, ii. 475, French ed.), 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.

Of his fifty declamations, one entitled Against Leptines, is an imitation of the great oration of Demosthenes, which bears the same name; and another, the Panathenaikos, was intended to show that he could write in the style of the latter, and rival the eloquence of that master. Aristides wrote also panegyrics on many distinguished cities, such as Smyrna, Rome, &c.
with this determination. We know further, from explicit testimony, that he was celebrated in b.c. 366 (Olymp. cli. 3; Diiodorus, xvi. 76); so that if he lived to the natural age of man, he probably died between the ages of 88 and 310. 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 pleasure, and indulged in the sensual enjoyments of his time. He approached to philosophy by the interro- gations of Socrates, he asserts that he does not wish to take any share in public affairs, that his object is to be neither a governor nor a slave, but a private citizen; and that he lives out of his own country in disorders. (Xen. Mem. ii. 1.1318.)

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 adapted 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 sensual pleasure, saying that he could not live in any other manner. He was said to be the first who attempted to profit by circumstances in order to adapt them to his own wants, and to be the arbiter rather than the slave of fortune; whence Herace said, "Aristippus has not the perturbance of want." 

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, whom he is reported to have constantly ridiculed for the austerity of his manners. (Diog. Laert. ii. 65; Suidas in "Aipertwrwos.") Plato likewise aims a blow at him in the Phaedo, for passing his time in luxurious enjoyment at Aegina, while many of the best men of Athens were undergoing for reasons of state, at a distance of a few hours' sail. (Plato, Phaedon, p. 59, ed. Steph.; Demetrius Phalereus de Elocut. § 289, ed. Schneider; see also Aristot. Rhet. ii. 23, for a saying of Aristippus against Plato.) But Aristippus, although on bad terms with Xenophon, Antisthenes, and Plato, entertained friendly relations with Heracleides, 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 Coelindae Ira, p. 1.462.)

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 passed from one to another at the caprice of the moment, 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 his life to Cyrene, where we find his family is recorded to have suffered his death. 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. 65, comp. Xen. Mem. i. 2. 60; hence he is called by Aristotle a sophist (Metaph. ii. 2); a name which Aristotle never would have given to any person whom he considered a genuine philo- sophist. Aristippus, when blamed for teaching for money, defended himself (and it must be confessed with some reason) by saying that Socrates divided for the richest and greatest of the Athenians, whereas he had to provide for himself. (Diog. Laert. ii. 74.) Aristippus is reported to have sent five minas to Socrates, who refused them, saying that his genius did not permit him to receive money even for the most moral doctrines of Aristippus which have been recorded by ancient writers; in which there is less acuteness than is usually perceptible even in the most mistaken sys- terns of the Greek philosophers. They do not indeed appear to have been mistaken as to the moral character of Aristippus: in his Nicomachea Ethics, when examining the dif- ferent opinions of philosophers on the subject of pleasure, takes no notice of Aristippus. (See the Life of Aristippus in Clinton's Cyclopedia, vols. iv. and viii. 1804, with Menage, Arist. ii. 25, 356; Suidas in "Aipertwrwos; and Ritter's Geschichte der Philo- sophie, 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 Aristotle's history of Alexander. (See Aristotle's "History of Alexander."

ARISTOPHANES: several of this name belonged to the Athenian drama. (Asop."

ARISTOCRACY, according to its etymology, means a government of the best or most excellent (aristoi). This name, which, like optimates in Latin, was applied to the educated and wealthy class in the state, soon lost its moral and political character completely; 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 by war or by communication; if the number is less than half, 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 50,000 persons, the government is often correctly called a democracy. This is probably 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 number of those who are included in the class of subjects and the number of those who are to be termed the government is to be determined by the name we are to give to the form of the government.

Thus, Athens at the time of the Peloponnesian war had conquered a number of independent communities in the islands of the Egypian 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 an aristocracy and they are properly so termed.

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 male, 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, a vote which is as numerous as 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 aristocratical, but to a class or political party 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 entitled to vote in the legislature, they are 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 a change takes place in the constitution of the state, by which the dispositions 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 the poor. This is what is meant by 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 the powerful party, and the middle and the poor 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. Thus, France from the reign of Louis XIV. to the revolution of 1789, has often 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 democratical republics, as Athens, Rome in later times, and France during a part of her revolution. It would therefore be more correct to term that state an aristocracy, (that is, an aristocratical class) in which the form of government is therefore aristocratical, though in fact that which 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 is restricted, nor (as far as we are aware) is it ever employed by Machiavelli and the revivers of political science since the middle ages: among modern writers of all parts of Europe this acceptance has, however, now become prevalent.

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 did it convey any offensive meaning; among modern nations, on the contrary, it is regarded as a term of reproach, and, when used, it commonly implies that the writer or speaker disapproves of the government or disdains the class of persons to which he applies that name.

The political term aristocracy has a more vague and fluctuating sense than aristocracy; and the historical or political student should be careful to watch the attention 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 they are held together, and whether they are a political party in the state.

If attention is not paid to these points, there is great danger, in political or historical discussions, of confusing things essentially different, and of drawing parallels 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 Province 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 monarchical. 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 the monarchical republic has not been understood in that way. The word aristocracy has been used for kings, or for the powers required, being a general term including both aristocracy and democracy, and signifying all governments which are not monarchical or despotic. (See Journal of Education, part viii. p. 299, and the words Republic and Democracy.)

ARISTOCRAT, an Athenian closely connected with an important event in Athenian history, which will be more particularly treated under the head of Hipparchus, son of Plaistius and brother of Hippias, who held the tyranny of Athens (Theucy. i. 20). He plotted, in conjunction with another Athenian named Harmodius, the death of Cinthius, and in the execution of the murder of Hipparchus at the Panatheniac festival, B.c. 514. Harmodius was slain on the spot; Aristogiton red, but was subsequently taken and put to death by Hippias. After the expulsion of Hippias, when the institution 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 Athens; among others, by the celebrated statues, and by the celebrated Statues of the Propylaia, and in the . At Athens, B.c. 480, carried off the statues of Harmodius and Aristogiton, which he sent to Susa. They were afterwards restored to the Athenians, when Susa fell into the hands of Persia, and, in the beginning of the war of Chios and Athens. (Arrian, iii. 16.) Various privileges and immunities were conferred on their descendants; and their exploit was regularly celebrated in song at the Panatheniac
The commonly ascribed but lengthened termination was 1543), ap. 980; hence, it seems to be mixed with the colour so as to change its brown or brown spots are scattered over the surface. The most remarkable species of the genus Aristolochia are those which, in many of the tropical parts of America, excite the wonder of travellers by the gigantic size of their flowers, such as _d. gymno/era_ the border of whose calyx resembles one of the foppets of a Norman woman's cap, and measures seven or eight inches in length (see Botanical Register, vol. xvii. l. 1543), and _A. corni/era_ and _A. resediflora_; the flowers are fifteen inches across, and are large enough to form bonnets for Indian children.

**ARISTOLOCHIA. MEDICAL USES OF.** The most valuable of the species is that of _Serpentaria_, which grows in North America, chiefly in Virginia, and hence is called Virginian 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 the virtues, with some respect to being 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 odour 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 protruded fevers, whether of a continued or intermittent kind, it is often eminently serviceable. In those cases of continued 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 cinchona bark, or some of its preparations. Hence, under the title of Huheon's tincture of bark, it is very much used: but a safer mode of administration is that of an infusion of the serpentaria, to which sulphate of quinine, and orange-peel, or other aromatic, may be added; as recom- mended under the name of Huheon's tincture (Vol. I. p. 217).

In eruptive or exanthematous fevers, such as small-pox and measles, when the eruption is imperfectly formed or threatened to recede, an occurrence always betokening great danger, and indicating much feverishness in the powers of the system, serpentaria 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 vital powers, serpentaria, given internally, and used as a gargle, alone, or with tincture of orange-peel, 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 by proper purgative measures; and in all the cases of diarrhoea, not attended with fever, in which serpentaria 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, serpentaria

![Aristolochia](image) - 1. A branch of Aristolochia stipulata; 2. one of its flowers cut lengthwise, showing the stamens lying in its bottom; 3. a cluster of stamens; 4. a seed- vessel; 5. a cluster of flowers; 6. a seed; 7. a shoot through to show the minute embryo lying in the albumen; 8. an embryo much magnified.
ARISTOCLES, a remarkable personage of ancient Greece, who holds a middle place between the mythic age and the commencement of history. As of the Spanish national hero, the Cid, or our own Richard the Lion-hearted, so we have an outline, probably a correct one, of his life, but filled up with exaggerated facts and fictitious adventures, which the minstrels of a rude age never fail to attribute to those whom popularity or notoriety renders fitting subjects for their labours.

Of the early history of Messenia we know little. A race of kings descended from Cresphontes, the Heraclide leader to whom that district of Peloponnesus was allotted, governed the Lacedaemonians long before Lycurgus, a series of disputes and skirmishes arose on the borders of Messenia and Laconia, which gave rise to a confirmed hatred. Prompted by this feeling, without the consent of the men 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 took, and put the inhabitants 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 uncertain, and we can only give the outlines of 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, Ephialtes 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 years; Blair), at the end of which a new generation had been born in Sparta, with heads imbued, in the meantime, with the spirit of the nation, 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; and he proceeded to free them from the yoke, and to establish them upon a different state. He was 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 hungry in the cause. The revolt is dated by Pausanias (iv. 15) thirty-nine years after the end of the first war (Ol. xxiii. 4). B.C. 685 (Newton places it in 670), and the first battle was fought at a place called Dero. This was obstinately contested, and each party claimed the victory; but even this doubtful issue was encouragement to the Messenians. Aristomenes performed more than one man seemed able to do, and his countrymen offered to him the regal dignity. This he declined, accepting however (under the title of strategus) the sole direction of the military affairs. Upon this he undertook a singular enterprise, 'thinking it important above all things, by searing the Lacedaemonians in the outset, to become more terrible in their eyes for the future. He therefore, as a deserter, with twenty to thirty men, an unarmed force of 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.' This stratagem, they thought, would encourage the movement to take place at a village called the Boar's Tomb. The Messenians were supported by auxiliaries from Elis, Argos, Sicyon, and Arcadia; the Lacedaemonians by Corinth and two minor cities. There was a chosen band of eighty Messenians, nine Lacedaemonians, and thirty-four Spartans. At this point, where the enemy was at his greatest strength, Aristomenes, with his shield in a very odd way in the pursuit (see Paus. iv. 16, or 17), 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 which some disagreeable matters occurred. Aristomenes, B.C. 604. (Blair, 682.) A third pitched battle was fought at Megalastephros (the Great Ditch), in which the treachery of Aristocles, prince of Orchomenus in Boeotia, and a confederate of the Spartans, 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 the country except 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, and introducing into the country again 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 by the name of Ceadas; such was the nature of the punishment. Some criminals at a later period were thrown at Sparta. All but Aristomenes were killed by the fall. For three days he lay waiting the slow approach of death; at the end of that time, his eyes being accustomed to the dim light, he saw a fox attracted by the dead bodies. 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 entered, took the opening with 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 report of some drunken sentinels verified the story. The news 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 of a hundred men; and the vow 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 mystic treasure, which, if preserved, so it was said by oracles, 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, however, when the Messenian temple was bullied 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 the solemn vision of the gods, and the report of a shepherd that his flock was in danger, overtook the place. Aristomenes collected the survivors, and placing their women and children in the midst, demanded, by signs, a free passage. The Spartans opened their ranks rather than encounter the onset of such an enemy reduced to desperation. The remnant of the Messenians sought among the 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 content, which was to avoid a contest, while the army was still absent, and, if they could get possession 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 Arcadians voted to enter into the contest, but the entire proudest faction was dissuaded by the traitor Aristocrates, who sent intelligence of it to Sparta. This time, however, his perfidy was detected, and he was stoned by his indignant countrymen. The Messenians, invited to join in the execution, looked upon the thing, which was to avoid a contest, with indifference, fixed on the ground; and we may infer, though it is not so stated in the story, that according to the old legend they withheld their hands.

The remnant that escaped from Eira, joined by the Messenians of Pylos and Messene, emigrated in a body, intending to seek the rich island of Sardinia, and they requested Aristomenes to put himself at their head. This he declined, saying, that he would never cease to war against the Lacedaemonians, and that he was sure some mischief would be continually accruing to them at his hands. In this hope he was disappointed. Damagetus, prince of Ialyssus in Rhodes, being advised by an oracle to marry the daughter of the bravest man in Greece, received an undeniably deifying that title. Aristomenes went with his daughter to Rhodes, where he died, ungratified in his wish of striking another blow at Sparta. The exploits of Aristomenes formed the subject of a poem by Rhianius, in which he was received as an aristocratic of the poet of Homer. (Pausan. iv. 6, &c.; Mitford, iv. 4; Historical Parallels.)

ARISTOPHANES, a celebrated comic poet of Athens, born in the year 448 B.C., was the first of those who excited the interest of the Athenian stage n.c. 427, and his last, n.c. 388. There seems every reason to believe that he was a native of Athens, though Suidas brings him from the island of Rhodes, and others from Egypt, where he certainly possessed some property. (See Suidas, and various opinions as to the place of his birth.) He had three sons, whose names are recorded. Of his private history, the few facts which have been transmitted are of little moment. Though the period during which he lived was full of transitory actions of great importance in the eventful history of Greece, Aristophanes does not appear to have been actively engaged in any of them. His life, in fact, was entirely devoted to literature, and the numerous plays which we know him to have produced prove that his attention could have been occupied with little else. He is the only writer of the old comedy of whom we have any considerable remains, and it is chiefly through his works that we are able to form an opinion of that particular species of literature. The writers of the old comedy sometimes brought real characters, without even a change of name, upon the stage. At first sight, the power thus assumed by them seems of a nature incompatible with the peace and security of society; but perhaps it was not greater than that possessed by the public journals of the present day. The comic writer, in fact, may be considered as having supplied the place of the journalist of modern times; but with far inferior effect, as the times, at which his plays were represented, were at considerable intervals, and they could only be witnessed by a limited number. We believe, too, that they followed rather than led the opinions of the public, and that they did little more than explain, and often to a somewhat wider circulation to the opinion already entertained of the individual whom they satirized, or of the class whom they held up to ridicule. Neither are we inclined to allow that they exercised much influence on the Athenians, or produced a change in the constitution of society, or that they contributed, as the comic writer, and not the comic writer, 'who wielded at will the fierce democracy of Athens.'

Aristophanes was the author of fifty-four comedies (Suida's list of the plays he has been preserved. Suidas enumerates the same plays that we now possess, and mentions no others as being extant. In the fourth year of the Peloponnesian war, n.c. 427, the poet brought out his first play, which the hero made complain of the character of the spendthrift; and next year he produced the Babylonians, in which he attacked in no measured terms the demagogue Cleon, and the constituted authorities of Athens: of these plays we possess only a few fragments. His severe treatment of Cleon in the Babylonians is said to have caused the demagogue to question the right of Aristophanes to be considered a citizen of Athens. Aristophanes was tried, and came before a court of representatives put into the mouth of Telamachus by Homer, when he was asked whether he was the son of Ulysses. 'My mother,' replies Telamachus, 'says so, but I know not; for no person ever saw me as to my parentage.' (Most 216.) This story, which is told in an anonymous life of Aristophanes, as to the quotation from Homer, is rather a ridiculous one.

In 428, during the sixth year of the Peloponnesian war, he gained the first prize in a contest with Hupolita 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 would permit. The title of the play was one of the demi, or small towns of Attica; and the object he had in view was pointed out by introducing on the stage the rustic Dicorematous, who, disapproving of the obstinacy of his fellow-citizens, had concluded with the Spartans a separate peace, and is exhibited in the full enjoyment of its fruits. The result of the opposite line of conduct is shown in the sufferings of Lamachus, who is exposed to the want of the first necessities of life, and withdrawing under severe misfortunes is received with the approbation of the people. In particular which is full of that comic humour for which Aristophanes is so distinguished. It is a sort of Athenian dialogue between Lamachus and Dicorematous. The commands of the former are those of a man preparing for a democratical campaign; the latter advises an Athenian person making ready for a convivial entertainment. This play contains a bitter satire on Pericles for his attachment to Aspasia, and at the same time a strong testimony to the growing influence of the demagogues. Aristophanes had already made the demagogue Cleon write under his satire; but it was not till n.c. 424 that he poured forth upon him the full measure of his wrath. It is related in that year that he produced the Knights, or, as With leads, more properly called the Athenians, for a reason very obvious, valuing, 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, as well as might, that they allowed any one to be brought upon the stage except themselves. Athens is represented as a house, and its master is a stupid old gentleman. Demos (people): Niessa and Demosthenes are his slaves, and Cleon his confidential servant, or slave-driver; Agorasatis, a sausage-seller, is the person whose destiny it is to subvert the demagogue. Thus the dramatic persons are few, and the plot is perhaps still more meagre. It consists of humilating pictures of Cleon, and a succession of proofs to Demos that the democratic scheme is the best which can be devised, and that it is the only way to secure that 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 striking events of that period in Athenian society. It gives us a favourable view of their character, their demagogues, their ignorance, their jealousy, full of suspicions, a prey to superstition, fickle 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 nerve 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 Knights was the first play that Aristophanes brought on the stage in his own name. There are many touches in Arthnnot's John Bull, as Mitford remarks, strongly resembling the most striking traits in the character of Demos, the personification of the Athenians.

Next year came 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 of his which was the best of all his ideas, which was a main cause of the condemnation of Socrates (see also one of the Greek arguments to the play); but when it is known that the philosopher survived the satire of the play for upwards of two hundred years, and nothing more is 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 Socrates among the populace of Athens. It contains a powerful and severe attack on the schools of the sophists,
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A r a s e of philosophers who could make the worse appear the better, through immediate execution, or through 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. Strepisias is the most prominent; his rustically strangely contrasts with the pedantry of the sophists. His son has ruined him by his extravagances without any prospect of being relieved from the dunning 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. At last, however, Strepisias is convinced that his genius does not lie in that direction, and he determines to send his son Pheidippides to benefit by the philosopher's instructions. The youth makes a very rapid progress in wisdom, and is shrewd enough to perceive that his creditors and by beating his father, and then trying to convince the old gentleman that it is all right. The play closes with Strepisias setting fire to the school-house of Socrates (quotation). The whole passage contains a significant hint, which, coupled with the concluding verses of the play, was well calculated to raise a religious persecution against Socrates. Cratinus, whom Aristophanes in his Knights had represented as a愚人 (a writer) of Prophe- tory over the Clouds. This play was caricatured by Eupolis, at that time living in the same city as the writer, but it did not prevent the poet from labouring to improve his first idea, and it is probably the amended copy which we have here. Two points are discussed in this play: the question of the Wieland, Att. Mus. ii. 2; and by Hermann, Prooem. xix.; see also the Clouds of Aristophanes, by F. G. Welcker.)

In B.C. 422 appeared the Wasps, an attack upon the jurisprudence of Athens, levelled chiefly at that numerous class of advocates who did not aim at a lucrative office of dis-putant—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 could, moreover, in no way discharge the duty. There cannot be said to be any plot. Philocleon is described as absolutely drunk with that passion of which all his countrymen partook—a taste for litigation and frequenting the courts of law. His son Bielycles undertakes 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 upon a scheme which promises to extricate him from his position. The proposed house is to become 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 Sicilian cheese by a house-dog enables him to put it into immediate execution. The play requires a minute acquaintance with the manners of the Athenians, and also with their judicial system. This play furnished Racin with the idea of his Plaideurs.

The play of the Birds was exhibited, a.c. 414, in the seventeenth year of the Peloponnesian war, and during the absence of the Salaminia, an official ship which was despatched to bring back Alexiades from Sicily. (Thucyd. vi. 53. See ACHARNS.) Nearly every writer on comedies 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 Silvén 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 Salaminia. We are indebted to W. W. Hamilton for preparing a translation of Siven's essay.

In a.c. 406 appeared the Frogs, in which Aristophanes attacks, with little generosity, the poet Euripides, who had himself made much fun of the poet in his Antigone. In the search of a good tragic writer, and after listening to a trial of skill between Aeschylus and Euripides, decides that the merits of the former are far superior to those of the latter.

The best of his other extant works is the Plutus, which appeared first in a.c. 408, and again twenty years afterwards, 388. It contains a plot of comedy, nor does it appear to have any reference to political conditions, but being intended probably to vindicate the conduct of 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 plot of the Plutus is lost, or at least does not exist, and it contains no Parabasis. The other plays which have been preserved are the Peace (a.c. 419); Thesephoriazaus (a.c. 411), an attack on Euripides; and the Clouds, in which he attempts to justify his insults on the other plays; Lysistrata (a.c. 411); Ecclesiazusæ (a.c. 392).

Aristophanes is distinguished by the exuberance of his imagination and the plenitude of his exchanges, which are sometimes necessitated by the treatment of complicated, and in the Greek language. It must be confessed, however, that his wit is frequently of a kind which cannot be relished by the taste of the present age, partly because his allusions are sometimes unnecessarily obscure, and partly also, because they are grossly coarse. Indeed, the indecency of his allusions and the indecency 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 he. The attempt which he makes to reconcile 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 Plautus, and was, indeed, a shade inferior to the writer of his plays, that they are said to have been found under his pillow after his death. (Pit. Anonyma.)

The plays of Aristophanes, especially in the chorals parts, often contain passages of great poetical beauty, but his sub- jects and efforts to be both moral and poetical have not gained for his plays 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 refrain from a joke, or some oblique allusion to satire. Where Aristophanes appears to be speaking in his own person, he is the advocate of morality, and the unanswering censurer of the gross and degrading habits of many of his countrymen. He was a friend to peace, and, to his credit, the enemy of Cleon. 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 Aristophanes was the most manlike of the ancient Greek dramatists. He apologises with respect to this exhibition of Socrates appear to us unsatisfactory. Probably, like many wits of his own and subsequent ages, Aristophanes had neither the ability nor the turn of mind which would qualify him to controvert the principles of moral science, and he may have turned the philosopher into ridicule without knowing or caring what his doctrines were. 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 and best edition was that of Bekker, published at Venice, 1498, ed., containing only nine plays. The Thesephoriazaus and Lysistrata were wanting. The edition of Kuster contains the valuable Scholia. One of the most complete, containing a Latin version, and an edition 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. One cannot but admire the labour of the scholar. The valuable Scholia on Aristophanes have been lately published by Dindorf, 3 vols. 8vo. 1829. The Knights, Acharnians, and the Wasps, have been translated into English verse by Mitchell (London, 1832); and the Clouds, with a Latin version, by a Scotch missionary. The most successful and best known were the prose translations of single plays: Plutus, by Fielding and Young; the Birds, by a Member of one of the Universities (London, 1812); Acharnians, Knights, Wasps, and Birds, by a Graduate of Oxford (Oxford, 1830). Aristophanes is
translaced into French by Poinsinet de Sivry (1844), 4 vols. 8vo.; into German by Voss (Brunswick, 1821); and the Clouds and Frege by Welker (Giesen and Darmstadt, 1810, 1812). Wieland translated the Acharnes, Clouds, Knights, and Birds. (See Rötscher, Aristophanes und sein Zeitalter, eine Philologisch-Philos. Abhandlung zur Alterthumsforschung, Berlin, 1862.)

ARISTOPHANES of Byzantium, the pupil of Callimachus and Zenodotus, the master of Aristarchus, and the founder of the Alexandria school of criticism, was perhaps born about B.C. 440, or somewhat later. It is not known at what time he removed to Alexandria, but probably he went there young. (See Suidas, ἀριστοφάνης.) The invention of the Greek accents is attributed to Aristophanes, and the introduction of a system of accentuation. He was the first who attempted to arrange the Greek writers into classes, according to the branches on which they wrote, separating those of thehighest 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 also probable, 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, B.C. (See Villon's Schoelia, II. i. 398, 424, &c. where Aristophanes' edition of the Illiad is referred to.) Aristophanes wrote a work on ζευγαρίων, or 'terms implying relationship' (see Eustath. II. i. p. 646; who also quotes other works written by Aristarchus). A mere fragment of Aristophanes is printed in Boisséon's ςευματηρίων of Herodian, 1819, 8vo.

See a passage in Athenæus (book xiii. p. 583, Cassub.) apparently referring to a work by this Aristophanes.

ARISTOTLE (the Greek form of the name is Aristotéles) was born at Stageira (the name, before Aristotle's time, appears to have been Stageuroi), a town on the west side of the Ætolmon gulf in Chalcidice, in the first year of the ninety-ninth olympiad, or B.C. 384. Nicomachus, the friend and physician of Amynstas II., king of Macedonia, and the author of some medical treatises now lost, was his father; his mother was named Phœnestis; and they both belonged to the race or clan of the Acheiopaei, who were supposed to derive their origin from Acræus or Acræus, 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, be it noted, the death of Aristotle’s parent, he was brought up under the care of Proxenus, a citizen of Atarnea, a city of Mysia 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 his parents, should be set up at his expense: he likewise educated their son Hermon, to whom he gave his daughter Pythias in marriage.

In his eighteenth year (Olymp. cii. 2, B.C. 387) Aristotle left Stageira, and went to Athens, the centre of letters and learning in the 5th century, where he was attracted by the fame 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 antient 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 investigation of nature, and have abandoned all thoughts of an exclusively professional career. His eagerness for the investigation of medical and philosophical questions, and his prodigious attainments in science and sagacity, doubtless attracted Plato’s attention at an early period: thus we are told that his master called him the intellectual of the school, and his house the house of the reader; that he said that Aristotle required the curb, while Xenocrates (a fellow-student) required the yoke. These traditions are probably true. We are likewise informed that, when reading, he used to hold a brazen ball in his hand over a basin, in order that, if he fell asleep, he might be awakened by the noise which it made. Although 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 his means brought the science (see Isocrates), whom he appears (although then at a very advanced age) to have attacked with considerable violence, and to have treated with much contempt. Cephisodorus, 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 provers: 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 antient compilers of anecdotes respecting the enmity between Plato and Aristotle, caused by the different doctrine of the disciple, as well as by certain 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 opinions and mental habits of the two philosophers; and particularly the opposition which Aristotle made to Plato’s characteristic doctrine of ideas: whence it is inferred that there must have been an interruption of their friendly relations. 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 Nicomachean Ethics more especially, which was probably one of his latest works, he says, that ‘it is useful to him to recite the doctrine of ideas, as it had been introduced by persons who were his friends; nevertheless, that it is his duty to disregard such private feelings; for both philosophers and truth being dear to him, it is right to give the preference to the former’ (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 Aristotle, who was the author of the calamities of Socrates who 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 misrepresented a passage from Aristotle’s work on Nobility, preserved in Stobæus (see the passages which treat of jealousy which is attributed to Aristotle on very doubtful authority. (See Lucæc, Lexicon Atticum, De Dignitate Socrates, § 4.)
It appears that during Aristotle's first residence at Athens, he was employed on an embassy to Philip, to whom he was a relative 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 Plato's death may therefore not improbably 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 Speusippus, the nephew of Plato, and most of the other celebrated Platonists, took refuge in Mytilene, the chief city of the neighbouring island of Lesbos (Olymp. viii. 4, b. c. 345). Aristotle moreover, seeing that Pythias, the sister of Hermeias, would, if she were left behind, be expulsed from his school, which was to be occupied by the Persian soldiery, and actuated not only by his friendship for Hermeias, but also by the excellent character and disposition of Pythias, made her his wife, and saved her from her enemy by a rapid flight. This account is given by Aristotle the peripatetic, from Aristotle's lost epistles to Antipater s. Busep. Prop. Evng. v. p. 793, A. Strabo, xii. p. 610, calls Pythias the niece of Hermeias; as the circumstances of her marriage are essentially the same of both Pythias and Euphrylla, there can be no doubt of her being a native of Macedonia, and that her marriage was the consequence of the influence exercised 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: a sentiment of philosophy which was 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 that Philip re-established his authority over the whole of the Macedonian kingdom. It was in memory of which benefit the Stagirites consecrated a festival, Aristaotelia, to their great fellow-citizen, and called a month after his name. Aristotle probably did not enjoy Aristotle's 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. 336, when Philip was assassinated, he succeeded to the throne of Macedonia, and two years afterwards he began his expedition into Asia, when he parted for the last time from his master, who went to Athens, having previously recommended to him as a companion in his campaigns a near relation of his own, the philosopher Callisthenes, who had received his instruction with Alexander. Callisthenes had two years before succeeded Speusippus in the academy; Aristotle, however, had no doubt been already acquainted with him and chosen a house which was not far from the temple of Apollo Lyceus was called the Lyceum. At this time Aristotle's influence was in the highest degree pre-eminently exerted. Being the most celebrated philosopher in his time, and occupying a place next to the chief prince, his works were published and widely circulated. The students who owed their education to him were, in the highest degree, imbued with the spirit of his master's system, and carried it about with them in every part of the world. He himself indeed received a great deal of his information from the Persian nation, and was the first Greek philosopher who not only cultivated, but struggled to propagate, the knowledge of the animals, which he had discovered; and this knowledge was in a great degree due to his residence in Asia. After Alexander the Great, the history of philosophy remained essentially the same; the work of Aristotle was in a large degree the result of his own observations only, but as a collection of all that had been observed by others as well as by himself. It is stated by Piny (Nat. Hist. vii. 7) that Aristotle the younger, being occupied with the art of knowing the animals of Asia, ordered several thousand persons, over the whole of Asia and Greece, who lived by hunting, bird-catching, and fishing, or who had the care of parks, herds, hives, and, in a word, of everything, to communicate with materials for a work on animals. We are likewise informed that Aristotle received from Alexander the enormous sum of 800 talents to prosecute his researches in natural history—a circumstance which did not escape the notice of his tradetors, who ceased to deal in gifts from princes. (Athenaeus, i. p. 398 [comp. Boeckh's Economy of Athens, vol. i. p. 20]. Seneca De Vita Beata, c. 27. Jillian, Far. Hist. v. 19, who states that Philip furnished him with money for this purpose, and that he bought the animals, has doubtless confused the father and son.) Calisthenes, who, as we have already seen, attended Alexander in his expedition to Asia, sent from Bablyon to Aristotole in compliance with his request, a volume of astronomical observations which were preserved in that ancient city, and which, according to the statement of Porphryus, reached back as far as 1903 years before the time of Alexander the Great; = 2234 A. H. (Seneca, Nat. Hist. iv. 8. 10). Simplicius in Aristot. de Coelo, fol. 123 A. 1. 18. Ebd. 1927. The transmission of the observations to Aristotle is stated by Simplicius as a known fact: the length of time which he gives on the authority of Porphryus. See Bailly, Histoire de l'Astronomie Ancienne, t. i. p. 183, § 17-33. On Aristotle's astronomical knowledge, see Bailly, Ibid. ii. p. 9, § 10, 11.) The fact that astronomical observations of considerable antiquity were sent from Bablyon to Aristotle
explain them." Even if the suspicions of some writers that these letters are spurious should be approved, still there would remain no doubt of the importance of the influence exercised 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: a sentiment of philosophy which was 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 that Philip re-established his authority over the whole of the Macedonian kingdom. It was in memory of which benefit the Stagirites consecrated a festival, Aristaotelia, to their great fellow-citizen, and called a month after his name. Aristotle probably did not enjoy Aristotle's 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. 336, when Philip was assassinated, he succeeded to the throne of Macedonia, and two years afterwards he began his expedition into Asia, when he parted for the last time from his master, who went to Athens, having previously recommended to him as a companion in his campaigns a near relation of his own, the philosopher Callisthenes, who had received his instruction with Alexander. Callisthenes had two years before succeeded Speusippus in the academy; Aristotle, however, had no doubt been already acquainted with him and chosen a house which was not far from the temple of Apollo Lyceus was called the Lyceum. At this time Aristotle's influence was in the highest degree pre-eminently exerted. Being the most celebrated philosopher in his time, and occupying a place next to the chief prince, his works were published and widely circulated. The students who owed their education to him were, in the highest degree, imbued with the spirit of his master's system, and carried it about with them in every part of the world. He himself indeed received a great deal of his information from the Persian nation, and was the first Greek philosopher who not only cultivated, but struggled to propagate, the knowledge of the animals, which he had discovered; and this knowledge was in a great degree due to his residence in Asia. After Alexander the Great, the history of philosophy remained essentially the same; the work of Aristotle was in a large degree the result of his own observations only, but as a collection of all that had been observed by others as well as by himself. It is stated by Piny (Nat. Hist. vii. 7) that Aristotle the younger, being occupied with the art of knowing the animals of Asia, ordered several thousand persons, over the whole of Asia and Greece, who lived by hunting, bird-catching, and fishing, or who had the care of parks, herds, hives, and, in a word, of every-
ly claim, stating that 'before his time nothing whatever had been done in it.' (Soph. Ench. c. 34. § 2.) 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. There is no branch of the sciences which contains the larger 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 the species, but according to the organs and functions, he has varied this method in his different 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 represented this history of life and industry, 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 Aristotle. See also Kidd’s Bridgewater Treatise, c. 10, § 3, and Appendiz, who has given a more detailed comparison of Aristotle and his successors.)

Aristotle, as we have seen, is the very vortex of discoveries of modern science. Among the sciences which he cultivated, but which were 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 skill and thought; but the great works of this short but comprehensive work, has never been surpassed, if it has ever been equalled, by writers on (what may be termed) descriptive moral philosophy. His ethical writings contain an excellent practical instruction; reliability, chiefly founded on the maxim that virtues are in the man, but which has less occupied the attention of philosophers since love has played a more prominent part in consequence of the influence of the German and the introduction of the manners of chivalry in western Europe. His treatise on Politics is not, like Plato’s Republic, the works of many later speculators on government, a mere inquiry after a perfect state; but contains an account of the nature of government, of the various forms of which it is possible for States to be composed, and their advantages, in which those forms are established; with an essay, though unhappily an imperfect one, on education. This treatise is valuable not only for its theoretical results, but also for the amount of information about the institutions of Greece and other neighbourig countries. Throughout these last-mentioned works, the knowledge of the world and of human nature displayed by Aristotle is very observable; and although his mind appears to have preferred investigations of physical and metaphysical science, yet he holds a very high place in the highest rank of moral and political philosophers. Aristotle, it will be remembered, did not lead the life of a recluse student, but, as the friend of Hermias, the teacher of Alexander, and the head of a philosophic school, he was brought into contact with a great variety of persons, and learnt by practice to know life under many different forms and in many different relations. In these latter Aristotle’s treatises are occasionally mentioned others of his writings, which he calls exoteric. 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 one would suppose that it is this part which formed his character. (Eth. Nic. i. 13; vi. 4. Polit. iii. 4; vii. 1.) In another place he says, that he has often considered the Platonick doctrine of ideas both in his exoteric and his strictly philosophical works, and of subjects much agisted, who states that Aristotle everywhere attacked this Platonick doctrine, as well in his ethical and physical works, as in his exoteric dialogues. (Ado Colot. vol. ii. p. 1115 B. comp. Arist. Met. xii. 1.) From this passage it appears that at least some of Aristotle’s exoteric works were composed in the form of a dialogue: Cicero likewise mentions this
circumstance when, in writing to Articus on his dialogue de Repubblica, he says that "he prefixed progymnasia or introduc- tory sentences were not suitable to the style of the work which he calls exoteric." (Epist. ad Att. vi. 16.) Other cir-
mstances of Aristotle's dialogues are mentioned by Cicero, Epist. ad Att. xii. 19. Ad Fam. i. 9.) His sys-
tematic writing to supplement and arrange his teach-
ings, were called "aeracematic" or "on books," that is, destined for lec-
tures (though he never himself uses that name in his extant writings); and were thus, as Galen says, confined to his scholars and to Articus, the latter of whom Version, his aeronatic and exoteric writings are mentioned by Galen (N. A. xx. 5), who states that the former included subjects of a refined and abstracted philosophy, and the physical and dia-
lectical questions; the latter rhetorical and sophistical ex-
cerpts, or the exoteric writings. (Am. Phil. i. 15, Hermein, in Aristot. Catag. fol. 6 B. ed. Ald.) an ancient commentator on Aristotle, divides his works into those which he wrote in his own person, or aeronatic, 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. Sim-
plicius (Ad Arist. Phys. fol. 8 B.), another commentator, gives the same division into aeronatic 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 Themis-
lius (Orat. 26. p. 319) alludes when he states that some were written up to his time and only of the highest of the students, but that others are perspicuous, fitted for general readers, and written in an attractive and ornamental style. The statement above quoted from Galen that Aristotle's sci-
ences, or the exoteric writings, are divided among his sub-
jects is probably not quite correct: doubtless everything discussed in the latter was included in the former, though perhaps treated in a more summary and abstruse manner. Their difference appears to be due only to the form of the work (most of the exoteric writings being dia-
logue), in the selection of the arguments, and in the nature of the style. Cicero particularly speaks of the copiousness and richness of Aristotle's dictum (Topica, c. 1); and Quintilian doubtless, whether Aristotle's or Cicero's, for the multiplicity of his knowledge, the quantity of his writings, the strictness of his style, the lucidity of his dis-
coveries, or the variety of his works (x. 1, 83); in his ex-
tactic works, however (all of which belong to the aeronatic class), his style is in most parts equally dry and unattrac-
tive, and not unfrequently obscure, from the extreme con-
ciseness of the expression and the abruptness of the transi-
tions. Cicero, as if he wished to introduce the work into his sub-
jects, and even ungrammatical, from his contempt for all ornament or polish of style. These pecu-
liarities of style are doubtless attributable to the destination of his works, the exoteric writings are doubtless note-books for his lectures, requiring further expansion and illustration, than finished treatises prepared for publication. This character may be particularly seen in the Rhetoric and the Analytic; in others, as in the Nicomachean Ethics, it is much less apparent. In general, however, all the chief steps of an argument are stated, though sometimes they are only intimated, and the obscurity of Aristotle, which has been so much complained of, is in most parts like the ob-
scurity of a mathematical treatise, which appears so great to a beginner; as in both cases the difficulty of compre-
hension arises not from the defect of the expression, but from the obscurity and subtlety of the reasoning. The more copious exposition of Problems and theorems, which would obtained much circulation during Aristotle's lifetime, ex-
ccept among his disciples and friends, and they received from time to time additions and corrections; a circumstance which shows that these works were not in the hands of all his pupils, but in courses of lectures in which indicated different times of composition. (Cicero de Fin. v. 5. Niebuhr, Hist. of Rome, vol. 1. note 30.)

None of Aristotle's exoteric writings have been done down to us; all his extant works belong to the aeronatic class, a strictly scientific class. This would be the more singular, if the story told by some ancient authors with regard to the preserva-
tion of his writings were true. It is stated by Strabo that Aristotle's philosophical manuscripts, which he had left in his books to Neleus, who removed them to the city of Nestissus, a town in Asia Minor; from him they passed to his descen
dants, who, being ignorant persons, kept the books locked up, and took no care of them. Afterwards, hearing of the exorbitant price of the Athenians kings, in whose dominions the manuscripts were situated; they had them sold, and 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 fond of books than reading, and seeming to make no use of them, the manuscripts were and classified by apollion, who sold them to Strabo, who made use of them, as also some booksellers, who increased the number of errors, by employing careless tran-
scribers. Strabo adds, that the Peripatetic school after Theophrastus had scarcely any of Aristotle's works, except what they followed in some of his philosophical system or style. (Geog. xii. p. 609.) Such is the substance of Strabo's account, which is in part confirmed by Plutarch (Sylla, c. 28) and Athenaeus (1. p. 5); 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 Peripatetic 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-
osophical works were concealed from the world till the time of Apollion, more than two hundred years after his death. (Prat. 26. p. 320.) The text of most of the writings is thus, of course, imperfect, as Aristotle's manuscripts, or the marks of the supplements of unskilful revisers or of chasms caused by the decay of manuscripts; this, however, is not the case with all; the Poetic, for instance, has come down to us almost entire, and in many parts of the text the text appears to have undergone severe correction. Aristotle's genuine extant works may be divided into three classes: "The first belonging to the Metaphysics, the Categories, the treatise on In-
terpretation, or the Meaning of Propositions, the first and second Analytics, the Topics, and the work on the Refute-
ment of Sophistic Argument, which are all that remains of the first, obtained the name of his Organon, or instrument for the analysis of reasoning. Several of his logical works are lost, particularly his Methodos, or treatise on Method, in eight books. (See Rhet. i. 2. 10.) To this head may be referred, though with less propriety, his Rhetorical and Poetic, the last of which works is imperfect. Under the second class come the Physics, the treatises on the Heavens, the Constitution of the Earth, on the Generation and Corruption of things, and the Objects of Sense, on Memory and Recollection, on Sleeping and Awakening, on Dreams and Prophecy in Sleep, on Length and Shortness of Life, on Youth and Old Age, to which last work, in one, is also another short treatise. There is likewise a treatise on Colour, and an extract from a work on Sounds. The Physiognomics is a treatise on the marks of character in the outward person. The title of his great work on Natural History means, literally translated, Inquiries concerning Animals (ἐν χρησίς ζών ζωλοεζων). To this are annexed treatises on the Generation of Animals, on the Motion of Animals, on the Parts or Members of Animals, and on their mode of Breeding. There is also a work on Meteorology, two books on Plants (which is a retranslation from a translation), a short essay on Mechanism, and a treatise on Indivisible Lines, which latter partly belong to mathematical science. A long work on the Generation of the Species, which was employed by the Physiographers of Aristotle's time, and was written by Cicero was acquainted (Tusc. Disp. i. 33, comp. Probl. xxx., 1), has also been preserved. Under this head may be likewise mentioned a treatise on the Doctrines of Xenophanes, Zeno, and Gaugmus, attached to the treatise on the Vices and Vices, which may, perhaps, be genuine: some ethical questions are also treated in the Problems (c. 37-30). The Poetics are intended as a conti-
nuation of the Nicomachean: Ethics: the genuine Economics are lost, unless the first book of the treatise attributed to Plato (called Democritus Not Political Economy) is an abridgment of them by Theophrastus. (See Phylological Museum, part i.)

The most valuable of Aristotle's lost works, and indeed the most valuable of all the lost works of Greek prose, is his Colinon, or Constitution, the so-called Leviantian, Lydian, and Persian States, the Democratic, oligarchical, Aristocratical, and Tyrannical being treated separately, containing an account of the manners, customs, and institutions of each country. (See Philolog. Mus., v. 4.) The largest extant 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, as coming from the hand of Aristotle carried with him during his campaigns in a precious casket: hence this recension (called the casket-copy) passed into the Alexandrine Library, and was used by the Alexandrine critics, (Woll, Proleg. ad Homer, s. 45.)

Entire works, according to Diogenes Laertius, occupied, in the Greek manuscripts 442,270 lines.

Writings contained in the collection of Aristotle's works falsely attributed to him are, the treatise on the Universe (see Suidas, hom. 973, ii.), and the form of which exists in the Re- marks, has 'retained the common opinion of his age in the common language of a common declaimer, and by a strange inconsistency attributed them to the condensed, refined, and abstract works also the Logic and Architecture, p. 207: the Rhetoric to Alexander: the second book of the Economics, and a treatise on Marvellous Reports, written between the time of Agathocles and the first Punic war, probably about the 130th Olympiad, or b.c. 568. (Niebuhr, History of Rome, i. p. 16, and note 342.) An extract about Winds, from Aristotle on the Signs of Bad Weather (ἐπειδή οὑσία, vol. i. p. 973, ed. Bekker, omitted in the Table of Contents) is considered by Niebuhr as spurious. (Hist. of Rome, i. p. 15.) It appears, however, that Aristotle wrote a treatise on this subject. (σενια χυωνω, Diog. Laert. v. 25, σενατια χυωνω, Anon. vol. i. p. 64, ed. Bulle; see Theophrastus, vol. i. p. 762, ed. Schneider.)

The translation of the latter has been doubted. (See Müller, Archéologie der Kunst, s. 331, n. 1.) A set of Epistles is also attributed to Aristotle, which, like those of Phalaris, Socrates, Euripides, and others, are, in many cases abused so as to lead to vain subtilties and captious contests 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, 'Quo in Aristotele vult philosophari prius operato in Christo stultificari: He to whom wishes to philosophize in Aristotle must be first stultific 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 middest of the reformers, was a great supporter of Aristotle. (See, among his other works, his Moralia Philosph. Epitome, Argentor. 1559; with the introductory address, and 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 RAMO), a French philosopher; and Bacon afterwards, with much more violence, and by a vast number of commentaries and authority. Aristotle's philosophy accordingly fell into undeserved neglect during the latter part of the seventeenth and the whole of the eighteenth century: of late years, however, the true worth of his writings has been more fully appreciated, and the study of his best treatises is much reconnoitred.

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, England, and Italy, and a great number of extracts 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 various abridgments and summaries of Aristotle's works, the most worthy of notice are those of the Metaphysics, by Brindis; of the Organon, by Buhle; of the Rhetoric, by Gaisford; of the Poetics, by Tyrwhitt, Hermann, and Grafenham; of the Physics and Metaphysics, by Herbart; of the Organon and Economics, by Schneider and Götting; of the History of Animals, by Schneider; and of the spurious treatise De Mirabilia, by Beckmann.

The English translations of Aristotle are for the most part, of little value, on account of their unfaithfulness and inaccuracy. That of the Poetic, by Twinning, should, however, be excepted. A translation of all Aristotle's works, by Mr. T. Taylor, was published in 9 vols., quarto, London, 1840, but that of the same Knight is a large 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 volume of his works; a Latin abridgment, in 2 vols., Halle, 1830 and 1832. On his speculative doctrines, see the historians of philosophy, Brucker, Tennemann, and particularly Ritter, vol. ii. p. 3-395. An effect of his writings on philosophy and religion in the middle ages, see Launy, de Vara Aristotelis Forti 1. 207: Bayle's article on Aristotle; Jourdain, Recherches sur l'Age et l'Origine des Traductions Latines d'Aristote; and Hampden's Bampton Lectures; and on all these subjects, see Hist. Bibl. Greece, etc., vol. v. It appears, however, that Aristotle, as the greatest master after the latter had appointed Theophrastus as his successor. On the same authority it is stated that he wrote 453 treatises on music, philosophy, history, etc. This is all we know of his life, except that he is the author of a play on the Elements of Harmony, and the founder of a musical sect, usually called Aristoxenian, in opposition to the Pythagorean.

The disciples of the former were also called jovemantibus, which were also thought by ear, in opposition to the seamenbo, as the latter were termed, that is, musicans by rule. As this controversy not only excited much attention, but various writings on both sides have descended to us, we will here give an even insertion of the principal of it, so far as that can be done without inflicting on our readers the repulsive details of the Greek musical theory.

The matter is of no great general interest, since, of all the fine arts, music is the only one in which Greece has not erected a lasting memorial of herself. Aristoxenus, indeed, is cited by Vitruvius as the representative of music in the same sentence Apelles as that of painting, yet there are but few musicians who even know his name.

The Pythagoreans had discovered the simplicity of the ratios [see ACRUICUS] which exist between the notes of the diatonic scale. Founding their notions entirely upon arithmetic, they laid down intervals, as concordant or discordant, by theory alone, even to the extent of rejecting the interval of an eleventh from among the consonances, though of course they retained the fourth. They had also discovered the unequal intervals which exist between the tones of the scale; and, to make a new system, were obliged to invent a method of temperament. In the entire rejection of the ear they were undoubtedly wrong; and Aristoxenus was equally so in taking the other extreme. The latter maintains that the ear and judgment are not only insufficient, but that those who reject the senses as not accurately enough, but help them by reasoning, and who stand up for numerical proportions and ratios of velocities as the causes of gravity or acuteness, not only use means foreign to the matter, but have the proof of their Being in a kind of "phenomena." He asserts that the octave consists of six whole tones, each of them equal to the interval between the
fourth and fifth to the tonic; 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 names of the scales, and that the 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 another tone, and that the three and a half, the fourth, and three different tones would be derived from the octave, fourth, and fifth, as defined by Aristoxenus. To put it in the power of 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 C DEFGABC Aristoxenus 1000 891 794 704 657 595 530 500 Perfect Intervals 1000 889 605 704 595 530 500

Of course the system of Aristoxenus is, so far as it goes, the now known by the name of equal temperament, when 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 equal temperament, but cannot be computed, as it agrees with itself; but the practical truth of the fourth and fifth of its scale (a more accident) brings the preceding representation very close to it.

The Greeks had its followers 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. Themae mention both sects; and, if we may use the term, quizes both, but asserts that they might be good by uniting their principles.

There is an opinion attributed to Aristoxenus, that the soul bears to the body some such relation as the sound of a string to the string itself: this is perspicuous poetry, but raising duly phonetic phenomena, Cousin's translation, who cites G. L. MAhne, Di atr. de Aristoxeno Philo. Periapatetic, svo. Amsterdam, 1793.)

The editions of Aristoxenus which we find noticed, are the following: Aristoxeni Musici Antiqui Harmonica Elementa, libri iii. &c. ab Ant. Gregamini Graionisi, Venet. 1692; Latin only. The first Greek text appears to be, Aristoxenus, Nicomachus, Abipios, by J. Meursius, Leyden, 1618; Antiquus Musicus Auctoris system, Gr. et Lat. a Marco Mebomino, 2 vol. 4to. Exelev, 1692. The fragments of the book on Rhythm were published for the first time by J. Morelli, Venice, 1785, 8vo. For further information, refer to Hawkins's Hist. of Music; Montuola, Hist. de Math.; Weitsch's Opera, an edit. dedicat. Drummy's Harmonics; Gregory, Preface to his edition of Euclid.

ARITHMETIC, from the Greek ἀριθμός (arithmos), 'the art of numbering,' should mean the science of number in general, including a great part of what is 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 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 doing 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 rules. Addition, Subtraction, &c. For the account of what is called algebra, see Arithmet. plato, thras, euclid, duphamus, ferhat, &c.; for that part of algebra which particularly concerns pure arithmetic, see Algebra. Two articles (P. 251) must be reserved for a description of the Chinese system of concrete numbers, see Weights and Measures, and such articles as Yard, Pound, &c.

All the information hitherto possessed on the main points of the subject of arithmetic, on which the latter half of the book was long postponed 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 Encyclopædia Metropoli- tana, 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 the limits will not allow us to make use of some of its, as we would oblige us to ask the permission 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, the probability of its contents would be impossible; and we therefore use it only as authority for citations of fact, in which we shall refer to the paging of the Encyclopædia Metropoli-tana. 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 well known that we need not dwell upon the trivial 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 not only upon the simple number for which it stands when alone, but upon the place in which it stands. Thus, in 888 the three eights mean eight, eight tens, and eight hundreds.

2. The place of a figure considered 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 ciphers, which of themselves are considered as having no 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 which it is removed to the left. In the first 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 common 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, twenty, and the like, are either terminated by the name of a common etymology, with those for the hand or fingers. In France the scale from 60 to 100 is strictly binary (by twenties), and in the Indian archipelago the ancient scales are binary. For the discussion of other systems of 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. 251) mentions three Thracians which numnber counted higher than four; and the Yanacs 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. 390), according to L. Conder, Poeti uras. One of the Alpines, in describing a number of men greater than ten, would mark out a space of ground sufficient to contain them. This, in its principle, the same as the Latin, was done by their cumbersome 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 now consider the institution of letters for numbers, and content ourselves with abandoning the principle of 'local value,' and substituting in its place such a system of symbols as, without departing from the principle of Greek notation, will not confuse the reader by the introduction of new denominations. For the actual signs used by the Greeks, see Numerals, 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 &c., twenty by 20, &c. Let 100 be one hundred, 1000 two hundred, and so on; 11,000 one thousand, 22,000 two thousand, and so on. Let &c. stand for ten thousand, and let M affixed to a number make its value ten thousand times as great; thus, 4M would signify 40,000, and so on. We have here imposed upon the system of the Greeks, unavoidably, in order not to confound the reader, since 2000, 200, 20, and 2, would not amount to them present the eye that analogy which exists between 2, 2', 2'', 2''', and 2'''' in being denoted by β, σ, ε, and β.

We now write some high numbers in our own decimal scale, according to the imitation of the Greek.

46579956
46007039
79201076

In the first number, where there is no cipher, the Greek looks so like our own, that we might be led to imagine there was no essential difference. We might say, that as it would be, for all practical purposes, in fact usual, to write the same numbers first, the mere occurrence of a fourth column would suggest the idea of thousands, so that a notion, which must be a part of local value, would be inevitably formed. And, perhaps, it was so; indeed it is surprising that neither Archimedes, Apollonius, or Diophantus, ever detected and improved the idea. But when we come to look at the second and third number, we see immediately that the continual derangement of the columns would prevent any such acquiring consequence. The concept 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', 2'', &c., might have suggested such a contrivance, yet there was no analogy between α (20) and λ (30) and β (2) and γ (3).

The ingenuity both of Archimedes and Apollonius was employed in the extension of the preceding system, without altering its principle. That of the latter we shall imitate. Calling 10,000 M., let ten thousand times ten thousand be called MM., ten thousand times that number MM., and so on, and let any one of these places be immediately after another, if the preceding is to be taken ten thousand times if followed by M., ten thousand times ten thousand by M., and so on. The following number

1768,42650,0142,0193

would then be represented by

1\(\text{M}^{17}\)68\(\text{M}^{14}\)42650,0142,0193

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 radix 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 antient 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 Numerals.]

But if we must refer to the Roman system, 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 former, of 2000 years. A new discovery of characters: 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 the symbol for 3. And by the law of correspondence 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 resemblance of the Chinese. But they have no written method of employing symbols thus: the abacus-pan [see Abacus] 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 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 say, if we write (or shall stand for ten thousand, that it 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—

Thus 20 is ten, because 2 in the second column counts five times 2. 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 two units, we shall have without symbols t and e stand for these; then our scale of number, beginning from ten, is as follows:

f t e 10 11 12 13 14 15 16 17 18 19 20 21 22 &c.

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 11 100 101 110 111 1000 1001 1010

A Jesuit at Pekin (P. 392) communicated to Leibnitz the following Chinese symbol, called by them the Co, or lineation, 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 arithmetical from 0 to 7 (both inclusive). And Leibnitz asserts that there is a larger Co which goes up to 13. 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. 415) in the latter part of the tenth century. But upon this there are strong reasons for hesitating. [See Sylvester II.] Another account is, that Leonard of Pisa [see Bonacci and Algherbra] introduced it in 1202, in a work entitled Liber Abbotti, &c. And some have supposed that the Alphonse (or Alphonsine) Tables, being constructed principally by Moors at the court of Alhous, must have been the first in which the system appears. (P. 412.) It is certain that this system had been before the twelfth century, and most probably as early as the ninth, in the hands of the Persians and Arabs, who ascribe it to the Hindoos, and call it a name which signifies 'Hindo science.' It is also certain that the Hindoos themselves have long used it (see Biza Ganita and Lilliwati, names of Hindo works), and that it is easy to trace the manner in which this numeral symbol has been derived from those of the Sanscrit. In this latter language there are distinct names for units, tens, &c., up to
what we should call hundreds of thousands of millions of millions. But whether we are to look to a Hindoo for the invention is a question on which no surmise can be made, till some probable account of the origin of Hindoo literature can be given. The steps by which the new notation made its way through Europe are not capable of being very clearly traced. Montufoom (P. 417) found an Italian manuscript, which was finished in 1317; and many manuscripts of the works of authors a century older contain them, but it is well known that it was usual to substitute the new figures for the old in copying into the library of Corpus Christi College, Cambridge (P. 418), a catalogue of eclipses from 1300 to 1348, to which they are subjoined. Graven dates on inscriptions have been given by Wallis and others as old as 1336; but, upon examination, records have been found showing that this had been noted in England for 3. There does not seem to be evidence of any general use of the Arabic numerals before the invention of printing; and even the works of Caxton do not contain them, except in a woodcut. Merchants continued their accounts in Roman figures up to the sixteenth century. On the whole, we think that the general use of these numerals in scientific works did not much proceed, if at all, the diffusion of algebra.

The one notable application which has been made to this groundwork of arithmetic is the invention of decimal fractions. This is an extension of the principle of local value, of so simple a character, that it is surprising the Hindoos never adopted it. In the library of Corpus Christi College, Cambridge (P. 418), a catalogue of eclipses from 1300 to 1348, to which they are subjoined. Graven dates on inscriptions have been given by Wallis and others as old as 1336; but, upon examination, records have been found showing that this had been noted in England for 3. There does not seem to be evidence of any general use of the Arabic numerals before the invention of printing; and even the works of Caxton do not contain them, except in a woodcut. Merchants continued their accounts in Roman figures up to the sixteenth century. On the whole, we think that the general use of these numerals in scientific works did not much proceed, if at all, the diffusion of algebra.

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Algebraically, let $a$ be the first term, $x$ the common difference, and $n$ the number of terms. Then $x = a + (n-1)x$. $S = \frac{n}{2}(a + l) = na + \frac{n-1}{2}x$.

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:

\[ \begin{array}{cccc}
1 & 2 & 7 & 7 \\
2 & 3 & 8 & 12 \\
3 & 4 & 9 & 12 \\
4 & 5 & 10 & 14 \\
\end{array} \]

are severally in arithmetical proportion, and in every such proportion the sum of the extremes is equal to that of the means. Thus:

\[ 12 + 7 = 3 + 16 \]

ARIOUS (Capio, martial) was a native of Cyrenaica, in Africa: the date of his birth seems to be unknown. He was distinguished for personal beauty, graceful manners, extended5 taste, and local eloquence, and poetic abilities. He has been accused, but without sufficient ground, of relentless ambition, and a predilection for innovations. The doctrine which he taught was not at that time a novelty, but had been preached by his African 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 Eusebius, 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 division. 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 Arios, a.d. 306, joining the party of Meletius. The patriarch Achilles of Alexandria, moved by the repentance of Arius, made him, a.d. 313, presbyter and pastor of the church Baucaulis, at Alexandria; and the patriarch Alexander gave him the first rank among his clergy, although he is said by Theodoretus (Hist. Eccl. i. 2) to have been one of his competitors for the patriarchate. But Philotheus (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 conference with the Arians, the ineffability of the divine persons, 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 before the creation of the universe. He could be called God by the exercise 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 Thalaeis 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 Alexandria, to condemn his doctrine, his person, and his followers, were anathematized. Two letters of Alexander on this occasion are still extant: one is a circular report to the orthodox bishops (Socrat. Hist. Eccl. i. 6; Mansi, Collect. Conc. i. ii. p. 793; Opera Athanasii, ed. Montfaucon, t. i. pt. i. p. 387); the other is a letter, full of bitterness, to Bishop Alexander, at Constantinople. This letter calls the Arians Exarchontians, in allusion to the phrase οἱ αὐτοκεχωρικοὶ, out of nothing. Among the followers of Arius were two bishops, and several priests, in the Alexandria. 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, signed (Epiph. Hœres. 69. 6; Theodoret, Hist. Eccl. i. 4), absolved him from the Alexandrine excommunication; he also con-

vened, a.d. 323, a synod in Bithynia, probably at Nimodedia, in his behalf; wrote in his favour to all the oriental bishops, and to the Emperor Constantine the Great, who, being at that time engaged in the dispute as to his own doctrine, anathematized him, and recommended peace, a.d. 324, in a letter addressed to Alexander and Arius jointly.

Constantine commissioned Hosius, bishop of Cordoba, to examine this dispute at Alexandria. Hosius having sent a report unfavourable to Arius, Constantine convene the bishops of his empire, a.d. 325, in order to settle the points in dispute between Arius and Alexander. In this council at Nicæa, the bishops were divided into three parties. The body Arius still 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 ἴδιος θεός, applied to the Son as being of the same essence with the Father. Consequently he was condemned by the synod, and exiled by the emperor to Illyricum, together with two bishops, Theonas of Marmarica in Libya, and Secundus of Ptolemais, who continued to adhere to him, after Eusebius of Nicomedia, Theognis of Nicea, and Marius 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 and his followers. In the third year, Constantine, through the instrumentality of an Arián 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 Creed, was drawn up 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 of Jerusalem, a.d. 343, 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 reach the emperor. This troubles excited by his presence at Alexandria. Arius presented to the emperor, a.d. 336, a third confession of his faith, and professed by oath to submit to the synod of Nicaea. It was accordingly resolved that Arius should be received into church communion in a solemn manner; but according to Socrates he was taken ill of a bowel complaint, during the procession, near the church which was appointed to be the scene of his triumph, and died on the same day, a.d. 336. Some writers ascribed 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. Some of the Arians ascribed his death to poison 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 permission for the Arians to celebrate public worship in private houses, and the bishops of the empire to hold synods without the knowledge of Constantine. 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 Ales, 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 the controversy, but the emperors who had rejected the doctrine of Christ being θεός, of similar essence, as well as that doctrine which made him θεός, consubstantial, or of equal essence, but the Semi-Arians maintained the opinion of his being only of like nature with the Father and Son, being ἰδιοτάτου, of another substance. The Goth, Vandals, Suevi, Burgundians, and Lombards embraced Ariusianism but exchanged it afterwards for orthodoxy.

The bishopric of Arianism is usually 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 Nicea, 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 Athanaeus was deposed and exiled to Gaul by Constantine; and immediately after, which is placed in 343, 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, who was being hired, and that they could not be followers of a presbyter? In this synod, four creseds were approved, in which an endeavour was made to steer a middle course between the Nicene Homoousios and the definitions of Arius; which two points were considered to be the two extremes. Every one has his own ideas of the truth, and they are not at all contradicted by this synod, in which the four Antiochen creseds are extant in Athanasius de Synodis, § 22-25. A general council was again assembled at Sardica in Thrace, in which the dispute between the Alexianists and Contarinists was to reconcile the combatants for oriental and occidental orthodoxy. Their endeavour proved fruitless. The orientals retired to the neighbouring city of Philippopolis, leaving their occidential opponents alone at Sardica.

Eusebius was, under Constantius, as victorious in the east as the Nicene creed was under Constans in the west. The Eusebians thought that the Homoousian orthodoxy might lead to Sabellianism, and therefore procured the condemnation of Sabellianism of his disciple Photinus was condemned in the second council of Antioch, A.D. 345, and by another council at Milan, A.D. 346. After the death of Constans, A.D. 350, Magnentius, A.D. 353, Constantius, A.D. 354, endeavoured to establish Eusebian orthodoxy by violent means in the west. In the synods of Arles, 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:—Eusébii Pamphilii, bishop of Cesarea; Eusébii, bishop of Emesa; Cyrilp, bishop of Jerusalem. These were the most distinguished writers in behalf of the Antitrinitarian party. The best writers among the Homoousians were Athanasius, bishop of Alexandria; Hilarius, bishop of Pictavi; Epiphanius, bishop of Constantia; Basilius, bishop of Cesarea; Gregorius, bishop of Nyssa; Gregorius of Nazianzus & Seválaids; Ambrosius, bishop of Milan; Epiphan., discolus of Edessa, propheta Syrouram. Modern works on the history of Arianism are:—Storia critica della Vita di Arius, scritta da Giacomo Maria Travagl, Clerico regolare (Venezia, 1748).—Histoires des Enreligious, T. 2. p. 335, &c.; J. A. Stark's Versuch einer Geschichte des Ariusismus, Berlin, 1783—85. 2 tom. 8. &c.; J. F. Wundemann's Geschichte des christlichen Glaubens, besonders des Heiden Rok, welche in den Anfängen der Kirche, Bd. 3. p. 351, &c.; Giessler's Kirchengeschichte, hook 1; 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 arch 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 houting-house, is 'i hoothing ark.' (Hutch. Hist. Durh. i. p. 99.) The same word is still in use, in the north of England, for the chest which is employed in containing meal.

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. Wieland, in this passage, instead of ark, reads ship. The same term ark is used in our translation of the Old Testament, for the basket or cradle in which the infant Moses was laid when he was put into the Nile. (See Bouche's Glossary, by Stevenson.)

ARK, Ar, 341. 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., 67° W., from a point near this peak, which is placed in 39° 36' 6" lat., 105° 39' 44" W. long., by Major Long's party. The Arkansas joins the Mississippi in 33° 56' 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 perpetual precipitous mountains, which extend from the mouth of the river to the point 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 earth, which is about to receive 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, it is not 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, to the action of which a great part of the current irregularity of the river 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, which in 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 Major Long's map, over 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 to the neighbourhood of the low and level country, called the Arkansas Valley. This 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 Negraska 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 95° 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 stream. It generally flows E. with a 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 this immediate space; it is 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 fans out into flats or bluffs, which are many miles wide. Lower down its bed is wide, and only a few feet below the bottom land which lines it on each side. Though it drains an immense extent of country, it is quite stagnant for a large part of its course in summer, and in some places entirely dry; in some places the bottom land is covered by the water seen by Major Long, the Canadian was hurled in its sands for more than 100
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 west, and on the north-west by the western territories of the United States. It lies between 33° 26' and 36° 30' N. lat., and 89° 44' to 106° 5' 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 from the mouth of the Black River, which forms the western limit of Arkansas, and parallel to 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 50° south, and then runs for 34 miles parallel to the river Mississi- ppi. The circuit of Arkansas is about 1320 miles, and the area is computed at 121,340 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 deep forests without good water, and almost without stones. In the central section the ground begins to ascend gradually, and the forests are intermixed with prairies; hills also begin to appear increasing in elevation as we ad- vance north. In the northern hills, known commonly 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 a second time, but without good water, and almost without stones. The circuit of Arkansas is about 1320 miles, and the area is computed at 121,340 square miles, between one-fifth and one-sixth more than the reputed area of Great Britain and Ireland.

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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, as well as the higher hills, are covered with a soil of middling quality. There is 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 kind of muscatel wine and an excellent grape, and a great quantity of dark blue schistose rock (clay slate) appears to form the base of the hot spring hill, and those near it; and pieces of this rock in a state of decomposition, possessing a strong alcoholic odour, are generally met with. The temperature of the atmosphere at the springs on the 31st of December, 1804, 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 was 32° at sunrise, 38° at 3 P.M. with a high N.W. wind. On January 2, 1805, the thermometer was 6° at sunrise.

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 Red River. This part of the hills is quite covered with pine and post oak; that the gray sandstone is the prevailing colour in the landscape. In the river-valleys of these mountains, as, for instance, on the Saline branch of the Washita, there are lands not inferior to any of the Piedmonts, and similar to the red hills, 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 probably be produced in abundance from the saline near the area.

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 1763 the British and French, in the Treaty of Paris, who was in 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 contained, 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 on the Arkansas, enters the Missouri river, and is called the Arkansas.

The population of the town in 1830 was 30,388, of whom 4376 were slaves.

The government 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 2026 in 1831. The territory sends one delegate to Congress, which is divided into forty-five counties. According to a statement in the Encyclopaedia Americana, the limits of what is properly called Arkansas territory have been reduced to 43,000 square miles. The population of Arkansas consists of Indians, Spaniards, Americans, 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 Chickasaw Indians are now endeavouring to erect a suitable tribe to accommodate themselves to the Arkansas.

(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 to the Upper Mississippi; Nuttall's Arkansas; American Almanac, 1884.)

ARKEEKO, a sea-port on the western coast of the Red Sea, in 15° 38' N lat. and 39° 37' E. long. It lies three miles S. of the small island and town of Massowah, where the vessels from the Red Sea and other ports of the coast are loaded with the goods that are destined for the Abyssinian market, or are shipped to India, or to the eastern coast of Africa. From Arkeeko the kaffas journey in a southward direction, passing over the Turkish 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 Tigré. [See Adowa.] Arkeeko is about forty miles N. by E. of Dixan, and about 100 N.N.E. of Adowa, but the distance is much greater by the road or track which the kaffas follow. Arkeeko lies in a sandy flat country which stretches between the coast of the Red Sea and the foot of the Tarans and Assal mountains which divide it from Tigré. This maritime region is not inhabited; it is occupied by native independent tribes, nomad and pastoral, like those of the Arabs, and often at war with their Abyssinian neighbours. They are nominally Mohammedans, but are in fact pagans, and speak a curious and short vocabulary. The Hatora tribe occupy the country immediately to the south of Arkeeko, and when at peace they escort the kaffas between Arkeeko and Dixan. The town or village of Arkeeko is under the rule of a petty, or native chief, who is himself under a sort of dependence on the aga or military governor of Massowah, who latter used to be appointed by the shereef of Mecca. The authority of the pasha of Egypt has now superseded that of the shereef. The country round Arkeeko is almost entirely under the influence of the Baharneghsh, a dependency of the kingdom of Tigré, 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 Massowah, who are themselves not so good as the worst of the Arabs.' The bay of Arkeeko is separated from the eastward by the Giddam mountain and promontory from Annessley's Bay, which stretches southward to Zulla, the ancient Adulo, which was formerly the capital of the Mahommedan kingdom. [See Adulo; Salt's Abyssinia; Valletta's Travels.]

ARKLOW, a town in Ireland, in the barony of Arklow, county of Wicklow, 46 miles south of Dublin, on the road from Arklow to Wicklow, 1° 0' W. long. It is situated near the south bank of the Owen, or Ava, 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 barracks 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 of many arches over the Owen, leads to the town. The harbour of Arklow is in part demarcated by the Fishery, consisting of mud banks, 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 slope 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 vessels employ a large number of boats, and many herrings are brought in, in the intervals between the herring seasons, the men dredge for oysters on the beda off the coast; they carry their oysters to Liverpool, and bring back earthware and coals. Their children in the mean time make nets. The shoals of fish is in the immediate vicinity of Arklow, which amounted in 1821 to 3060, and in 1831 to 4383. Arklow has a fever hospital and a dispensary. There are four fairs, at which are sold cloths and woollens 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 the vicariates of Kilbride, Killiney, Kilkishen, Kilphilkish, Kilbride, Killiney, Cistercian friars, founded in the twelfth century by Theobald, archbishop of Canterbury, 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, it is generally believed, contained about 4,000 men), under the command of Major-General Needham and Colonel Shaw Mason, were defeated, and succeeded in entering and burning the town and the vicarage, property of the 4000 acres, which belonged to the family of the Laud family of Ireland; 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 he cultivated for a time, but little promise of distinction, and it is probable that had his situation been to follow that of his own business, the powers of mind which he exhibited, and to which his success in life must be attributed, would have lain dormant, or might have been stifled by the petty cares attending that line of business and professional life. About the year 1760 he quitted business as a barber, which he had previously carried on in the town of Bolton, and became a dealer in hair. This article he collected by travelling up and down the country, and when he had dressed it, sold it again in a prepared state to wig-makers. The profits of this business were increased, and the circle of his customers was enlarged, by means of a secret process for dyeing hair which he possessed, and which is said to have been a discovery of his own. This last fact is, however, doubtless, but a tradition of the day, for chemistry was not among the subjects which he at any time studied; and it is probable that, had his first successful project been the result of his own investigations in that branch of the science which would have required a peculiar attention to similar objects, and not have been led away to the study of mechanics, of which also his knowledge appears to have been for some time exceedingly limited.

His first effort in mechanics was an attempt to discover the perpetual motion. This direction having been given to his thoughts, it may naturally be supposed, that the circumstances of his living in the midst of a manufacturing population, the growing demand for war and for those productions of which he was in continual difficulty as to procuring the material principally required for their manufacture, would lead him to consider the possibility of contriving some machine by which the difficulty might be lessened or overcome. To put it in the words which have been mentioned, the want of English manufacturers called caliceros, which were made in imitation of Indian goods, and so called from Calicut, the place of their production, were formed by a mixture of linen and cotton: the warp was composed of linen and the weft of cotton, being found impossible, by any means then known, to spin the fibres of cotton into a thread sufficiently strong to be used as warp. The cotton for the weft was at this time derived from the state by the following manner: the cotton, together with the linen yarn, to cottagers living in the little villages of the district, who both carded and spun the cotton wool, and wove the cloth. The demand for these clothes became so great, that the cottamies in the weaver's family by whom they were spun, and the women who performed, could not prepare sufficient weft to keep the looms employed, and the weaver was obliged to engage additional hands for preparing the cotton. The limit to which this species of employment could be carried was soon reached, and the current circumstances of life were such that by the one-thread wheel, then the only machine known, had not been discovered, the progress of the cotton manufacture must have stopped, or at least would have been extremely slow.

We are told, in the text of the Arklow Narrative, that at this time: 'It was an 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 weft to spin for the people for the day; it has 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 fifty thousand of the number now in constant use. It is not our intention to enter into particular detail on this subject, which may be better detailed 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 advantages which the country has derived from his inventions.

It has been much the fashion to depreciate Arkwright's talents, and even to deny him altogether the merit of being an original inventor; and he has sometimes been considered as a plagiarism or pirate of other men's ideas. If, however, the evidence is carefully weighed upon which it has 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 show the possibility of his having, with the least possible order in the management of the vast concerns in which he was afterwards engaged, are unquestionable. The evidence brought forward upon the trial for repealing his patent in 1785 was the, in a long examination; and as he was, who were witnesses, the principal one — had been employed by Arkwright to assist in making the models for his machine, and, in order to corroborate his case, had, indeed, in the 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 corroborate his case, had, indeed, been betrayed the confidence of the real inventor, for whom he had previously made a similar machine. The combination against Arkwright which produced this trial was a very powerful description, and without wishing to appear disrespectful to the testimony of the witnesses, we must say that, in the circumstances of the case, 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.

The first 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 lost. It, therefore, consistent, not only quite impossible, but also not the least judicious, to declare 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. It is, therefore, a fact, that if the allotment and了大量的，然后转成了棉线，然后是提供的。需求对这些衣服的需求变得非常大，以至于在他们家里工作的女工们不能够生产足够的纬纱来满足需求，而那个织布工不得不雇佣额外的人手来为棉花提供。”
being constantly invaded, and it is incredible, that, if he had possessed a knowledge of the particulars of Wyatt's patent, he should have thus drawn public attention to it, since he was known that, by the production of it, the specification would at once have deprived him of every ground upon which he attempted to establish his own rights as an inventor.

It is 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 account of this very meritorious man, of his having been in reality what he represented himself to be, the inventor of the ingenious machine for which he obtained his patent.

The course of his inquiries after some person qualified to assist him in making the movements for his first patented machine, which, as we have already said, was one for producing perpetual motion, Arkwright became acquainted 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 Nottingham. The account which Kay himself gave of this connexion upon the trial in 1785, where he was the principal witness and the pensioner of the consequence of his having been unjustly accused of felony.

From the year 1767, it appears that Arkwright gave himself up completely to the subject of inventions for spinning cotton. In the following year, he went to Preston, and set about constructing a machine. A short time after, he went into the dwelling-house attached to the free grammar-school of that town. At this time Arkwright's poverty was such, that, "being a burgher of Preston," he could not appear to vote at the poll. His pamphlet went to the hands of whom it pleased to vote him a decent suit of clothes. Shortly after, apprehensive of meeting with the same kind of hostility which had a short time previously been shown to a man named Hargreaves, who also had invented a machine for abridging labour in cotton-spinning. Arkwright went to Nottingham. Here he made arrangements with Messrs. 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 introduced 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 Strutt, of Derby, the ingenious improver and patentee of the stocking-frame, whose opinions he naturally asked upon the occasion; and it is a remarkable fact, strongly corroborative of Arkwright's claim to be the original inventor, that, although Mr. Strutt saw and at once acknowledged the greater part of this machine to be an improvement 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 1768 Arkwright obtained his first patent for spinning with rollers, and Messers. Need and Strutt became his partners in the manufacturing concerns which it was proposed to carry on under it.

The improvement for which this patent was obtained consisted 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 flat longitudinally, which Arkwright's first machine was not. One of which the 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 smaller than when delivered from the card, and would be more liable to break. The patent was given in July, 1771, on the ground of Arkwright not having been the original inventor of the process, but a verdict was in favour of the patent, which no one afterwards attempted to dispute.

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 Derbyshire, to which motion was given by water; from this circumstance the machine was called the water-frame, and the thread received the name of water-twist.

Previous to this time no establishment of a similar nature had existed, none at least to which the same system of management and application of 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 connexion in his works which was generally 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 described by way of supposition, is the various improvements and combination 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-suit, not on the ground originally taken by his opponents, 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 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 to forego 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 legislature 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 commenced a new action, which was decided in his favour, thereby reinstating him in the possession of his monopoly. By this time, however, a number of persons interested in destroying that monopoly had greatly increased; on the faith of the former verdict large capitals had been embarked which would have been subjected to heavy depreciation if the patent could have been sustained, and accordingly in a very few months an action was brought for the cancelling the patent by a writ of scire 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 for the purpose of obtaining a verdict, and it was their object to lay before the court the technical 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 date of 1767 to 1768, Arkwright had been similarly engaged 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 which confronted him from counter-operators and manufacturers. 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 disrepute its use. A very considerable stock lay upon his hands in consequence, and he and his partners were driven to undertake the conversion of this yarn into manufactured goods. They first used it with perfect success in making stockings, and soon after established the manufacture of calicoes, such as jack-knife, busk, and other cloths of that kind. But here another difficulty 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 owners of the stores of large yards, as being calicoes similar to those imported, and upon which a like duty was levied, while other English-made calicoes were subject to only half that rate. It was not until the application for relief had been made to parliament that this
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 Lancashire manufacturers, declaring that 'Whereas 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 to be superintended by the bishop with the assistance of the ancient archbishop.'

The town itself was 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, built, it is said, partly by St. Virginus, and partly by the famous 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 in the suburbs. The situs 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, and on the entrance of the Etang de Berre, or, according to the Society's map, to Fos, which is between Arles and the Port de Bouc. This canal, for the greater part of its course, runs nearly parallel to the above-mentioned branch of the Rhône, and in this direction it cuts off all of the surrounding country, find sale at Arles; and several manufactories are carried on, as of glass bottles, soap, silk, tobacco, and brandy. The sausages of this place are in high estimation. They are made by the school 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 communes, 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 bishops who once acknowledged him as their metropolitan. At present, the archbishopric is united with that of Aix.

The claims of Arles to notice rest mainly upon its former greatness and its numerous existing antiquities. It is first mentioned by Cassar ('de Bellis Civilitatis,' lib. 1, cap. 1, l. 2, who built here twelve ships of war, previous to the siege of Massilia (Marseille). Strabo mentions it as a place of small trade in his time. Pompeiius Mela, a writer somewhat later than Strabo, describes it as one of the richest cities of 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. Arelate is very generally written, Arelate is most common, but we find also Arelas, especially in the poets, Arelate ('AptX&rov, Strabo), and Archetum ('AptX&rov, Ptolemy), and in later times, Arelatus. The city appears to have suffered considerably from the Allemann during the decline 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 part of Arles which lay beyond the Rhône, and which forms in the present day the suburb of Trinquetaille, in the island of La Camargue. He gave to Arles the name of Constantina, which it continued to bear in the time of Honorius (a century later), who transferred to it the seat of the metropolitan, and conferred the title of Gallia, which had previously been fixed at Trèves.

The dignity of Arles survived the fall of the western empire. It was the residence of a king of the Visigoths, and of a prefect under the Merovingians. The city was on the coast and afterwards the possession of it. Under the kings of the Franks of the Merovingian family, who became masters of Arles after the Ostrogoths, the city declined. In the confused period which succeeded, Arles lost its name to a kingdom, sometimes called the kingdom of Arles, sometimes of Burgundy; the duration and extent of which are subject to considerable doubt. Arles passed under the dominion of the emperors of Germany, and, by the treaty of Paris, in 1808, the county, governed by a chief entitled the Podestat, elected by the people. It had also a chief judge, the Vigerat, 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 I., 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 vice 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 La Tronelle), and the capital or seat of the municipal legislature; of baths, the stoves and galleries of which were discovered in digging for the foundation of the town-house and of the pedestal of the obelisk; and of urns, lacrymatoriae (tear-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 antient cemetery, called the Campus Elysius (Elysian Field), or, by corruption, Eliscamp.

* These dimensions are to be considered as approximations rather than as rigidly exact; for the two columns, though both taken from the same author, were being reduced, one, and partially, the other, to the proportions of the pediment; and the plan is in French, and the other from French texts, feet, and fathoms, do not agree.

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 antient 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 in 1769, and in 1765, under the direction of the town-council, was brought from its concealment, and raised on a pedestal. It was 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 lower one of which lies on the pedestal, which was raised to a height, 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 large oblong head, covered with figures of the gods. Of this obelisk, the ensign of Le Grand Monarque. Whether these obelisks have survived the furies of the revolution, we have not been able to ascertain; but the obelisk itself, which is the only antient part of the monument, maintains its place. Of the amphitheatre, the circumference is in part preserved, 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 surmounted the third stage has disappeared, and it is impossible to say of the amphitheatre, whether it is of the Colossian order. The rows of seats which surrounded the arena [see AMPHITHEATRUM] have almost entirely disappeared, and the space which they once occupied, as well as the arena itself, is filled with earth 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 stone, inferior in hardness and whiteness to that of the amphitheatre at Nîmes: it is less perfect than that edifice, but was capable of holding about five thousand more spectators.

The principal dimensions are thus given in Guisl. Description des Arènes ou de l'Amphithéâtre d'Arles. 1865:—

<table>
<thead>
<tr>
<th>Measurement</th>
<th>English feet</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>311 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>
<tr>
<td>Breadth from the outer wall to the parapet</td>
<td>110 or 109</td>
</tr>
</tbody>
</table>

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 gives the height of the arches, as above twenty-one English feet, the width as eighteen or nineteen. He adds that the walls are above two stories 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 is divided into two parts. In the first of these, called Mauoir (from which a beautiful prospect), the antient monumental stones have mostly been carried away to present to different individuals, or broken up to be used as building materials: but the second part, which is still called Eliscamp, contains several tombs, those of the Pagans being distinguished by the letters D M (Una Manti- bus), and those of the Christians by a cross. The same causes which have led to the removal of nearly all the tombs of the other part, have materially diminished that of the inhabited.

An antient statue, which is called by Martinide and others a statue of Venus, but which an old writer, François de Rehatu, Dean of the See of Arles (in a tract bearing date 1639), and the writer in the Encyclopædia Britannica, describ as a statue of Diana, whom he calls Diana, in 1621. It was found in digging a well, in several pieces, and has been

**Y 2**

Oobelisk of Arles.
much admired. It was restored and transferred in 1664 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 which prevent the waters from flowing into the sea or into the Mediterranean being then more numerous.

The people of Arles are considered to have retained more than those of most other towns of the manners of ancient times. One instance of their adherence is far from creditable. The borders were kept hush, in a comparative 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. He is said to have been a great orator, of considerable merit; and of Saverien, a mathematician and biographer of some merit.

(Le Grand Dictionnaire de Martiniste; Géographie de la France; Encyclopédie Methodique; etc.)

ARLON (the Roman Orlaunum), a small town in the Duchy of Luxembourg, belonging to the King of the Netherlands, in 49° 42' lat., and 5° 47' E. long. It stands on a hill, near the sources of the Semois, a branch of the Meuse, fourteen miles W.N.W. of the town of Luxembourg, and between that and the town of Neufchateau. Its population is about 3,600. It has some iron works and furnaces, a considerable corn trade, and linen and woollen manufactures. Arlon was once a town of considerable importance; it was fortified, and was taken and re-taken by the Spanish during the period. 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 1517, and the other the founder of the College of the three languages at Louvain.

ARMADA. This term, which is derived from the Latin word armata, armed, and consequently comes from the same root as the French armée and our army, is used in Spain to denote exclusively a naval armed force, or fleet of war. Flota is used in the same language for a fleet of merchantmen. Armada, which occurs in Shakespeare's King John, act iii. sc. 4, Sundy's Travels, p. 51, Sc. 9. In a corrupted sense, the term is applied to the capture of Tレン, p. 79, in 1588.

"Spred was the huge armada wide and broad."

Ben Jonson, however, writes it correctly, Armada.

Nares, in his Glossary, thinks that this word was not known in England before the Spanish projected invasion in 1588; and it is now rarely used hut in speaking of that particular fleet the fitting out and destruction of which forms the subject of our next article.

ARMADA, SPANISH. In the beginning of May, 1588, the preparations of Philip II. for the invasion of England, which had so long kept Europe in amazement and concern, were brought to a conclusion; and the Spaniards, in the confidence of their preparations, gave their fleet the name of the Invincible Armada. It consisted, at this time, of 130 vessels: 65 of these were galleons and larger ships; 25 were pink-built ships; 19 tenders; 13 small frigates; 4 were galleasses; and 4 galleys. The soldiers on board amounted to 19,295, the marines to 8550; of these, 3330 soldiers and 1293 marines had been supplied by Portugal: besides which, the rovers in the galleasses amounted to 1200, and in the galleys to 868. There were also on board 2431 pieces of artillery, and 4576 quintals of gunpowder: 347 of the pieces of artillery had likewise been supplied 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-equipped 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, with which he brought sailors to navigate them from the town of the Baltic. Many of them were 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. The Duke of Parma, by his usual precaution, was aware of these preparations. 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 assembled to oppose the Armada are minutely given in a manuscript now in the British Museum (MS. Reg. 18 C. xxi.), formerly belonging to the Royal Library. At the time when Queen Elizabeth began her preparations, her fleet did not amount to more than thirty ships. The plan of the campaign, therefore, was to tempt the Armada, to draw it away from England. Ultimately, however, the different descriptions of vessels, large and small, which formed her navy, amounted to 181 ships, manned by 17,472 sailors. The military force consisted of two grand Palatine bands of horse, of the enemy, under the Earl of Leicester; the other for the defence of the queen's person, commanded by Lord Hunsdon. The army appointed for the defence of the queen's person amounted to 45,362, besides the band of pensioners, with 58 pieces of ordnance. Lord Leicester's army amounted to 18,449; the total of both armies to 63,511, besides 6000 foot who were expected from the Low Countries. The forces of the Presidentship of the North remained stationary, in case anything should be attempted on the side of Scotland; as were also the forces of the Presidentship of Wales.

The Armada was to have left Lisbon in the beginning of May, but the Marquess of Santa Cruz, who had been appointed admiral, at the moment fixed for the departure was seized with a fever; and the fleet was detained in a few days; and by a singular fatality, the Duke de Paliano, the vice-admiral, died likewise at the same time. Santa Cruz was reckoned the first naval officer in Spain; and Philip found it extremely difficult to find a successor. In the end of June he appointed the Duke de Medina Sidonia, a nobleman of high reputation, but entirely unconquainted with maritime affairs. Martinez de Recalde, however, a seaman of great experience, was made vice-admiral.

In these arrangements so much time was lost, that the fleet could not leave Lisbon till the 29th of May. It had not advanced far in its voyage to Corunna, at which place it was to receive some troops and stores, when it was overtaken by a violent gale, and dispersed. All the ships, however, reached Corunna, La Coruña (the Groyne, as it is called by our historians and sailors), though considerably damaged, except four. They were repaired with the utmost diligence, the king sending messengers every day to hasten their departure; yet several weeks passed before they were in a condition to resume the voyage.

In the mean time a report was brought to England that the Armada had suffered so much by the storm as to be unfit for proceeding in the interchange of fire. An active intelligence was accordingly started; and intelligence, that the Armada intended to land, was attended that the intelligence appear, that, at the queen's desire, Secretary Walsingham wrote to the English admiral, requiring him to lay up four of his largest ships and to discharge the rest of his fleet, in order to land the army. The admiral, on this occasion than either Elizabeth or Walsingham, and desired that he might be allowed to retain these ships in the service, even though it should be at his own expense, till more certain information were received. In order to procure it, he set sail with a brisk north wind for Corunna, intending, in case he should find the Armada so much disabled as had been reported, to complete its destruction. On the coast of Spain he received intelligence of the truth: at the same time, the wind having changed from north to south, he began to dread that the Spaniards might have sailed for England, and therefore returned without delay to his former station at Plymouth.

Soon after his arrival Lord Howard was informed that the Armada was in sight. He immediately weighed anchor, and sailed out of the harbour, still uncertain of the course which the enemy intended to pursue. On the next day he perceived them steering directly towards him, drawn up in the form of a crescent, which bent from one extremity to the other. Plymouth was at first supposed to be the place of destination; but it was soon apparent that the Duke de Medina adhered to the execution of the plan which had been given him by his sovereign. This was, to steer quite through the Channel till he should reach the coast of Flanders, and, after raising the blockade of the harbours of Nieupoort and Dunkirk by the English and Dutch fleets, to direct the Duke de Medina to England, as well as land the forces which were on board his own fleet. Lord Howard, instead of coming to close and
unequal fight, contented himself with harassing the Spaniards 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 disposed of a favourable opportunity, seizing the very admiral Recalde. This he did in person; and on that occasion displayed so much dexterity in working his ship, and in loading and firing his guns, as greatly alarmed the Spaniards, who were taken from their sails, and 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 her masts gone, touching a rock, was taken prisoner. But the duke, though he embarked a few of his troops, informed Medina that the vessels which he had prepared were proper only for transporting the troops, but were utterly unsuitable for battle; and this being the case, the Armada was 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 consequence of 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 sudden calm put a stop to its motions. In this situation the fleet remained for a whole day. At the middle of the night of August the 7th a breeze sprung up, and Lord Howard had recourse to an expedition 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 behold these ships in flames approaching them with great dismay: the darkness of the night increased their terror, and the panic flew entirely through the fleet. The crew of the different vessels, anxious only for their own preservation, thought of nothing but how to escape from immediate danger. Some weighed their anchors, whilst others cut their cables, and surrendered the charge of the engines left behind. The fusion many of the ships ran foul of one another, and several of them received such damage as to be rendered unfit for further use.

The Armada, in its retreat,回顾 returned, Lord Howard had the satisfaction 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 received a great augmentation by the ships fitted out by the nobility and gentry, as well as by those of Lord Seymour, who had left Justin de Nassau as alone sufficient to guard the coast of Flanders, and being bravely seconded by Sir Francis Drake and all the other officers, he hastened to implement his plan, which he had published in the course of the night of August the 8th, and lasted till six o'clock. The Spaniards in every instance 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 or twelve largest were either run aground, sunk, or compelled to surrender.

The principal galleass, commanded by Moncada, having Manriquez, the inspector-general, on board, with 300 galley-slaves and 400 soldiers, was driven ashore near Calais, and its most valuable ordnance captured. 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 kill the 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 Spanish galleasses, along with many others by contemporary historians, the St. Philip and St. Matthew: after an obstinate engagement with the English admiral's ship, they were obliged to run ashore on the coast of Flanders, where they were destroyed.

The Duke de 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 in open seas. He therefore hastened to abandon the further prosecution of his enterprise; yet even to get back to Spain was difficult: he resolved, therefore, to sail northwards, and return by making the circuit of the British isles. Lord Seymour was detached to follow 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 of Medina's subservency.

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. Some of the ships were dashed to pieces on the rocks of Norway for miles along the coast of 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 were lost. Medina's ships were detached from them on the west, on different parts of the coast of Ireland. Port na Spagna, on the coast of Antrim, near the Giants' Causeway, obtained its name from this circumstance. (See 5.)...}

The British, in the following summer, pursued them, some afterwards reached home in the most shattered condition, under the vice-admiral Recalde; others were shipwrecked among the rocks and shallows; and of those which reached the shore many of the crews were barbarously murdered. It was now apprehended, not so much that in a country where there were so many disaffected Catholics it would have been dangerous to show mercy to so great a number of the enemy. Camden says, "They were slain, some of them by the wild Irish, and others put to the sword by command of the lord-deputy; for he, fearing lest they would join with the Irish rebels, and seeing 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 beheld about two hundred of them." The Duke de Medina having kept out in the open seas, escaped shipwrecks, and was in a state of despair. He arrived at Santander in the Bay of Biscay about the end of September, with noe more than sixty sayle out of his whole flete, and those very much shattered.

Seymour, the victor, received the whole credit of the attack, and the 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 on 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 Armada preserved in the British Library, entitled La Falsetina Armada, que el Rey Don Felipe nuestro Sefior mandó y hacer en el puerto de la Ciudad de Lisboa, en el Reyno de Portugal, el 15 de mil y quinientos y ochenta y ocho: hecha por Pedro de Paz Salas, fol. Lib. 1588; by Antonio Alvarez, Impresor. This copy in the King's Library was the identical one which was presented to the 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 defeat. In his account of this event, he mentions a commander from one Spanish vessel to another different vessel. The following are a few of Lord Burghley's notes:—

Galileo S. Philippe; "taken at Flushing, 31 July.
D. Francisco de Toledo; "this man escaped to Nuret."
Nuo Capitana: 'this ship was taken by Sir Francis Drake.' El Gran Giron Capitana: 'this man's ship was destroyed by the English.' Don Gambo in the Isle of Fureamore, Scotland. Barca de Amburgo; she was drowned over against Ireland. San Pedro Mayor; 'wrecked in October, in Devonshire, near Flinnmooth.' La Galaga Capitana nombrada S. Lorenzo; 'this was drowned off Caliy.'

The last chapter, which contains the explanation of the lord-deputy's barbarous conduct in Ireland. Members of some Irish families were on board the Spanish fleet:—

Admundo Estacce; 'brother to James Estace, Viscount Bognor.' Don Domus in the Isle of Faremores, Scotland, Ooconem; Tristan Vinglade; 'Wyndham.' Ricardo Borey, Roberto Luceo, Cristoval Lombardo; 'of Mountner.'

The copy of this work in the Royal Library, from which a few particulars in the earlier part of the preceding account have been extracted, is accompanied by a chart, 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 Excerptum Armatorum in Anglia Vero Descripta, Anno Do. MDLXXVIII. published by Robert Adam, and engraved by Augustin Ryther. The different actions and positions represented in these charts are minutely explained in a quarto tract, printed by A. Hartlestone at Amsterdam in 1588, 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.

The account of this great hostory, says, 'Whereupon several monies were coined, some in memory of the victory, with a fleet flying with full sails, and this inscription, Veni, vidii, fugi; 'It came, it saw, it fled;' others in honour of the ships and waters; and lastly, in a scrobed, Duo famina facti, that is, 'A woman was conductor of the exploit.' The medals and jettons, however, which were struck on this occasion, were entirely Dutch. None were struck in England. The most remarkable of considerable size is that which represents the Spanish fleet upon the obverse, with the words Planti Jehovah et dissipati sunt, 1588, 'Jehovah blew and they were scattered.' Reverse, a church on a rock, beaten by the waves, Altidur non litor. These, and one or two more will be found in the Histoire Médallique des Pays-Bas, tome i. 382-396; and in Pinkerton's Military History of England, pl.viii. no.7, 8; pl. ix. no.1, 6.

Philip II. finished two jettons, with the inscription, Impress Tornem Oceanii, 1587 and 1588. It is usually said that the circulation of an English newspaper first began in 1588, when The English Mercure was published by authority for the prevention of false reports. Copies of this were printed at Amsterdam, Augsburg, Zerana, Luthen, and elsewhere. No. 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. 50, 51, and 54 in the corner of the marco, we are to conclude that such publications had occasioned an excitement 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; Ellis's Official Hispanam; and Watson's History of Philip II.

ARMILLARIO (Dasyus, Linnæus), in zoology, a genus of mammals belonging to the order Edentata, and forming, with the allied genera Chrysomus and Jocobi, 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; and the bears, to their name and definition. Nor are these the only distinctions which subsist between the three families of edentatus mammals which we have here indicated. Others have been already pointed out in the articles just referred to, and it will be sufficient 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 structural system of some of the most remarkable and the armadillo, 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, 'the very name paralyzes with it the idea of vigor and activity. A glance at the figure of this animal, with the inexorable eye of a botanist, 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 in invention, in truth employs them so well that the armadillo 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 observations is presented by the genus of quadruped called the armadillo, which, by the aid of the extraordinary positions of these animals, are covered with a species of bony crust, forming three bucklers on the head, shoulders, and rump, respectively, the two latter being connected by a number of transverse movable bands, very similar in form and animation to the plate armour of the middle ages, from which indeed these animals had acquired the name of armadillos, a name of Spanish origin, which has been adopted by English writers. The armadillos like to hang down on each side, so as to form an effectual protection to their head and shoulders; they can also move their bands 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 connected by a soft pliant skin of the animal, produces a remarkable power of rapid motions. The bucklers themselves, as well as these connecting movable bands, are composed of numerous small polygonal plates, placed contiguous to one another, and moved transversely, but not exactly, but without any actual 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 which inhabits it, all tend to a certain degree, and thus to accommodate itself in some measure to the motions of the body. The great and principal motions, as already observed, are entirely due to the movable transverse bands, interposed between the two principal bucklers 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 diatuated, and have none of these movable bands interposed between; but that of the head projects considerably below the ordinary level of the neck, to 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. We shall again have occasion to present this point of view, and in fact it appears to have been a kind of connecting link between the most opposite and inexpressible 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 claws; which the distinction distinguishes to such an extent, that it is manifestly a species of the most remarkable inhabitant of the antediluvian world. The throat, breast, belly, and thighs, of the armadillo are naked, or covered with a thin granulated skin, thinly furnished with hairs or tresses, which give origin to a few coarse, bristly hairs. The legs areWithout doubt, the most remarkable and interesting feature of these mammals is the curious arrangement of the movable bands on the loins, and in fact it appears to have been a kind of connecting link between the most opposite and inexpressible 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 claws; which the distinction distinguishes to such an extent, that it is manifestly a species of the most remarkable inhabitant of the antediluvian world. The throat, breast, belly, and thighs, of the armadillo are naked, or covered with a thin granulated skin, thinly furnished with hairs or tresses, which give origin to a few coarse, bristly hairs. The legs are without doubt the most remarkable and interesting feature of these mammals. The movable bands on the loins of the armadillo are likewise provided with a number of long hairs; but, with this exception, the body is covered only by its peculiar shell. The tail is short, round, thick, and pointed: it is adapted, at the root, to a
notch or cavity in the posterior edge of the buckler of the head, and, with the exception of one species, is universal in the armadillos. In the ringed armadillo of the ring of the bucklers, 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 muzzle. The nose and eyes, like those of the 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, corpulent bodies; and their legs are so displaced that they are short, and only sufficient to elevate 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, curved, heavy claws for digging. They are 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 drawn forth. Yet, although corpulent and corpulent in their heavy corpulent 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 horse and a rider. Of 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 most part, they conceal themselves during the day, for the greater number of the species are nocturnal, and never move abroad whilst the sun is above the horizon. This rule, however, admits of some exceptions—a few species being found abroad at all times indifferently; and it has been remarked that these 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 generally of cattle and reptiles. They vary in number, from seven or eight to seventeen or eighteen on each side of each jaw; and are so arranged, that when the mouth is closed, the upper teeth fit into the interstices of the under, 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 the number of these and substances, and the sufficiently to gratify, when not properly protected by stones or brick-work. Azara informs us that ants are never found in the districts inhabited by the armadillos, and that these animals eat and disentangle the insect-tarts, as the true ant-eaters. Nature, it is true, has not provided them with the same apparatus for this purpose, but the armadillos may, notwithstanding, destroy vast quantities of ants, though it is probable that they expel them from their peculiar districts as much at least by destroying the habits as by actually devouring the insects themselves. The ordinary food of the armadillos consists chiefly of the roots of the manioc, of potatoes, maize, and other similar substances of a vegetable nature, though, as already observed, without rejecting animal substances naturally soft or so far decomposed as to be easily torn without the help of canine teeth. They are also very destructive to the eggs and young of such birds as build their nests in the ground. Their ordinary burrows most commonly run for 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.

It is generally believed that the female armadillo brings forth but once during the year, but she produces at a birth eight, sixteen, or even ten, young ones; yet she has never more than four at a time. In a report of M. Azara, the most accurate and extensive observer who has written upon the history of these animals, in some species only two,—an anomaly, with respect to the number of young, which perhaps may be truly,—to contradict the general rule observable among other mammals. Azara, indeed, supposes that some of the young die for want of proper nourishment, and that the mother only rears those for which she has a sufficient supply of milk.

In support of this idea, he adduces the instance of a female armadillo in the possession of an acquaintance, which produced nine young ones at a birth, out of which three died shortly afterwards, and the remaining six were nursed by the mother. This was no doubt true in this particular instance, but it is difficult to believe that the rule can be generally true, or that so complete a contradiction, as such a phenomenon would indicate, can possibly subsist between the functions and structure of organs in other respects so intimately allied to one another as the matrix and the mammas. The only actual anomaly, or exception to the general rule which subsists among other animals, is to be found in the disproportion subsisting between the number of the young and the period of their subsistence. It appears, that in no other class of animals is this proportion so nearly equal, since we can easily conceive that two or even more young ones may be supported by a single text.

In the tropical regions of South America, the original and proper habitat of all the known species of armadillos. Ignorant or careless writers, it is true, have frequently mentioned them as natives of Asia and Africa, but such mistakes probably arise from confounding these animals with the pangolins (manis), or scaly ant-eaters of the Old World, a very different genus, and more nearly allied to the true ant-eaters than to the present genus in all respects save the horny covering which supplies the place of hair, and for this reason is essentially in its character from the bucklers of the armadillo. The armadillos are active, hardy animals, and thrive and breed rapidly with a moderate portion of care in most temperate countries. Such of the species as prefer a vegetable food, and are found in the wild state, are luscious and wholesome, might even be domesticated with advantage, and bred in warrens, like rabbits. In their native climates, however, they still abound in such incredible numbers, that the people of every village are in a constant fear of being devoured. It is probable, however, that they are most usually taken in traps during the night; or, when found in open day at any distance from their burrows, are pursued by small dogs, which intercept their retreat till the hunter has time to secure them. One species only, when
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 moveable 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 continually according to the age and sex 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 definition, 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 *tatu*, or *tatu*, by which these animals are distinguished among the Guarani Indians, the aboriginal inhabitants of Paraguay and the southern provinces of Brazil, instead of the more common and certainly very appropriate name of *armadillo*, by which they are known to English and Spanish writers. The first of Baron Cuvier's subdivisions, I. The Cachicares, 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 osseous 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 hovering. To this division belongs 1. The pebas (*D. peba*, Desmarest), called by the Guarana *tatupeba*, 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 Desmarest under the name of *Tatupeba*, seven teeth only on each side both of the upper and lower jaw, and a long 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 *tatupeba* 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 the moveable bands generally fewer in number, and of being seconded 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 also, that the size and form of the grains of the two species make it sometimes difficult to distinguish the Indians on the banks of the Orinoco: Azara calls it the black armadillo, from its Guarani name; and it has been admitted into the generality of naturalists by 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 moveable bands between the crown of the bucklers and shoulders was invariably the same in the 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 the same in both sexes. The head is considerably longer and still more slender than the body; the head bears a 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 ears long and slender, 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 of the origin of the tail, and is modified in all its parts according to the age and sex of the individual. It is composed of very 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 from that of the rings on the shoulders. It is a little less than a foot and a half in length, and a half in width, from the root of the tail. When viewed externally, the little pieces composing these bucklers have the appearance of irregular tubercles, but when examined on the under side of the animal, they are whitish, and perfectly round, like 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 moveable bands, with a row of rings marking the same, 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 moveable 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 head 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, and feet, and even on the outer face of the ears. The tail is extremely long and tapering, and terminated by a number of osseous rings forming a long tubular case, and connected like the joints of a cane. The peba, or, as it is commonly called in Brazil, *tatupeba*, has thirty-two teeth, eight on each side both of the upper and lower jaw. It inhabits Guiana, Brazil, and Paraguay, is a timid nocturnal animal, tolerably swift-footed, and very expert in hovering; it is never found in the woods, but delights in the open plains and cultivated fields, and is much hunted by the inhabitants on account of the delicacy of its flesh, which, when roasted in the shell, is fat and well tasted; it is said to resemble that of a sucking pig.

2. The mule armadillo (*D. hybridus*, Desmarest), called *Mbouriqua*, or *mule tatu*, by the Guarani, 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 *tatupeba* 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 the moveable bands generally fewer in number, and of being seconded 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 also, that the size and form of the grains of the two species make it sometimes difficult to distinguish
between the adult M'bouiqua 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 _Maturo armadillo_ (D. _soradoreo_) 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 movable bands are broader, and the plates of the group buckle 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 _Maturo_, 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 _Maturo_ (D. _apar_, Desmarest, and _D. tricornus_, Linnaeus), called also Nofita, or the little ball, from its faculty 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 maturo 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 peba peba, nor does it possess sufficient speed to escape by flight. It is found in Brazil, Paraguay, and Buenos Ayres, but is nowhere common.

III. The _Eucouberia_, or third division of Baron Cuvier, have five toes on the fore feet, and nine or ten teeth throughout, but they are principally distinguished by having two teeth in the intermaxillary bones of the upper jaw, representing, 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 edentata, which are principally characterized by their want of teeth of this description.

5. The _poyou_ (D. _Euouberia_, Desmarest, _D. Sexincus_, 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 moveable 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 is merely covered with regular tubercles. The interstices of the moveable bands give origin to a great number of bands, bristly, grey hairs, and the female is provided with only two pectoral mammae. But independently of all other considerations, 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.

6. The hairy armadillo (D. _Villans_, Desmarest) measures fourteen inches in length from the nose to the origin of the tail; the head is nearly four inches in length, the ears two-

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**[Illustrations]**


*The Poyou. D. Euouberia.*

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 its form, and in this situation the great breadth of the body is remarkably apparent, being nearly three times its height.
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 is comparatively uniformly triangular, with ears circumscribed by a skin 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 moveable bands of the face, six to seven, according to the individual. The border of the bucklers, as well as the lower side of the moveable bands, is indented in a remarkable manner, and forms sharp angular points, which serve to approximate the form of the species to the long-eared hare, less in the respect of the poyou, has only two pectoral mammae.

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 Pampeas or plains of Buenos Ayres, south of that river. In an expedition, says Azara, 'which I made into the interior, between the parallels of 32º and 35º south latitude, I met with vast multitudes of this species of armadillo, so that it was necessary to distinguish it from the poyou, which 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 by April, when the weather becomes so extremely hot, that their flesh surfeited and palpated the appetite; notwithstanding which the pioneers and soldiers ate them roasted, and preferred them to beef and veal. The head and body, according to M. Azara, 'like others of the genus, has undoubtedly a very acute sense of smell, since it scents the carcases 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 has already begun to be 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 in every part preserves its 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 pichiy (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 pennis 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 moveable bands, 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, lunate and pointing backwards. Each scale is two 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 are, 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 last species.

The pichiy inhabits the Pampeas to the south of Buenos Ayres, and extends from 26º 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; it is very remiss in its feeding and wakefulness.

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 rigours of our more northern climate without injury or inconvenience.

IV. The KABASOUS, 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 naked, or as it were rudely 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, from 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 trails along the ground when the animal walks; the test is covered with soft brown fur, interspersed with a few stiff short hairs on the upper surface. The head is longer, narrower, and more attenuated than that of the poyoun, though considerably less so than in the peba and male 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-foot, particularly that of the middle toe, are excessively large; and the female is provided with only two pectoral mammae. 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 coccin being the largest of all; the moveable 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 Oesemens 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 great armadillo (D. Giga, 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 downwards, assumes a tubular cylindrical form, like that of the peta; the ears are of a moderate size, pointed, and habitually coched backwards; the bucklers of the shoulders and croup are composed of nine and eighteen rows of plates respectively, and separated by movable 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 tootuay 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' hark 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 Neagh, Lough], 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 145 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 455 square miles, and 293,919 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 1584. (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 Slieve Gullen (1906 feet); Slieve Girkin, or the Newry Mountains (1340 feet); the Fethom Mountains, lying along the Newry river (320 feet); and the Foughall or Faugheen 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 that part which lies along the margin of Lough Neagh. Neagh is traced in the neighbourhood of Newry; and slate-slate composes the sides of the narrow valley between Slieve Gullen and Slieve Girkin. Limestone skirts the Blackwater and Callenwater. (Trans. of Gool Soc. vol. iii. p. 17.)

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 some small lakes, like 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 runs through the county of Tyrone, and flowing to the N. near Carlingford, discharges into the bay of Carlingford.

In 1788 the average 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 well sunk sixty feet deep) to be 49° by 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 inclosures and cultivated fields indicate the thick settlement, 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 little cultivated, but the inclosures have been formed on parts of some 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 land belongs to the church and to college establishments and corporations, which have not the power of granting freehold leases for lives; the common tenures on other properties is a lease for twenty-one years and one life. To such an extent has subsisting been carried that the county has a character resembling 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 daughters. 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 Antiq. Ulster] will, in a great degree, apply to the neighbouring county of Armagh. The division of the county of Antrim is a system which is cession deserves that name, is similar in each; the joint contribution of animals to form a team for the plough, and the 'con-acres' of the dry cotter, as described in the account of Antrim, are found in this county also. The joint labour 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 quality to those grown in the south-west of Ireland. 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 summer, is commonly applied to the land) is raised also serves 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 extensive pasture. There are no large market towns, but the little farmers keep cows, a considerable quantity of butter is sold for exportation. 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 only the native breed of hacks. Goats and pigs are reared, the latter in great numbers.

Although agriculture has been improving since the time of Mr. Wakefield, and the publication of his book in 1812, according to the returns 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 52 to 76 by those of the Catholic clergy; but the different rank in life of the Catholics and Protestants renders this an unfair criterion of the relative population. The proportion of the pupils of the Established Church to Presbyterians was at the same time about 47 to 89, according to the returns of the Protestant clergy, and 46 to 89 according to those of the Catholics. This, 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 Sliegh Gullen, 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. R. A. vol. viii: Wakefield's Account of Ireland, 1812: Dr. Beaufort, a Topographer 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 southern part of the county. The town is on the river 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 other small eminences. Some of the streets form an irregular circuit round the cathedral, and on the slope of the hill; all the others, leading into the town from the surrounding country, terminate in this circuit, except three, which are continued to the summit, and lead to the houses which had sunk greatly to decay, owes much of its renovation to the munificence and public spirit of Dr. Richard Robinson, Baron Roekey, who was archbishop from 1765 to 1794. The town is rather more than three-quarters of a mile from north to south, and above half a mile from east to west.

Of public edifices the cathedral deserves the first 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 (viz., in the year 1566), it was repaired in 1566 by Sir Phelim O'Neil, and was intended to reimburse some insult which he thought had been offered him by the primate (Loftus). 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 Maretson 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 133 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 40 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 primacy 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 erection of a new school-house in the town, containing, besides, a study-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, was destroyed, and in 1804 was repaired, and Robinson appointed it 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 desolate state, and made Armagh one of the most beautiful and flourishing inland towns in Ireland*.

Armagh is the assize town of the county, and has a jail, as well as a handsome court-house, lately built. It is lighted with oil, but as gas works are being erected, it is expected Armagh will be lighted with gas, which, when completed, will be the first town in Ireland where the streets are neatly and durably flagged, the streets are clean, and the care of the magistrates keeps away beggars. The magistrates of the place are a 'sovereign,' and a 'registrar.' The magistrates in the workhouse is supplied 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 flux in the surrounding district.

The chief trade is in linen, which is made in the country itself, 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 1841, was 8,493, and in 1851, 5,189; but the proportion of population is probably no otherwise altered. 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 chapter of Armagh was founded 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, Neath, and Tyrone. The archbishop's province includes the counties of Dromore, Down and Connor, (united); Derry, Raphoe, Clougher, Kilmore, Ardagh, and Longford, and篮 as the last named is the only one of this area, it is no longer represented in parliament whenever it sees fit to become 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 1837. 17s. 1d., 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 perpetual curacies. The diocese of Co. Down and Connor, there were only two diocesan canons. A synodical 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 fifteen consisting of parishes or portions of parishes united. The diocese of Clogher, when vacant, is to be incorporated with that of Armagh.

Armagh is a rectorcy, 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 also in the town two Baptist meeting-houses, both on a large scale; a place of worship for the Seceder; another for the Independents, and two Methodist meeting-houses. There are several churches in the outskirts 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 aforementioned, there is a lunatic asylum at Dromore, and at Monaghan, large mansions, a town, and Armagh. A fever-hospital has been built, and is maintained at the expense of the present lord primate; a 'shop for the poor' has been instituted by some individuals of his family; and a mendicity substation started.

By an amercement, in 1678, 174l. 10s. 4d. was imposed in Armagh, for a chaise being taken from the body of a murderer, who was hanged at L'Isle, and for the dance of a lady of quality, who was in arms, and for a dance of a lady of quality, who was in arms, and for the dance of a lady of quality, who was in arms.

* ARM

ARMAGH OBSERVATORY. [See Observatories.]

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 the country continued in use, it had Languedoc on the east, the Agenais 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 province of Gascony. Few parts of the country have been more frequently described in all its extent, as described by Pignol de la Force. (Nouvelle Descript. de la France, 2d ed. 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, Asturac, Brullois, L’Eauzun, Fezensac, Gaume, Fezensaguet, Lomagne, Les Baronnies, Rivière-Basse, Rivière-Salée, Mauleon, les Quatre Vallées (de Magnac, de Neste, d’Aure, et de Barousse), already noticed, and Nebouzan. The chief towns were Auch (population in 1826, 11,000), Lectoure (population 6000), Vic-Fézensac (population 4000), Navarrenx (population 3000), Fivelaque (population 2000), Nogaro, Fleunèbre (population 3000), Lescar, Vic, or Lavit, Castelnau-de-Magnac, La Barthe, Mauléon, Arreau, or Arreau, and Sarrecolom. These, which, with the exception of Leveau, and Mauléon, may be traced in the departments of Gers and Hauts 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, LECTOURE, MIRANDE, GERS, and HAUTES PYRÉNÉES.]

The county of Armagnac arose in the tenth century by the division of the lands of the Count of Fezensac, whose younger son Bernard received the title of Count of the county, but which appertained to the barony of Magnac, which adjoins Bigorre, and thus became the first Count of Armagnac. The failure of the elder branch of the family of Fezensac (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 in the time of King Charles V., and afterwards King Charles VI., a man of great 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 from his crimes, and renounced himself obnoxious to Louis XII. of France by his political opinions, with his dominions; he was beheaded in 1745, and his head was brought over to Armagh and interred in a vault under the cathedral. A bust of him, by Bacou, adorns that edifice, which contains also a whole picture of the late Priests Shoot, by Chalybey, one of Dussel de Lomagne by Huyser, and some other pieces of sculpture by Irish artists.

Scription afforded relief in the year 1830 to 500 persons, to the amount of nearly 584l. Besides the royal foundation school there are several establishments for education, as, a chartered school for 20 girls, founded by Dr. Drincourt; a school for fifty girls, supported by Lord Grenville and the Vicomte; and one for many girls, by the primate; and a Sunday school for 150 boys. The whole number of children under instruction in the city, in 1821, was 1071 (934 boys and 137 girls); and in the whole parish 2319, viz., 1859 boys and 450 girls. The early period of the history of the town was subject to many severe visitations. Conflagrations happened in the years 1670, 687, and 778. In 1832 the Danes plundered it; and in 1839 they burned it to the ground with all its sacred edifices. On six or other occasions in the same century it was laid waste by these barbarians. The annals of the three 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. It has suffered no destruction, except by misfortunes. (Young's Tour; Wakefield's Account of Ireland; Liber Hiberniae; Parliamentary Papers, &c.)

The position of the observatory of Armagh is 54° 21' 7" N., and 4° 9' 25" E. at about 75 feet above the sea. It is in the city, and is a small building.
downfall of this antient and powerful family. Besieged in 1472-3 in Lectoure, of which he had got possession, he was himself killed and the town taken by the perfidy of his enemy, 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 1645, during the minority of Lewis XIV., in the time 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 which are the counties of Aulnay and Lomagne; and Low Armagnac included all the other districts given above. It is very fertile in grain and wine. Its brandy is of good quality, but not equal to that of Cognac. Very fine Bon-Chretien pears are also produced. (Piganiol de la Force, Dictionnaire du Grand Dictionnaire; Balti.)

ARMAGNAC, COUNTS OF, were descended from the antient 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 France and England made peace in 1380. In the latter year he 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 I., took his place; he became Marquis of Comminges, and gave his name to the great party which he headed in opposition to the Burgundians. His son married the Duke of Berry, one of the French princes; and Bernard, in 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 populous nation of Gascony, whom he led, in the year 1410, to attack 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 contributed in no small degree to give that character of atrocity to the civil wars of the time in which they stood unequalled. The Armagnacs were composed of a rustic or pastoral population: the Burgundian cause was chiefly supported by the burgesses of the north of France and Flanders; and thus the mutiny had the citizen and peasant 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 to restore Aquitaine to Henry IV. of England, in addition to the clergy, and the French gold. The latter set the diocese of Lescar as the price 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 of Armagnac, who had not been present at the battle, but who hurried from the south with his army to join the capital, was now the sole reliance of the dauphin. He was accordingly created Constable in the last days of 1415, and soon showed himself an active and severe leader. Towards the citizens, especially of Paris, he showed himself a merciless tyrant, levying contributions, discriminating 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 Surrey, his inferior in force, reduced the County of Armagnac 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 his party, and all over France the Duke of Burgundy, by terror and his humanity, 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 the feeble queen either the good fortune or the treachery of the Count d'Armagnac, suspected, and though one of the gates was betrayed in the night to the enemy, and the Burgundians got possession of Paris, but not without a struggle. At first the persons of 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 exulted by recollection of the tyranny of the Armagnacs, burst open the prisons, and massacred all within. This took place on the 12th 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 distinguished for his martial exploit; and his intercourse with his sister, which was concluded by the marriage of the pope Pius II., and of his sovereign, Charles VII. He was excommunicated, and forced by the royal troops to take refuge in the exile he had consecrated 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 engaging the armaments to set 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 found himself in the spot 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, Armagnac seemed an enemy in every sense worthy of Louis XI.—revolting, defending himself bravely, when overcome at last vowing submission once more, and again acting the traitor. In his character and career he resembles the late Ali Pacha of Janina, and he met with a similar fate. Cardinal d'Albi, who was sent against him by the king, entered into negotiations with him, concluded terms of peace, and even a consecrated wafer was broken and taken by both parties in sign of good faith. Relying on this, Armagnac relaxed in the vigilance of his guard; and the soldiers of the cardinal were four years later, led by the Count of Lectoure, and to massacre the count and his followers in 1473. The king's command required the total extermination of the Armagnac race. Jeanne de Foix, the legitimate wife of the count, who was pregnant, was compeled to swallow a draught of poison. His brother Charles was seized, tortured, thrust into an unhospitable 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 NOURS.]
from the pacha of his district, to whose authority he was submitted. The band was composed of and commanded by Greeks exclusively; and, according to Fauriel, the number of cantsons, immediately prior to the revolution, amounted to seven thousand. The numbers who, in point of number, were unrestricted, were called pellikari: their costume was that generally known as the Albanian; their arms consisted of a yataghan, sabre, musket, and pistols; they were brave and talented leaders of the Turkish war-parties.

About the middle of the last century, however, the Porte thought fit to appoint a Derenjci Bashah, in whose hands the care of all the passes was placed: this was a measure designed for the subversion of the armutli. Ali, pacha of Jumin, and his family have been alsoappointed Derenjci Bashah, making strenuous efforts to destroy their independence; but his cruelties drove the greater part to rebellion, and they fled to their native fastnesses. Here, as in the Morea, they maintained a sort of partial independence, and, at the first cry of the revolution, issued forth to assist in the liberation of their country. (Emerson's Modern Greece; See Leake's Morea, ii. 106.)

ARMENIA. 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.

The Araxes, in the best sense of the expression, Armenia may be said to embrace the country from lake Urnia and the junction of the rivers Kur and Araxes in the east, to the upper course of the Kizil Irmak or Halys in the west; and from the upper course of the rivers Chorok and Kur in the north, to these mountains and the height assigned to Mt. Mardin, and Ninisib, in the south. This extent is given to Armenia in the outline of a map prefixed to Avall's translation of Michael Chamin's History of Armenia. (Calcutta, 1827, 2 vols. 4to.)

The Araxes of Herodotus (v. 52) bordered on the west by Cicilia, from which country it was separated by the Euphrates; towards the N. it included the sources of the Euphrates and Tigris, which at a point in the S. and E. its limits are not distinctly defined, as at the N. and S. by the Caspian Sea and Mesopotamia, and Mount Ararat from the country of the Sassires, who occupied the valley traversed by the Araxes. (See Rennell's Geograph. Syst. of Herodotus, vol. i. p. 369, 2d ed.)

The Araxes of Strabo (vi. 14) is limited on the S. by Mesopotamia and the Taurus; on the E. by Great Mesopotamia and Atropater; on the N. by the Iberes and Albania, and by the Pareotheas and Caucasus mountains; on the W. by the Tiharen, the Paryedres and Skydises mountains, as far as the Lesser Armenia, and to the country on the Euphrates which separates Armenia from Cappadocia and Cilicia.

Alalische and other oriental geographers not only extended the limits of Armenia considerably to the N., so as to include Tiflis and part of Georgia, but also comprehend Cicilia and part of Cappadocia under the appellation of Belad-al-Armen, (Gen. viii. 2.) and the sources of the rivers Araxes and Tigris as far as to Apgar-dagh, Dagh-e Dervenji, Lake Buzav, 1755. fol., and the Geographical Works of Sokh Isfaham, edited by Sir William Ouseley, London, 1832, 4to, p. 6.)

The greater part of Armenia constitutes an elevated tableland, 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, which rises like a wall above the lower level of Mesopotamia, is the Kirdschian range, which passes in a W.N.W. direction a little to the N. of Mosul, is cut by the deep bed of the Tigris at Jezithah, passes a little to the N. of Ninisib, and past Mardin to the point where the Euphrates traverses the great range of the Taurus.

Near the town of Erezor we find a chain of mountains which, by several projecting branches, is connected with the Caucasus, and separates the valley of the Chorok and the upper branch of the Euphrates of the Zorab, which enter the Araxes in the east, while the upper course of the northern branch of the Euphrates, often called the North Prat, marks its southern declivity. Its parts bear different names: among the upper branches of the Araxes, in the direction of Ela, Cheldir, Bin-Gheul (i.e., the thousand lakes), and, among the Armenians by the names of Khakhidik, Bark- hur, Garin, &c. These mountains partly correspond to the sources of the Paryedres, Skydises, and Mounts Moschich, of the ancients. The Bin-Gheul, or Pinkol, gives origin to the Araxes and to the northern branch of the Euphrates [see Arax]; on the Barkhar the river Kur has its source.

The chain of hills which separates Armenia from Georgia, comprising nearly one-fourth of the number of the people, who, in point of number, are unrestricted, were called pellikari: their costume was that generally known as the Albanian; their arms consisted of a yataghan, sabre, musket, and pistols; they were brave and talented leaders of the Turkish war-parties.

South of the Araxes we meet with a range of mountains, called by Colonel Monteith the Mosian (Masian?) hills, some of which are covered with eternal snow, extending from the banks of the Araxes opposite Erivan westward to the Euphrates. They are named the Kurshik, Dagh-dagh, Aghir-dagh, or Ala-dagh; in Armenian, Dagh-ragh and Masis. They must not, in consequence of the last name, be confounded with the Montes Masi of the Greek and Roman geographers, which are farther south. At the eastern extremity of this chain, and washed by the Araxes, is situated an elevated mountain, the Abus of Ptolemy (Man- nert, v. ii. p. 140), called by the Turks Agri-dagh, and by the Persians Koh-i-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 15,200 Paris or about 17,260 English feet.

According to another popular tradition in the country, the Ararat of Scripture is the present Mount Judi, S. of the Lake Van, in the Gouzyen mountains. At a distance of about forty miles from Mount Ararat, on the north side of the Araxes, there is another high peak, Mount Ali (or Maunot), to which Colonel Monteith states to be 15,000 feet. (See Ararat.)

S.W. of the Masis is Mount Nebad or Nebadan, according to Saint-Martin the Niphates of the ancients, towards the south of the Nebad are situated the Dzange hills, in which the Murad-chai has its source.

South of the Murad, and forming the separation between Armenia and Mesopotamia, are the Kurdistan Mountains, already described as part of the southern boundary of the Persian empire, or, as it is called, the mountains of Masius and Carduchian mountains. The Armenians themselves have no general appellation for this line of mountains, which constitutes the southern frontier of their country.

East of the Tigris, and immediately south of the Lake Van, we find the Karch, Judi, and Amadish mountains (the Montes Gurdyei of the ancients), and towards the frontier of Persia the Kirk-dagh. (See Saint-Martin, Memorias sur l'Arménie, vol. i. p. 36-54.)

These chains 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 certainty. It speaks of three rivers, each bearing the name of Tigris: the two western streams coming from the country of the Armenians, the third, farther to the east, from the Moutien. This is supposed by Mannert to refer to the three upper branches of that river, that of Damascus, that of Domat, and that of Erzinkafar. These, however, are the names of some streams, which, as it is now called Tigris, is a vast river, which descends from the source of the river Bedlis, which has its source in the mountains south of the Lake Van.

The Euphrates, and its first great auxiliary stream, the Murad-chai, also forms part of the borders of Armenia, the Euphrates, have their sources in the very heart of Armenia. The northern Euphrates arises in the Bin-Gheul hills in the district of Garin near Erezor. In the name Garin it is easy to recognize that of Garantis, where Pliny (v. 24) says that the Euphrates has its origin. According to
The Cyrus or Kur is the principal river of Armenia. It has one of its sources in the hills north of Karan, and another in the Lake Pharhavan near Akhal-kalak. They meet at Pilekek. The Kur then passes by the forts of Kertwits and Atinuada, and farther down by the towns of Gori and Tidit. Near Jebat or Jevat the Araxes joins the Kur, and the two rivers pour their united waters through three mouths into 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 Chorok has its source in the hills west of Baberd. In its upper course it is called Massatteresi, and farther down the Chorokh. It passes through the towns of Haghpat, Khorvat, Spet, Khotjur, Belgrad, and Ardivin, and after having during the greater part of its course followed a north-eastern direction turns westward, and falls into the Black Sea between Diin and Karanj. (See Nouv. Jour. d'Arach. vol. ii. p. 441-470.)

Among the lakes of Armenia, that of Wan is the most important. It lies in a basin surrounded by lofty hills on the S., W., N., and is separated from the lake of Urmia by the valley of Maku. Its elevation is about 1,000 feet, but we are not aware of any measurements being made. Plutarch mentions it under the name of Lake Arsiss: this name still survives in the fortress of Araks situated on the northern side of the lake, which is noticed as one of the principal towns of Armenia by orios tal geographers. (See Abulfeda, in the Index to Schultens's Pita Saladin; Ouseley’s Aethiopia, pp. 6 and 62.) The circumference of the lake is estimated at 38 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 rivers fall into the lake, but none of them as copiously as the Araxes, which enters at the mouth of the river Togarmah (see Perse, p. 127) describes the scenery of the surrounding hills as extremely picturesque. (See Col. Monteith, in the Jour. of the Royal Geographical Society, vol. iii. p. 56.)

Towards the north-east Erivan is the lake of Gouketsa or Sevan, also named Kangur Kani. From it springs the river Zengay or Zenghi, which passes by Erivan and then falls into the Araxes.

In the Massa or Mosian hills, west of Mount Ararat, and at a distance of twenty-seven miles towards the south from Karet-kulla on the Araxes, Col. Monteith visited a lake of twenty-four miles in circumference, at the extraordinary elevation of 600 feet above sea-level. At its western end a strong current running from east to west passing Bayzayd 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 Gulata and the Kara-kapas, covered with deep snow that never melts. (Schulz's Reise in Asia, 1829, p. 352.) These mountains, situated near Erzerum thinly frozen over during the night in July. On the southern boundary of Armenia, and on the road from Diarbekir to Bodlis up the valley of the river Bedlis, Father Avelin (in the Travels of Father Avelin in the Levant, 1814) speaks of the snow (in April, Voyage en divers états d'Europe et d'Asie, Paris, 1692, 4to., p. 46, &c.) The climate at Echmiadzin 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 Reaumur (4° and 8° below zero of Fahrenheit). (Travels, vol. i. p. 191.)

The plains verging towards Azerbaidjan and Persia are said to be scorched in summer with excessive heat, and to require considerable water in order to render them productive. (See Pliny, v. v. 9, on the Araxes.)

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The name of the ancient capital of Armenia was Artaxata, or Artaxatax. (Strabo, xi. 14, t. 2, p. 460. Tacit. Ann. vi. 33, xiii. 39, &c.) It was situated, according to Strabo, on a sort of peninsula formed by a curve of the river (τριήμερος ἄνω τοῦ ποταμοῦ Τιγρίσου). Tavernier, Tournefort, and Clavigero, followed the track of Saint-Martin, who wrote (p. 101) that Zengy or Zeghii falls into the Araxes, marks the situation of Artaxatax, and Manner (v. ii. p. 168) adopts this opinion. To Colonel Monteith, however, the situation of these ruins did not appear to answer to the description of Artaxatax: he thinks that the remains of the ancient capital are situated farther down the Araxes, in a bend of the river, at the bottom of which he saw the ruins of a bridge of Greek or Roman architecture. (Journal of the Royal Geogr. Soc., iii. 47.)

The German traveller Schulz discovered, in 1827, near Van, the ruins of a very ancient town, called Shamiramkert (i.e., the town of Semiramis), which he supposed to be the historical city of which is ascribed to Semiramis. Mention of it is made by Moses Chorenensis, who names Maribas Catina, a Syrian writer who wrote about the year 140 before our era, as his authority for the account which he gives of the ruins; and Schulz found on the surface of the inscriptions in the arrow-headed characters, many of which he copied. In one of them (an inscriptio trilinguis) the late M. Saint-Martin found the name of Kahearsa son of Dareiosh (Xerxes son of Darius) mentioned repeatedly, which in his opinion can only apply to the Xerxes who led the great expedition against Greece. (See Nouveau Journal asiatique, vol. ii. p. 164, &c.) According to the Armenian historians, the ancient town of Shamiramkert was called Warna, and is a king of that name, who was the last but one of the Haik dynasty. (See Avdall, History of Armenia, vol. i. p. 44.)

The town of Tigrancocerta, which according to Tacitus (Ann. x.v. 5) was situated at a distance of thirty-seven miles N. E. of Nisibis, must, in the opinion of D'Anville and Manner, be sought near the river Khabur, which they take to be the ancient Nicanorphus (the Kheintes of Xenophon). Armenian writers call the town Dikanagared, and say it is identical with the modern town of Kara-Amid or Diarbekr. (Saint-Martin, Mémoires, &c. i. pp. 170, 171.)

Magnificent ruins still exist of the celebrated ancient town of Ani. They are about four miles west of the monastery of Abanotum, the most conspicuous object of the scene is a deep and impassable ravine through which the river Arpachchalai runs. The place is laid down on Sir Robert Ker Porter's map in 40° 32' lat. 45° 36' long. E. of Greenwich. On the history of Ani, called Apia by the Greeks, see a note by Klapproth in the Nouveau Journal asiatique, xii. p. 191.

The remains of many other noble cities are still to be seen on the banks of the Araxes. The ruins of a bridge near Kara-kulla are supposed to mark the site of the ancient Armavera. Farther down the Araxes, Colonel Monteith saw the ruins of a magnificent temple of Diana in the valley of Guercy.

Marco Polo (Paris edit. p. 310) in his account of Armenia, mentions a town called Lais (written also Layaas and Larras in different MS. copies, where tradesmen from Venice, Pisa, Genoa, and from India (mercatores Veneti, Pisani, et Janaumes, et de omnibus partibus Indici) met and exchanged their merchandise.

Abulfeda notices the following as the principal towns of Armenia: Acjia, Dabil, or Al Dabil, Dvin, Wastan, Arzenj, Mush, Arzen or Arzen-ul-Rum (Erzerum), Melaberd, Buin, and Vardzak, in the same order. (Shulchnets' Vita Saladin, s. v. Asderbeisgian.) Sadik Iskifanian adds Aalah-tak, Wan, and Takrit. Most of these towns still exist. Erzerum or Arzen-ul-Rum (antiently called Araxia) is the most magnificent of all, and one of the greatest in the empire, being inhabited by about 70,000. Aikalashir, a fortress near the river Kur, is the principal town in Turkish Georgia. Arzia or Azigh and Akhalat are antient towns on the northern and eastern borders of the frontier, and on the western borders of the Caspian Sea near Astara. The line which separates the Persian from the Turkish dominions in Armenia begins at Mount Ararat, and then turns westwards, and strikes through the chain of hills which separate the streams falling into the Tigris and lake Van from those that run towards the Araxes and lake Urmia.

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About the middle of the fourth century our era Vaheudosteopolis was upon the throne of the Haiks. He ascended the throne in his war with the Megarians, but was defeated in the battle in the year a.C. 328. Armenia became a Macedonian province, and was ruled by governors, the first of whom was

The recent publication relating to Armenia seems to be the Researches of the Rev. E. Smith and the Rev. H. G. O. Dwight in Armenia, &c. vol. Boston, 1832. We have not had an opportunity of consulting this work for the present article.
A R M

ines, a Persian, was appointed by Alexander three years after the death of Valer. Already in the year 317, however, the Armenian nobles, on the death of Tigranes, or rather, it may be inferred, under the immediate conduct of mightier men, such as Araxes and Artashir, began a revolution against the reigning governor, Neoptolemus, threw off the Macedonian yoke, and maintained himself for thirty-three years as an independent king. After his death the Armenians were obliged to submit for a time to Seleucus, or rather Seleucus and Tigranes, until two Armenian nobles, Aratax and Zaradaces, availing themselves of the moment when Antiochus the Great had suffered a defeat from the Romans (c. 190), to declare their country free. The Armenians were at this time 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 descendants of Zaradaces continued to rule till the fall of the kingdom, and the country became attached to one or the other of the neighbouring states, and in the reign of the emperor Vespasian was made a Roman province. Subsequently its limits were extended so as to embrace all Armenia, Artaxerxes, and part of Caucasia; and under the Byzantine emperors we find it divided into Armenia Prima and Secunda, the former governed by a consul, the latter by a dux (hyrpos). (See F. A. Cramer's Geographical and Historical Description of Asia Minor, Oxford, 1832, vol. ii. p. 146, &c.)

In Armenia Major the family of Artaix (the Armenian Arsacidse) maintained itself till the year 5 c. 5, and gave eight, or, according to others, ten kings to the Armenian throne. From Artaxerxes I. (c. 55-60) the son-in-law and ally of Mithridates. He rendered himself master of Armenia Minor, Cappadocia, and Syria, but lost all these conquests after the defeat of Mithridates. Later, Alexander the Great, and Thermodon, certa the mixed and numerous army of Tigranes. (Plut. Lucull. 25, &c.) The peace concluded in the year c. 63 only left him Armenia. His son and successor, Artaxases, was perjuredly seized by Marcus Antonius, and delivered as a prisoner into the hands of the queen of Egypt (c. 34). After this time Armenia became an object of unceasing contention between the Romans and the Parthians, who alternately installed and deposed her rulers.

In c. 239 Armenia was conquered by Ardashir, the first of the Sassanides kings of Persia. The country remained subject to this dynasty till Dertad, or Tigrad, the son of Khusor, and the only survivor of the Artaix family, supported by a Roman army, made it free again. Early in the fourth century Tigradides and many of the Armenian nobility were converted to Christianity by St. Gregory, whom pope Sylvester I. in a.d. 319, confirmed as pontiff of Armenia. The conversion of Constantine to the Christian faith was of the same date, while establishing friendly relations between the Greek empire and Armenia, exposed the latter country to the increased hatred of the heathen government of Persia. New conquerors (Sassanides) were consequently, in c. 637 Theodosius the Great entered into a compact with the Persian king. Sapores, according to which the eastern part of Armenia was to belong to Persia, and the western part to the Roman empire. Sapores, with a view to conciliate the minds of the Armenian nobles, many of whom were quitting the country in disgust, appointed Khosroor, an offspring of the Artaix family, as a tributary king over Persian Armenia. In c. 425, however, the Persian king, Behram V., deposed Araxes, and put Artash, the last of the Artaix family, on the throne; 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 introduction of Zoroastrianism. The religion appeared to be the chief obstacle to the lasting felicity of the province. On these grounds the Armenian Christians became subject to constant vexations, and even cruel persecutions, at the instance of their Persian masters, of Varitan, translated from the Armenian Elissus, by C. F. Neumann (published by the Oriental Translation Committee, London, 1830, 4to.), exhibits a detailed and highly interesting picture of the conditions of Christianity in Armenia under this persecution, showing how this religion was, under which Armenia was suffering about the middle of the fifth century.

Even after the fall of the Sassanide dynasty in 632, Armenia did not enjoy tranquility, as its provinces soon became the scene of conflict between the Grecian and the rising Mohammedan empire. In 855, during the caliphate of Mosawakel, an Arabian army, under the command of Asbin, conquered the kingdom (Armedi) which had been brought to Bagdad, where the greater number of them were forced to become converts to the Mohammedan religion; only Sempud, the Bagratid, died a martyr to Christ. The king of Armenia, Ashol, gained the confidence of the bishops, who, in 859, installed him king of Armenia. He became the founder of the Bagratid dynasty, which occupied the throne of Armenia till the year 1080. During the greater part of the tenth century, in the reign of Apas (895-947), and his son, Arslan (947-997), Armenia enjoyed tranquility. Not long afterwards the country became an object of contest between the Byzantine empire and the Seljukite Turks. Bagrik, the son of one of the Bagraitid kings, seized the power (1079), and Armenia, though still partially governed by native princes (the Orpeliens and others), became mainly dependent on the Greek empire, while in the northern provinces, the Turks, and in the southern part, the Kurds, encroached 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 Kilprow's paper Recherches des Etats d'Arménie à l'Occident, fac. in the Nouvel Journal Asiatique, vol. xii. pp. 193 and 273.)

After the murder of Bagrik, and the fall of the Bagratid dominion in Armenia Proper, Rupen, a relative of the last king, fled to Persia, and became an instrument of the Armenian principalities 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 services rendered by the great house of Armenia, which it became the object of the crusades, from one country to another, till it died at Paris in 1293. (See Vahram's Chronique of the Armenian Kingdom in Cilicia, translated by C. F. Neumann, London, 1831, 6vo. Published by the Oriental Translation Committee.)

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Eliasius, or Eliazyus, who was Secretary to Moses of Khoren, was secretary to Vartan, a prince of the family of the Magomians. In 449 he was appointed bishop of the district of the Amundians. He wrote a history of the religious events, and was one of the chief witnesses of the death of Ardzuni, and has been 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 Chorenemus was the philosopher David. He visited Athens, where he attended the lectures of Syrancius, 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 Moniire sur la Vie et les Ouvrages de David, in the Nouveau Journal asiatique of 1829.)

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Samuel of Ani (Anetsi), likewise in the twelfth century, wrote a concise but accurate chronological work, extending from Adam to the pontificate of Gregory Vikayaer (a.d. 1164.) It has been continued by others till the year 1317.

Nerses Klienetsi, summoned Shinohali (i.e. 'the graceful'), was born shortly before the close of the eleventh century, and died in 1173. During the last twenty-six years of his life, he resided in Cilicia, composing the chronicle of Constantius. (Nouveau Journal asiatique, t. iv. p. 492.)

The most ancient Armenian historian probably was Agathanghelus, the secretary of King Tigrates, early in the fourth century. The authenticity of a chronicle which is attributed to him has never been questioned, but to be questioned. Saint Martin has pointed out an important anachronism, into which, he says, Gibbon has been led by Moses Chorenemus, regarding the history of Armenia contemporary with the reign of Godru. (Nouveau Journal asiatique, t. iv. p. 492.)

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The Armenians are valuable on account of the information which they supply on the history of the Byzantine empires, of the Sassanians, the Mohammedan Arabs, the Seljucks, the crusades, the Moguls, 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 in the selection of the facts which they record, and in the display of the taste of which they are capable. The Armenian chroniclers should, however, be used with caution, particularly as regards the most remote periods of history. Saint Martin has pointed out an important anachronism, into which which he says, Gibbon has been led by Moses Chorenemus, regarding the history of Armenia contemporary with the reign of Godru. (Nouveau Journal asiatique, t. iv. p. 492.)

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In 1143, and died in 1198. His writings are almost exclusively homiletical and liturgical.

Vartan, a pupil of the monk Vahanagan, in the thirteenth century, wrote a history of Armenia. Vartan was in woolen clothing with the earliest times, and surviving down as far as the year 1272. This work is considered valuable on account of the information about the history of the countries bordering upon Armenia, and of the accuracy and criticism shown by the author.

Vahram, a native of Edessa, and secretary to King Leon III. of Cilicia (who reigned from 1259 till 1289), is the author of a short history of the Armenian kingdom in Cilicia. A more comprehensive work, on the same subject, was written by Sempad, towards the end of the fourteenth century.

After the fourteenth century, we find Armenian literature on its Decline, and the edition of a valuable work on the history of Armenia, by Michael Chamcehan, which was printed at Venice in 1786 (3 vols. 4to.), we hear of scarcely any work of merit. (See Quadro della Storia Letteraria di Armenia, edite da F. S. Somal. Venice, 1829, 8vo.)

For about a hundred years, there has existed at Venice a congregation of Armenian monks, who are constantly publishing works on religion, theology, literature, and sciences, such as we might expect to benefit their countrymen. They dwell on the little island of San Lazaro, and call themselves Mechitaristes, which name they derive from that of their founder, Peter Mechitar, who fixed himself at Venice in 1703. The number of the Mechitarists Society is founded on the island of St. Lazaro. By Alexander Goode, Venice, 1825. 4to.) They have a printing-office well stocked with Armenian types, formerly cast at Amsterdam under the directions of Lucas Vannis. Many important works of a general interest have already been printed in the Armenian press of San Lazaro: one of the latest is an edition, in Armenian and Latin, of three Sermons of Philo the Jew, the Greek original of which is lost. The Armenian text is taken from a MS. written in a. d. 1236, which Zobah discovered at Leopoli in Poland, in 1791, collated with another copy made in the year 1798, and found in the library of the Armenian patriarch at Constantinople.

Linian Christians adopt the Apostolic, the Nicene, and the Athanasian creeds, but reject the decrees of the Council of Chalcedon, and follow the doctrine of Eutyches and of the Monophysites, in admittance but one nature in the person of Christ. viz., that he is God only: this is, in the rite of their church, symbolically expressed by the use of red wine, unmixed with water, in the Lord's Supper. They assert that the Holy Ghost proceeds from the Father only, according to their profession of faith (Schroeter, The Armenians, p. 257). They wear the armilla (Flili et spirator Speranti Sancti), while the Holy Ghost is described as procedens a Patre, coessentialis Patri et con- glorius Philo. They have the seven sacraments of the Catholic Church. Baptism, Confirmation, Matrimony, Consecration of Priests, Consecration of Saints, and Extreme Unction. They admit the doctrine of the transubstantiation of the bread and wine used in the Lord's Supper, which they administer under both forms to laymen as well as to ecclesiastics, though deviating from the rite adopted by other Christian sects, by dipping the bread into the wine. The Armenian clergy are divided into monks and seculars. The former (under which class are comprised patriarchs, archbishops, deans, doctors, monks, and hermits) live in celibacy; the secular clergy, i.e. the officiating priests, are permitted and advised to marry. The Armenian Church does not acknowledge the supremacy of the Pope. It was, at the beginning of the last century, governed by four patriarchs, who resided at Etchmiadzin, Sis, Aghthamn, and Gandazar. The number of their bishops was calculated to amount, about the same time, to between fifty and sixty.

The Armenian clergy and nun s of their own, according to which they count their years, and which commences with the year 551 of our Dionysian year. Their year is a moveable solar year. (See Ideler, Lehrbuch der Geschichte der Religion, p. 391.)

ARMENICA. [See Apricot and Prunus.]

ARMENTIERS. A town in France in the department du Nord, close upon the Belgian frontier, and ten miles W.N.W. of Lillo, the capital of the department. It is a small town on the river Lys, the navigation of which contributes to its trade. The population is variously given at 6000 (Balbi) and 2700 (Molto Brun) persons, whose chief occupation is spinning flax, hemp, and cotton yarn. Some hemp is also grown in and round the town.

ARMILLAE, 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. 22, where it is mentioned in the wedding gift to Isaac.

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 torques, or collar for the neck. It was sometimes worn upon the wrist, sometimes near the shoulder, and occasionally upon the arm. It is known by the name of the Armilla. Vetus, asserts, that it was of such general use as to be worn even by slaves, when they could obtain permission from their masters. This accounts for the great number of bracelets and armillae which have been found in different countries, ancient and modern, and in different forms, in bronze, in silver, in gold, and varying in size. The Armilla is an emblem of eternal life, and is usually symbolical of one of the seven sacraments.

The golden armilla, however, was reserved particularly for the Roman citizen. Pliny says, to auxiliaries and soldiers, they give gold torques; to their own citizens only silver. But, exclusive of these, the Roman citizens have armillae given them, which foreigners have not. (Hist. Nat. l. xxxii. c. 10.)

Aulus Gallius, in the eleventh chapter of his second book, describing the exploits of Denatus, 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 received eight golden crowns, one obidional, and three mural crowns; that he had received eighty-three torques, and more than a hundred and sixty armillae. (Not. Att. I. u. c. 11.)

Gruter (Inscript. xxxvi. 4) has preserved a monumental inscription in memory of Lucius Lepidius, who served in different legions, and received various armillae, torques, and other ornaments, as rewards, from the Emperor Vespasian. Smendus, (fol. xlix. b.) gives another inscription, upon whom both torques and armilla had been bestowed by Trajan. Numerous other such inscriptions will be found in the different collections. Brissonius has given the formula of one of these donations: 'Imperator te Argentiae Armillae donavit.'

The draconarii, or standard-bearers, wore armillae. See Annimianus Marcellinus (l. xx. c. 4), where the soldiers crown Julian with one of them.

There was a custom: It is to which 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.

Gifts of armillae, however, were not confined to the warriors of Greece and Rome. The practice was as prevalent in the remoter regions of the north. The fragments which remain of the compositions of the Scælic bard are full of allusions to the ceremonies and funerals. In the older English, one of the best proofs of this, Hroff Krako, King of Norway, whose reign is ascribed to the fifth century, is mentioned as bestowing them by Saxo Grammaticus. (Hist. Dan. ii. 29.)

In the ninth century, in a simple description under the title of De Armi edgar is expressly called beona beah-gyse, the bestower of bracelets, the rewarder of heroes; a term, indeed, usual as an epithet for a great chieftain in most of the Saxon poems. It was no where more frequently than in the song of the Traveller, and in the well-known poem of Beowulf.

Nor were armillae gifts of reward made in person only; we find them frequently mentioned as legacies in the Saxon wills. In the will of Brithric and his wife Alflwyth (he was one of the Thanes of Archbishop Alfric), preserved in the Textus Roffensis, among the articles which formed a legacy to the king, we have a bracelet of gold of the weight of eight maces; and to the queen a bracelet of thirty. In the will of the celebrated J. Casaubon, follows the will of Brithric in Dr. Hickes’ Thesaurus, we find a legacy of a bracelet of sixty mances. (Dissert. Epist. p. 51.)

William of Malmesbury informs us, that when Earl Godwine lay on his deathbed, with Hardknott, in the year 1060, he sealed it by putting on a bracelet whose value was nearly 100 shillings, or about 75£, and it was sold by its owners for the sake of gold, and within it eighty gold bracelets, each clothed in the most sumptuous habiliments of war, with armillae of pure gold on both arms, each weighing sixteen ounces. (W. Malmes, edit. Franc. 1601, i. ii. p. 77.)

The same writer (p. 162), describing the manners and customs of the English in 1066, upon the conqueror’s arrival, says their arms were laden with golden bracelets: 'Armillae aureae braccia.',

Arngrim Jonas, in his work on Iceland, speaking of the pagan rites which were used in the chief temple of southern Iceland, in the isle of Kialarne, describes an armilla of twenty ounces weight, which was kept upon the altar, and which, being sprinkled with the blood of victims, was touched by those who took any solemn oath. He says it was either of silver, or brass and brass mixed. (Cyclog. Reg. Island. i. p. 63.) He adds, that for this purpose it was worn upon the Judge’s arm during trials. (Ibid. p. 76.)

There is a passage in the Saxon Chronicle, under the year 876, which refers to a ceremony not altogether unlike the practice in Iceland. It says, that when the Danes made their peace with the English Alfred, at Wareham in Wessex, they swore oaths to this effect, and swore oaths to him upon the holy bracelet.

Armillae, as we learn from Bartholinus, were sometimes marriage presents. Virgins, it appears, did not usually wear them, or to place in the order of their marriage, in the Roman classics, we learn that they were sometimes given as birth-day presents. Placed among treasures, there was a superstition that an armilla would augment them. Lovers thought them efficacious; and ivory armillae were used in the Euro of epilepsy. See other superstitions in Pliny. (Hist. Nat. ed. Harriuni, tom. ii. 451, 11; 472, 10; 511, 22.)

Armillae are still used as playthings for children.

Among the articles which from time to time have been turned into arms for their pupils; one in the British Museum has been the least numerous. Some years ago, several in this metal, of different sizes, were found under Beachy Head in Sussex, amongst the chalk which the tide had undermined. Two or three of these are still preserved in Mr. Payne Knight’s collection of bronzes.

The Hampton, Townley, and Knight collections of antiquities, in the British Museum, contain armillae in great quantities, and of almost every variety of form, in gold, in silver, and sometimes in iron. Of those at Hampton Court, the most interesting is Mr. Knight’s collection, Case 8; and the Hampton and other genes.

In vol. xii. of the Archæologia, pl. ii. a bronze armilla is illustrated. He represents it as worn upon the hand from the wrist to the elbow, and stationed on the ground at Westwang Field in the East Riding of Yorkshire. See also, in the same work (vol. xxii. p. 285) some observations upon an ancient bracelet of bronze, found on the sand-hills of Altyre on the coast of Murrayside from these observations that many of the materials for this account of the armilla have been derived.

ARMILLARY SPHERE. The Latin word armilla signifies a bracelet, and the armilla sphere is one in which the principal circle of the heavens is represented in some solid material, and put together into their relative positions; thus presenting the appearance of a hollow sphere, of which all the surface has been cut away except the equator, to which the geographical and astronomical instruments were fixed. It is so designed, as a toy, the complete sphere being generally preferred for the purposes of instruction; but in the antient astronomy, and even so late as the time of Tycho Brahe, an instrument in which the whole or part of an armilla sphere, was extensively used an astronomical observation. On this point we refer the reader to Astrolabe.

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 evincingly leaning towards his side; for in the following year (1610), on sending an embassy to France, Uitenbogaert was appointed chaplain. At Paris Uitenbogaert had frequent conferences with the celebrated Frenchman, Mole, and was permitted to read in the Royal Library at Paris, although a Protestant. These conferences were attended in the opinions which he had adopted, inasmuch as Casaubon, for the most part, agreed with them.

Arminius, James Arminius (called in Latin Jacobus Arminius, and in Dutch Jacob Hermanni, or van Harmine, or Harmineus) was born in 1560, at Oudewater a small but pleasant and thriving village in South Holland. His father died when he was of an early age, but, as he knew, however, that there was at Oudewater a priest called Theodore Emilius, distinguished for erudition and piety, who had forsaken the Romish church, and had emigrated from France to England, through the intervention 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 Remonstrantie, 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 Barn YWLD; Grotius; Dore; Eusebius; Bogermann; Hainius.]

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ARMYN.
terdam, then an asylum for the surviving sufferers at Oude-
ward. From there many refugees from Amsterdam.

At Rotterdam, Peter Bertius, the father of P. Bertius who
afterwards wrote the funeral oration of Arminius, was per-
suaded to receive him into his own family; and he afterwards
sent him, with his son P. Bertius, to the University of Leyden.
Here, between 1579 and 1581, Arminius, to whom he describes as
exceedingly devoted to literary pur-
suits, Arminius cultivated the study of poetry, mathematics,
and philosophy, and became the ornament and example of
the young men of his time and age. His principal in-
structor in theology was Lambert Danaus, 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 Arminius
then, as he had previously been invited by the University for 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.
Here he enjoyed the instruction of the celebrated Beza, his
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 taught; and his fellow-students in 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 he entertained
were repugnant 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. Accordingly, he was ordered to quit the 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 at 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.

On his return to Italy 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 tranquility during his second
residence at Geneva. Here long he remained here 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.

After his return to Italy by the famous
philosoph of James Zavallare 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, then returned to Geneva for a short time, and soon
afterwards he travelled in France on his travels he
accompanied 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 returning to
Amsterdam he found that reports had been circulated 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
Feschelle; that he had denounced the Protestant
religion. All this was entirely false.

Arminius found his patrons at Amsterdam cold and sus-
picious when he first returned. He succeeded, however, in
accusing it for the reason that he had been 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 through Geneva, where Beza gave him a letter to
the minister there, on which he was to deliver an ad
fæcandum officium optimæ comparatiu, the Deo
placiter ipse suæ subjectum sui
ministeriæ.

Arminius soon became exceedingly popular as a preacher
at Amsterdam. His sweet and sonorous voice, his manner,
his address, his distinguished talents, and finished education,
all combined to give him extensive popularity and influence.
The rumours which had been set afloat concerning his in-
clination towards Catholicism gradually died away, and all
classes of men united in extolling his talents and his gregarious
and a pastor.

Volkerts Coornhert, a man of distinguished talents
and learning, who lived at this time at Amsterdam, was strongly
opposed to the doctrine of predestination as held at Geneva
and in Holland, and had written much against it. Two
ministers at Amsterdam, A. Bertinus and A. Arentz, who
had undertaken, in conference and by writing, to oppose
Coornhert. In order to do this, however, as they thought
to the best advantage, they had relinquished the views of
the doctrine of predestination, in which they had
particularly defended, to the doctrine that the decree of election and reprobation
preceded all respect to the fall of man and to his obedience
or disobedience. This is what has since been called supra-
lapsarianism. On the other hand, the ministers at Delft
had been originally aligned in the same manner as,
created, but also that he had respect to his lapsed
condition. This is what has since been called subl lapsarianism.
The work which the Delft ministers published at this time,
titled 'Answer to some Arguments of Calvin and Beza
on the subject of Predestination,' first gave rise to these
denominations in the Christian church. The book of
the Delft ministers, containing strictures on the supralapas-
rianism of Calvin and Beza, was sent by its authors to
Pope's as created, and only by Arminius. The book,
was dissatisfied with it; but instead of undertaking
to answer it himself, he solicited Arminius to defend his
teacher, Beza. This Arminius was at first inclined to
accept, but, Arminius was soon persuaded to abandon
his purpose, as his mind had been filled, by the
perusal of the book, with doubts or difficulties in regard
to some positions of Beza and Calvin. In 1597 Arminius
responded to Leyden, to confer with the celebrated F. Junius,
who was then the professor of theology. The consequence
of this was a long and amicable correspondence on the subject
of decrees, necessity, liberty, &c., which is published in the
works of Arminius. Junius treated these subjects with
much modesty and great ability, but he did not satisfy the
scruples of his friend.

Uitenbogaert, a very popular and able minister, at this time
resident at the Hague, was known to sympathize in senti-
ment and feelings with Arminius. To him Arminius wrote,
beseeching his help to assist in the examination of the
difficult questions in which he was engaged. Uitenbogaert, as
appears by the sequel, entered warmly into his views.

In 1596 Arminius wrote his 'Examen Modestum Libelli
Perkinsi, T. E., or his examination of a treatise in defence
of predestination, which Perkins, an Englishman, had
published under the title of 'Armillae Aureae.' In 1599 Arminius
and his friend Uitenbogaert endeavoured to move the states
of the West to order a new translation of the Bible to be
made by the excellent scholars in Holland. But in this they
failed, owing to a strong suspicion entertained by many of
the clergy, that they were aiming at the overthrow of the opinions
then prevailing in the churches of Holland.

In 1600 the Synod of Dort was held, at which the ministers who were
urging an annual subscription of all the ministers to the
creed and catechism of the churches in Holland. In 1602
the plague made dreadful ravages in this country, and,
particularly at Amsterdam. Arminius, it is said, to have dismoun-
guished himself greatly by his attention and kindness to
the sick and to those who lost their friends. During this
plague F. Junius and L. Trecaetus, professors of divinity
at Leyden, died, and the curators of the university in 1603
elected Arminius to fill the place of Junius. It was only
by the interposition of the curators at Leyden and of the
leading men in the government of the states, that the synod
at Amsterdam could be persuaded to allow Arminius to
occupy their place. The Synod, however, strongly marks the
attachment of the people to their minister.

It is said, that F. Gomar, a distinguished professor of
theology in Leyden at this time, was opposed to the election
of Arminius. Soon after the new professors entered on
their duties, a friendly conference, in which Arminius explained himself
so plainly and fully against the doctrines of Pelagius, that
Gomar professed to be satisfied. But during the next year
Arminius delivered a lecture on predestination, in which
he maintained that God had eternally decreed to save believers
and to punish the impenitent; the one to the praise of his
glorious grace, the other in order to display his power and

* The name occurs in various forms: Uitenbogaert, Uitenbogaert, &c.—We have adopted that orthography which occurs in some old Dutch books.

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his indignation against sin. Arminius doubtless meant that
God had respect in his decree to the belief of the one and
the other; he expounded therefore the necessity in that
sense: 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
were now a party in favor of divine grace and of the Unio
divinitatis, the majority 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 doctors of the university. The majority
appear to 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
each other. Arminius was in the minority; his pamphlets,
engendered in the month of October, 1609, were
followed by others, and, in the heat of the dispute, the
masters of the university were divided.

In 1614 some theses of Arminius on the divinity of Christ
occasioned him new trouble. The matter related to the
epithet θεότοκος as applied to Christ. Arminius explained it
according to the Nicene Creed, in which term the source, per
θεός et per ιύνα, is expounded. 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 1617 the ministers of Gouda published a catechism,
which was in opposition to the synod of Dort. The latter
was intended to be simple and brief. Armi-

In 1617 a Synod was held in Holland, called by
the English ambassador, to determine the
Theology of the universities of Holland. This newly risen so high that the States-general
were called upon by Arminius and Uitenbogaert to convocate
a general synod, before which Arminius might defend himself.
The supreme court admitted Arminius and Gomar to a
conference before them, and the result was, that this
council informed the States-general that the disputes
between the parties were on intricate points of little or no
importance; and that, with respect to them, a man might
believe either one way or the other, without forfiting his life
or injuring the church (saepe fide et saepe ecclesii). The
States-general enjoined the parties to drop their disputes,
and to teach nothing against the creed or the catechism.

The attempt of the government to put a stop to the dis-
putes concerning religion, although well-mean'd, 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, 1618, Arminius was summoned by
the States-general to appear before them at the Hague, and
he was pressed to present to their judgment his system.
That system, as we have seen, is exhibited in his famous 'Declaratio,' published in his works.
The States-general, as a body, were at this time inclined to
support Arminius. But the disputes continuing with in-
creased violence, in the next year (1619) they summoned
Arminius to appear again before them; and he was de-
prived by four ministers of his own party, 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. Uitenbogaert,
the special friend of Arminius, who was present as one of
his assistants, warned the States against being prejudiced by
the violence and the number of the opponents of Armi-

In the mean time Arminius died, on the 15th of October,
1619. 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 circu-
lated, 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,
lamenting the evils to which the Church had been exposed, and earn-ering the sympathy of the learned. He was laid in state, the last will, made on his death-bed, he solemnly testifies that
he had, with simplicity and sincerity of heart, endeavored
to discover the truth by searching the Scriptures, and that
he taught and preached anything which he did
not believe to be contained in them.

This article is abridged from the 'Biblical Repository, An-
dover' (New England), 1831, pp. 226–238. See also
JACOBI ARM. See GOMAR, ISAC. ARM. See ARM.

ARM,' the history of the Arminians, first appeared in 1629,
small quarto. To this is prefixed Petrus Bertius, De Vita et
Obitu J. Arminii.

2. The works of James Arminius, D.D., formerly
professor of divinity at the University of Leyden,
and translated from the Latin, to which is added Brandt's
notice 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 passing of Dort and the religious opinions in Great
Britain and on the Continent. By James Nichols, author
of Calvinism and Arminianism compared in their Principles and Tendency.

3. Bayle, Dictat. et maxima religiosi, Societ. J.C.
 tome 1, 1750.

4. Supplement au Dictionnaire de M. Bayle, par J.C.
Chaussef, tome 1, 1750.

5. Schroechck, Christliche Kirchengeschichte seit der
Reformation, Theil 3, 1886.

6. Histoire abrégée de la Réformation des Pays Bas, tra-
duit du Hollandois de Gerard Brandt, 3 vol. 12mo, 1726.

7. Acta Synodi Nationalis Dordrecht, habitis, to which
is appended the Judicia Theologorum Extremorum, which
were never published before, public ed. by Jacobus
van Boxtrecht, Amsterdam, 1619, 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.

8. 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 doctrines of Arminius.

ARMENIUS. See HALESI.

ARMLEY, a chapelry in the parish and borough of
Leeds. [See LEXED.]

ARMORICA, ARMORICAE CIVITATES, the name
given, in the time of Caesar, to the maritime districts
of Celtica Gaul, situated between the mouth of the Ligeris
(Loire) and that of the Sequana (Seine); the word is de-

ARMY (D'Anville, Noticre de l'ancienne Gaule.) Maximus, a Roman officer, having

The Veneti, Oesamni, Curiosolites, Rhedones, Caleses, &c., who
formed a sort of confederacy. Their towns and
fortresses were built along the coast, and they had a con-
derable fleet, with which they carried on an intercourse
with the Romans. After repeated struggles, they formed part of the
province called Lugdunensis Secunda, which was after-
wards subdivided into Secunda and Tertia; the maritime
districts of this province were styled Armatricus or

ARMRICA, ARMORICAE CIVITATES, the name
given, in the time of Caesar, to the maritime districts
of Celtica Gaul, situated between the mouth of the Ligeris
(Loire) and that of the Sequana (Seine); the word is der-

Among the legions of Britain against the Emperor
Gratian, A.D. 354, passed into Gaul with two legions and
a large number of islanders, among whom was one
Conan Meridae, a chieftain from the south of Scotland, to
whom Maximus assigned the government of Armoriciana,
which appears to have included the modern provinces of
Britannia and western Normandy. This is the first recorded emigra-
tion of Britons into that province, which was followed by
others, as Meridae, having obtained the confirmation of
his government from Theodosius, after the death of Maxi-

The middle of the fifth century, thousands of Britons,
driven from their native country by the incursions of the
Vikings from the north and the Germanic tribes from
the Continent, took refuge among their countrymen in Armoriciana. That country,
left unprotected by the Roman emperors, had erected itself
into an independent state, under the government of Co-

The Armoricans, descendants of the Gauls, and, favoured by its situation, had
repelled the attacks of the northern tribes, who devastated
the rest of Gaul. The ships of Armorica carried on a considerable trade in those times, and the country seems 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 Vannes, are mentioned at the end of the fourth century, and the old annals of the country have preserved the memory of numerous saints, whose Celtic names are little known to the rest of the world.

Nothing is more familiar in Britain, from 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 circumstance the country began to be called Breton or British. The Breton, as we are told, was a goodish dialect, if one held in 567, in one of its canons makes a distinction between the Breton and the Roman inhabitants of Armorica. The successors of Conan were styled Counts of Breteagne. The French historians have said that they did homage to Clovis, king of the Franks, as their sovereign; but this appears doubtful. At all events, their vassalage must have been merely nominal, as we find them acting as independent princes, and frequenting, 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 Breteagne, under which name it again became a separate duchy, with only a nominal dependence on the crown of France. [See BRETEagne; Duro, Histoire de Breteagne.]

**ARMOUR**

**ARMOUR** is a term generally applicable to any defensive habit, used to protect the person of the wearer from the attacks of his enemy. The English word comes from the Greek *armos*, which meant, in the fifteenth and sixteenth centuries, *harnais*. Among the more civilized antient nations, brass, iron, and other metals, were preferred for its fabric; and in the time of Asiatic magnificence, even gold was not spared. Herodotus (vii. 71) says that the Libyans who assisted Xerxes in the great army wore leather armour, or probably skins only is meant; of which material, he adds (b. i. 71), the armour of the antient Persians also was composed.

The term is also extended with a great latitude; we 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. xvii. 6) wore greaves to defend the legs; and, which were also worn by the warriors of other Asiatic nations; and, being made of large wooden shields. (Xenophon, *Anab. i. 8*.) The breast-plate which Amsa sent to Athenia (Minerva) at Lindos was made of linen, on which figures of animals were woven; the ornamental parts were of cotton-thread and gold. (Heron, iii. 47.) As to 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 scales cuirass richly ornamented. In the bronzes of Siris, purchased and exhibited for the British Museum, the warriors have helmet and shields. One has a round, the other an oval shield: their bodies are unclotted.

The complete Roman armour consisted of the helmet, shield, lorica, and greaves. The lorica was originally of leather, as we learn from Varro; but according 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 made less by the halves of the soldiers at 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 frequently enriched on the abdomen with embossed figures, on the shoulders with a frieze of animal figures, on the shoulder-plates with scrolls of thunderbolts, and on the leather border which covered the tops of the lambrequins (or pendent flaps) with lion's heads; and these were formed of the precious metals. Each Roman legion had its own device marked upon its shield. In the time of Tiberius, as is exemplified in the armour represented upon his column, the lorica was shortened, being cut straight round the breast, and had a plate of this kind of which one of the paps of the breast still remains, like a high button, to which the shoulder-plates were fastened, which held the breast and body together.

From these facts a general notion will be gathered of the kind of body-armour used among the antient nations. But as to the minute varieties of it, which are to be found in statues, or upon gems, coins, vases, and other representations, the exhibits are extremely rare or curious which exist, according to the time, the country, the wealth of the wearer, and 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 Anemur, the British bard, says that the Anglo-Saxons under Hengist and others, wore many of them lorico of leather and four-cornered metal. This armour, he thinks, was probably acquired through the alliance of their fathers with the Romans, of whom Caesar and his successors, Anemur says that Hengist wore scale-armour. A peculiarly illuminated manuscript in the Harleian Collection, No. 603, represents a warrior exactly answering this description. Drawings of the same century represent the Anglo-Saxon soldier without any other defensive armour than his helm. The helmet, 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 spear. 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. One of the laws ofæthelstan prohibits the making of shields of less than an arm's breadth, with a penalty of thirty shillings. The helm, 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 tunic supplanted the lorica, Sir Samuel Meyrick observes, the Roman pectoral was still retained, and was called *lorica pectoralis*, or *pincia*. It was heavy, and was termed by its wearers *profection, for defence the breast, and (by a back derivation, back-armor). It may be seen in a warrior in an illumination in a manuscript of the Cottonian Library, marked *B. v.* in which the resemblance to the Roman pectoral is quite manifest.

The first authors, down to Tuccia, at least, speak of a cuirass asra, asra, asra, with respect to the form or materials of the breast-plates, but the epithet applied to such as were of metal is *rigida*. 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 frequently occurs in the writings of the most eminent Saxons authors, and sometimes is mentioned as implying that it was made of metal. Aldhelm, who lived in the latter part of the seventh century, in some anaglyphical lines (Poe. *nonnulla, 25mo. Mogunt. 1691.* p. 51, De *Lorica*), speaks of a loincloth, which feared not darts drawn from the long quivers:—

"... En l'eva dies volgi armore vocator;  
Splied non veroer longae exempta pileataris,"  

Whether this was the scaled-armour, such as worn by the Hengist, or that made of Halsinglassein style (as designated in Hope's *Costume*), is not quite clear. In an illumination, however, of the eighth century, a king inhabited 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 gepynged *bynum*, or "ringed byrne." Some illuminations seem to shew that the Torc was worn by warriors, (compare the MS. Cleopatra, C. viii.), and in either case the name is equally applicable.

Towards the close of the ninth century, the corium,
or corselet, was the armour generally used, and appears frequently in the drawings of that period. It was formed of hides cut into the resemblance of leaves, and covering one another; sometimes all one colour, as blue, &c., and sometimes three or four shades of them, being a part of the one, while that which covers the thighs is of the other. It should be observed, that the Saxon byrnie, originally in shape like a tunic, became in form after the Bayeux tapestry, clost, round, and generally terminating with it. Alcuin (De Officiis Divers.) speaks of the Anglo-Saxon military tunics of linen in the following terms. 'The soldiers are accustomed to wear linen tunics, so well fitted to their limbs as to enable them, with the assistance of this cursed, patched, shaggy shield, wield the sword.' The weight of the ringed byrnie 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 those mountaineers could not be pursued to their fastnesses by his troops when clad in ringed tunics, and he therefore commanded them to use their antient leathern suits, which would not impede their activity. (Ingulius, fol. 68. Joh. Sarish. De Nugis Curialium, lib. vi. c. v. p. 185.)

The Saxons, in arms, it appears, made no distinction between the c.eheaxum, or royal helmet, and the crown. The monarchical household put on and doffed it as in the act of battle, with the same kind of head-covering, even when every other part of his dress was marked with decisive variation: but upon the figure of Edward the Confessor, in his position as an lawful or infallible king, the whole 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 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 woollen cloth, coming from within the shoe, and wound round the legs to the top of the calves, in imitation of the ha-bearing 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 Bœhdistam, dated 1015, the shoulder-shield is expressly described as a small shield, and the helm of 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 warriors, as in the tenth century, had no proper armament but a broad collar, which encircled their chest and the lower part of their neck, or a small tbox of flat rings, with greaves, or rather shin-pieces, of stout leather. About Canute's time, the Anglo-Danes adopted a new species of armament, which he himself, 'probably derived from their kinemen, the Normans. This consisted of a tunic, with a hood for the head, and long sleeves, and what were afterwards called chausses, i.e. pantaloons, covering also the feet, and closed with lacing of steel, called, from their resemblance to the meshes of a net, mailes, or mascelve. 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 the rays of a sun. 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 authority for these observations is the manuscripts in the British Museum, commonly called Canute's roll. The drawings of spears, swords, and battle-axes, or bipennies, were the offensive arms, and the shield remained as before.

Such had been the state of armour in Britain when William I., after the victory 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 re-prest him on one side seated on a throne, upon the other he is in a hauberk apparently of rings set edgewise, which kind of armour had been used by the Anglo-Saxons. The Norman form of the hauberk, which is called a Bayeux tapestry is of two kinds; one of rings or maces, even flat on the vesture; the other of leather. The helmets are conical, and have the nasal. The ring-armour of the Bayeux tapestry, as the sequel will set at the same time: 'this,' says Sir Samuel Meyrick. 'I take to be the hauberghon, as there are some few specimens of the tunk or hauber, and both being mentioned in the Roman de Rou. This opinion,' he adds, 'is further strengthened by a specimen of armament described and illustrated in a manuscript in Ireland as late as the time of Edward III. It appears to have been put on by first drawing it on the thighs, 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-ring'd tunic: the hood attached to it was then brought up over the head, and the opening on the chest covered by a square piece, though which were passed straps, that fastened behind, hanging down with laced 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 in the Bayeux tapestry; but the manner in which the armour is supported is not very clearly shown. The figure of 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, while the rings on the hauberk is worked up to the elbows. 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 late as the time of Edward III.; nor does any distinguishing name seem to have been applied to it: hence I conclude that it is what Wace calls the hauberghon, in his description of the appearance at the battle of Hastings of Bishop Odo, the conqueror's half-brother. The tapestry of the figures of the troops of both nations is bound with bands of different colours, rising out of the shoe in the antient Saxon manner; but, in some instances, and where the hauber is worn, they appear covered with mail to the ankles. Such, however, as the case only 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 heather-shield, or kite-shaped, and kiteshaped divers times, and was distinguished by its supposed resemblance to those familiar objects, but by the Normans themselves it was merely termed escu, from the Latin, escutum. While in the tapestry most of the Saxon shields are represented round or oval, with a central bosses and half-moon, the Norman has an 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 in 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 that kind in ringed- armour. Other kings of this time occur in the enamelled copper of Geoffrey Plantagenet, engraved by Stothard, and described by John of Marmourot, and in a representation of similar date, engraved by Strutt, in his Designs and History of the People of England. From a manuscript in the possession of the late Francis Douce, Esq.

In the reign of Stephen, what is called tegulated armament appears to have prevailed, which consisted of several little plates, covering the arms on both sides, one being put upon a hauberk, without sleeves or hood. The seal of Richard Fitz Hugh, Earl of Chester, engraved in the Petuas Monumenta of the Society of Antiquaries, affords a fine specimen of this kind of hauber. The seal of Henry II. represents the mailed coat of an armoured knight, and seems to have been designed 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 hauber, wearing a conical helmet without a nasal, the flat rings, however, gave way soon after the commencement.
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ment of his reign, and the hauberk with rings set edgewise came into general fashion. The shape of the shield became somewhat shortened, and more often angular on each side at the top.

Richard I., in his first seal, appears in a hauberk of rings set edgewise, from under which falls the drapery of his tunic; in the second seal he has the same without drapery; in both he is represented wearing a conical helmet, but with its apex somewhat rounded; in the second, with a cylindrical one, surmounted by the planta-genista (or broom-plant) in reference to his name, and having an aventail or plate to protect the face. The former affords the example of an English king wearing a surcoat; it is put over a hauberk of rings set edgewise. Surcoats are supposed to have originated with the Crusaders, for the purpose of distinguishing the many different nations by the various hammers of the cross, and to throw a veil over the iron armour, so as to heat excessively when exposed to the direct rays of the sun. Besides the surcoat, the hauberk was a military garment in great esteem during this reign. Thus, in a war-drobe account dated in 1212, we find a pound of cotton was expended in stuff ing a skeleton belonging to King John, which cost twelve pence, and the quilting of the same was charged at twelve pence more. John is represented with a cylindrical helmet without any valence or his front. The monument in the Temple church ascribed to Geoffrey de Magna villa, or Mandeville, which appears to be about this period, has one very similar, but with a nasal and cheek-pieces.

Henry III.'s great seals afford us the earliest specimen of the ouvrages de pourpointerie, which came into fashion toward the latter part of his reign. His hauberk and chausses are of this fashion worked, stitched. On his first seal his helmet is put on with the visor or aperture for sight, not in the aventail, but in the helmet itself, while the latter has merely perforations for the breath, and is therefore fixed at the lower part. His second seal exhibits him in a cylindrical helmet of a more perfect form, the aventail, which contains both the before-mentioned conveniences, being apparently made to open and shut by means of hinges and a clasp. This seal of Henry III. also represents him in a surcoat. A remarkable monumental effigy of a knight of this reign, in the armour of rings set edgewise, occurs in the church of Malvern in Worcestershire. The monumental figure of Richard Longespee, Earl of Salisbury, who died in 1224, is another specimen. 'The horse soldiers, at this time,' says Sir S. Meyrick, 'consisted of the heavy cavalry, who were the knights, and completely covered with mail, or, as Matthew Paris expresses it, ad unguem armatos, the face and left hand excepted.' In a manuscript, entitled The Lives of the Kings, written by Matthew Paris (MS. Cotton. Nero. III.), and of the time of Henry III., the knights appear generally in gambozed armour (padded work, stitched), with surcoats, and wearing shin-pieces or greaves of steel. One, however, is in a hauberk, with hood and chausses of flat condition, which was probably the example of this fashion of armour being worn. Some appear with visors, consisting of a convex plate of steel, on which is a cross, with perforations for the sight, and punctures for the breath, tied upon the hood. Others have a nasal skull, though not the latest representation of this defence; and others the cylindrical helmet common to this period. The helmets of the kings are distinguished from the rest by a crown at top. They have all, too, those coverings for the knees called poleyns. This was a variety of plate, which was an ornament, and the long points at the toes of shoes, worn in Richard II.'s time, as well as anterior; but we learn from the following passage from Carolus Blesensis, in Lobineau's Hist. Roy. Angl., vol. ii., p. 366, that they were for the three sibi per Olivierum auferri a genibus polum, et antebrachia ab archis; He caused Oliver to take the poleyns from his knees, and the vambraces from his arms. 'Pourpointing, or elaborate stitching, it appears, became of this time a trade, and there were several pourpointiers in Paris and London.

The use of the pourpoint seems greatly to have gained ground, and the military in the delineations of this and the next reign are almost constantly depicted in it. Sir Samuel Muckrach, in his History of the Illuminations of this period, the archers are represented wearing leathern vests over their hauberk of edge-ringed mail. These appear to have been the jack in its primary form, which originated with the English, and which afterwards assumed a shape so cumbersome. From the Chronicle of Bertrand du Guesclin, composed about the time of Richard II., we learn that the soldiers continued to wear the hauberk, for he says, 'Savoie chasun un jacque par desas son mort,' each had a jack above his hauberk. This small vest was called jacket, and in the Latin of the time, jaquetum, as was the jacque, jacquerius et jaculus. The monument of St. Froucheio, by Rodo de Arlemburg, in the first year of John, 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 plookered or round-edged, edging. In later times, it was made of leather, for Coquilant, 'uns Droits nouveaux;' describes it as of chamois, extending to the knees, and studded with flocks, so as to be a kind of pourpoint. During the latter part of this reign, the shape of the hauberk is scene partial change, taking the form of a truncated cone on the top of a cylinder: the apertures for the sight were horizontal, and pierced in the transverse part of a cross that ornamented the front. The crusade in this reign, says Sir Samuel Meyrick, seems to have introduced a new and most ingenious species of armour, probably of Asiatic discovery, and still worn by those nations at the present day. This was the interfaced rings, which, as dependent on each other, did not require to be sewn on to the under-garments; the entire defence is one piece, and the monumental effigy of De Flis, in Rampton church, Cambridgeshire, which exhibits him in the flat coat worn during the greater part of this reign, but made, as well as the hauberk, of interlaced chausses, of which the front 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 chaufferon, or armour for the horse's head and face, first occurs in the coinage-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 that 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 1315 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 Cattone; but this usage did not find its way into general practice in Europe for some years after. The Edwards of the Black and White, the eldest of which is that of the Black Prince, was exhibited in Westminster Abbey, and in a missal belonging to the late Francis Douce, Esq. What is called in the heraldic books a hauberk is no example of this kind, as it is a garment, which suited to men of war, or to such as having little time to bestow upon the appliance of their arms. It is made of plate, which is fixed to the body with clasps, and should be worn with a laced coat of mail, to which it is sometimes united. Which is that which was 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 Brotherton, 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 refinement in the application of plates.

The helmet on the seal of Edward II. is of a cylindrical form, with a graced or pointed aventail and visor attached: a clasp which fastens this on the right side is very visible, and it is probably the knee of the front of the knight, is gold. It was very much the custom during this reign to wear over the armour the cotissai, 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 Ifold church, in Sussex. The splendid manner, it is observed, in which some of the knights in this reign adorned 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,
at Tingham church, in Norfolk, who died in 1343, shows the further gradual progress of mixed armour. His monument also affords us one of the earliest specimens of the
twilling helmet of this time, surmounted by its crest—an
owl with wings expanded. The equestrian statue of Bernabo
Visconti, at Milan, engraved in the *Archaeologia*, vol. xviii.
pl. xii. xiii. xiv. with its details, affords a magnificent spec-
imen of this form of helmet. It was used too on the conti-
inent. Moveable visors attached to the bacinets (or skull-
caps in the form of a bonnet) appear to have come in about
the middle of the reign of Edward III. The Black Prince's
military equipment, which he died in 1376, is another spec-
imen of the period. The monument of Humphrey de Bohun,
Earl of Hereford, in 1367, Sir Samuel Meyrick, observes, is
the earliest specimen of plate-armour with tassets, or over-
lapping plates to envelope the abdomen, at the bottom of
the cuirass, which was not till the reign of Henry V. that this
practice became general. Humphrey de Bohun wears plate over the inste
s, but the rest of his feet is covered with chain.

The reigns of Richard II. and Henry IV. were still more
distinguished by the increased ornament of armour. The
armourers of Italy were much employed at this time by the
English nobility. When Henry, Earl of Derby, proposed the
purchase of a suite of English armour, Sir William, one of
his sons, writing from Florence, in 1365, to Galeazzo, Duke of Milan, for armour, who gave the knight who bore Henry's message not only the choice of
all his armour, but sent with him to England four of the
best armourers of Milan to give personal attendance upon
Henry IV. at Greenwicht. Chaucer, noticing a tournament
at this period, says,

_Ther maytoute som dereing of harnes
 Başettel and wraught so well
Of pectlethlyne, of broudding, and of stae;
That byrthe breth, and brewe, and tusse;
Goldhevy bellewe, baskeete, cost-ouermes_; -v. 5699.

Soon after the year 1400, chain-mail seems to have been
entirely disused; and the complete armour of plate adopted.
Henry V. is so represented on his great seal, as well as in one
of the Ermine helmets of the same period, in the collection of
the Montagu, by Sir Walter Scott, at Han's Castle; in the
latter he is represented being armed by one of his esquires.
Black armour was at this period often used for
mournning. Henry IV. is constantly represented in black
armour in the illuminations of the celebrated manuscript
_The Deposition of Richard II._, preserved in the Harleian
Collection.

A more splendid specimen of armour of the reign of Henry
VI., than that represented on the effigy of Richard Beauchamp,
Earl of Warwick, in the Beauchamp Chapel at
Warwick, will not be found anywhere; he died in 1439.
The fashion of armour prevalent through the reign of
Edward IV. may be judged of from that monarch's great
seal, which was probably reckoned by the English of
the church of St. Helen, without Bishopsgate, in London.
The latter died in 1475. Soon after this time, numerous
specimens of armour occur with immense elbow-plates;
those continued till the time of Henry VIII.

The perfection of plate armour is supposed to have been
attained in the reign of Richard III.

A fine and singular suit of armour, which undoubtedly
belonged to King Henry VII., is still preserved in the
Tower of London, and is considered the greatest curiosity
in that collection; it is accompanied by a chanfron, manufa-
ured, and pictorial of the same period, for arming the
horse.

Plated armour was sometimes used in the reign of Henry
VII.; this fashion is supposed to have come from Germany.

Drawings of various military fighers of the middle of King
Henry VIII.'s reign, made at the time, occur in the Coton-
onian manuscript in the British Museum marked Augustus
II., and amongst them, Hume's, in my possession. A great
deal of the armour of this period had decided devices, or
size, stamped or engraved upon it; and some were *damaquinites*,
or inlayed with gold.

In the reign of Edward VI. a slight change took place in
the form of the breast-plate, which was again a little
changed in the reign of Mary. During Elizabeth's reign,
no great alteration took place. 'But armour cap-a-pie,' says
Sir Samuel Meyrick, 'began to fall into disrepute soon after
the accession of that lovely gentleman lady I., and, in the latter part of
his reign, the jambes or steel coverings for the legs were
almost wholly laid aside.' At Strawberry Hill, there is a
suit of armour said to have belonged to Francis I. of France,
which Sir Samuel Meyrick ascribes to the reign of James.
It is embossed and gilt, and is considered to be probably
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
abolishment of the monarch, 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, are still retained in the armies for the royal regi-
nals, and have, likewise, been resumed in the armies both of the French and
Germans.

For this account of armour, various works have been con-
sulted—Grose's _Treatises_; Gough's _Sepulchral Monuments_,
&c.; but the chief authority has been that of Samuel
Meyrick's _Critical Inquiry into Antient Armour as it ex-
isted in Europe, but particularly in England, from the
Norman Conquest to the Reign of Charles II._. The collec-
tion of antient armour possessed by that gentleman's son at
Goodrich Court, in Herefordshire, and his extensive re-
searches, have supplied more information upon the subject
than it is probable could have been given by any other
work, so well as of a proverb at that time.

The reader who wishes for further information may con-
sult Sir Samuel Meyrick's _Engraved Illustrations of An-
tient Armour from the Collection at Goodrich Court_, 2 vols.
of Oxford, 1850, where (pl. iv. to 5.) a series of tournament
armours of successive ages, from 1248 to 1586, is exhibited.

Bordeaux steel is frequently mentioned by Ploixissent as
excellent for armour. Felippo Negroti, 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 *Archaeologia*, vol. xx.), unravel,
by the help of an ancient document, what was by many an
opinion. The knight of chivalry, as he set forth with his feet and closed upon
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 tuillelettes, or overlapping pieces below the
waist; 6. the backments, or back plates; 7. the armbraces,
or covers for the arms; 8. the ree-braces, or arriere-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 bacinet; 14. the long sword;
15. the penonnels, held in the left hand; 16. the shield.

_The Monuments of England._

A.R.M., in a general sense, includes all kinds of weapons,
whether of offence or defence. Among these are swords,
bows, and arrows. 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 sling. Lucrertius says,—

_Arms antiqua, manu, angustae, dantique forte, &c._

_The man's earliest arms were fingers, teeth, and nails._
And stones, and fragments from the breaking weapons.
Then from and flames they joined, disiecte soone;

_Then copper next; and last, as latest truant,_
The tyrant iron, than the copper vale,

_Less finely found, and similar to sable._

Homer and Hesiod tell us, that, in the early ages, the
arms and instruments of the heroes were composed entirely
of welshe (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 Armour.

The present article is confined chiefly to weapons of offence.

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.

_Herodotus* (vii. 61-100) 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 daggers: the Assyrians, besides spears and daggers, had
sword, bow made of reeds, and short spoars; the
Arabians had bows, large, flexible, and curved at the ends; the
Ethiopians, bows made from the spath (crude) of the palm, four
cubits, or six feet long; the Greeks were inured to

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with the sharpened horns of the dorcas [See Antelope, p. 70], and knotted clubs. The Libyans had their spears sharpened at the end by fire. The Paphlagonians, Phrygians, and Thracians made spears, javelins, and daggers. In the Persian army, the battle of Cumans, we find chariots armed with scythes mentioned. (Xenophon, Anab. I. 8.)

The Greek armies were composed of various sorts of soldiers. In the earliest ages, as we see from Homer, the chief persons were the armed heroes, and in charity the Greeks seem not to have existed in the historical ages. The cavalry of Thessaly and that of Macedonia obtained the highest reputation among the Greeks. It was with this cavalry that Alexander distributed both the honours of the Persian king and those of the rulers of the Penjab. With the age of Alexander elephants were brought into use, and they were employed both by Pyrrhus the Greek King of Epirus, and by Hannibal also, in their invasions of Italy. Greek foot soldiers were distinguished by the terms ἀκράτης (akratis), those who wore armour, and carried broad shields and long spears; and ἄξολο (axol), the light troops, who, with no other protection than a helmet, were armed with darts, bows and arrows, or slings. The ἀξίωτας (axiotas), who carried the pelte, or narrow-pointed shields, and spears, were a species of light troops, and considered as an intermediate kind. The heavy-armed foot were the chief strength of the Persian army.

The Greek spears were generally of ash, with a leaf-shaped head of metal, and furnished with a pointed ferrule at the butt, with which they were stuck into the ground. Pausanias saw a spear in the temple of Minerva at Phaselis, said to have belonged to Achilles, the blade and ferrule of which were of copper. The same diligent and credulous observer saw a knife at Nicomedia, altogether made of copper, which once belonged to Memnon; that is, it was a very old knife, kept as a curious piece of antiquity. The Macedonians had a particularly long spear called ἐπέκεια (epakeia), which was fourteen or sixteen cubits in length. (See Polybius for this extraordinary length, and the notes to the Compendium of Julius Pollux, v. ἐπεκεῖα.)

Swords, spears, javelins, bows, and slings, were the offensive arms of the Romans, whose infantry soldiers were divided into hastati, who fought with spears; principes, who led the van; triarii, the third line: equites, the light troops; fundatorum, the slingers; and sagittarii, the archers. Their cavalry used the javelin on horseback. The arrows of the sagittarii had not only their pikes barbed, but were furnished with little hooks just above, which easily entered the flesh, but tore it when an attempt was made to draw them out. What greatly contributed to render the Romans masters of the world, was, that as they successively fought against all nations, they renounced their own arms and methods of fighting wherever they met with better. Romulus, after the defeat of the Sabines, is said to have retaken their old seats (21) to have adopted the broad sword of that nation, instead of the Arcolic buckler (aspis argolica), which the Romans had used till that time: a story of little historical value, but of the opinion of the Romans of that age, and an improvement in their military art by adopting the best things from other nations, and that they traced this policy to the supposed origin of their national existence.

The early Saxons, previous to their arrival in Britain, besides the buckler and dagger, used a sword bent in the manner of a scythe; but their descendants soon changed it for one that was long, straight, and broad, double-edged, and pointed. The ordinary weapons of the Saxons, after the invasion, was, for the infantry, were the ases, bows and arrows, clubs, and swords. Few of the infantry had any other defensive armour than small round shields with spikes in the centre. The cavalry were more uniformly armed with long spears which they carried in their right hands, and swords which hung by a belt on their left sides.

The arms of the Normans differed but little from those of the Saxons; their spears or lance-staves were usually of some length, sharpened with steel, very sharp, and well-tempere'd; to these, with the sword and dirk, they added the cross-bow, as has been already shown in the article Archery. The Normans also appear to have introduced the trumpet, enrayl, and other instrumental machines from which darts and stones were thrown to a considerable distance: to which, also, they added arrows headed with combustible matter for firing towns and shipping.

Our military weapons were probably but little altered till the time of Edward I., when the English long bow-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 Bilious, 'that they were contrived by the Lucquesen whose besieged by the Florentines;' and we shall find that not only is the credit of the first conception of the weapon 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 representations 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 Specimen of Arms and Armour. Hand-cannon, hand-gun, arquebus, arquebus à croc, haquetas, demi-blagas, musquet, wheel-lock, currier, snap-haunce, caliver, carabine, escopette, fusil, musquetoon, fowling-piece, petronel, blunderbus, dragon, hand-mortar, dag, pistol, trickler-lock, fire-lock, self-loading gun, fancy-gun, musket-arrows, match-box, powder-horn and flask, touch-box, bandoleers, cartridges, patron, sawneys, feathers, and bayonet. The recollection of the fact, that phiala (small pots) had been sometimes used for casting the Greek fire, was likely to lead to some more dexterous invention. The Emperor Leo, in his Tactica, ch. xix. § 6, tells us, that upon sea-fight, 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 epwoy (epheones), large tubes; they were of copper, through which these fires were blown into the enemies' ships.' Anna Commena (Alex. l. 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 a hole for the bullet, and was usually made to resemble a large cannon. The touch-hole which, 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 gun-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
The arquebus, like the hand-cannon and hand-gun, being fired from the chest, while its butt remained straight, the eye could with difficulty only be brought sufficiently near to the barrel to afford a perfect aim. By giving to the butt a hooked form, the barrel was elevated, while the horizontal position would be retained. This idea originating with the Germans, gave name to the fire-arms thus constructed, and was thence by the English termed harquebut, which, however, is the proper name of the invention as well as the name was known in England as early as the reign of Richard III. We find numerous hauebucketers in the English army in the time of Henry VIII. The dehauebuck was a kind of long pistol, the butt-end of which was fitted with a wheel-lock, so as to be capable of turning a circle. The demi-hausers were smaller, and probably about half the weight of the hauebuckets, the diameter of the barrel being much less. In the Gesta Grayorum, printed in 1584, we are told they carried bullets, and sometimes half shots.

The musquet was a Spanish invention. It is said to have first made its appearance at the battle of Pavia, and to have contributed to the execution of the famous French general for the day. Its use, however, seems for a while to have been confined. It appears not to have been generally adopted till the Duke of Alba took upon himself the government of the Netherlands in 1567. M. de Strozzi, Colonel-General of the French infantry under Charles IX., introduced it into France. The first Spanish musquets had straight stocks; the French, curved ones. Their form was that of the hauebuck, but so long and heavy, that something of support was required. They were employed in the height of a man's shoulder, with a kind of fork of iron at the top to receive the musquet, and a ferrule at bottom to steady it in the ground. On a march, when the piece was shouldered, the ferrule was turned in the right hand, and subsequently hung upon the wrist by means of a loop tied under its head. A similar rest had been first used by the mounted arquebusiers. In the time of Elizabeth, and long before, the English musqueteer was a most encumbered soldier. He had, besides the unwieldy weapon itself, his coarse powder for loading, in a flask; his fine powder for priming, in a touch-box; his bullets in a leathern bag, the strings of which he had to draw to get at them; while in his hand was his burning match and his musquet rest; and when he had discharged his piece, he had to draw his sword in order to defend himself. Hence it became a question for a long time, even among military men, whether the best way of fighting was by gun or sword.

An ingenious contrivance to supplant the match-lock appeared in the reign of Henry VIII. This was the wheel-lock, invented in Italy. M. de Bellai informs us, that one of the first was used in 1521, when Pope Leo X. and the Emperor Charles V. confederated against France, and their troops laid siege to Parma, which was defended by the Marquis de Foix. It was a small machine for exciting sparks of fire by the friction of a flourued wheel of steel against a piece of sulphur. The Greek writing from such application, acquired the name of pyrites or firestone. The spring which turned this wheel was attached to it by a chain, formed like those in watches, and was wound up in that of an axe, or, as it was called, a musquet rest; and when he had discharged his piece, he had to draw his sword in order to defend himself. Hence it became a question for a long time, even among military men, whether the best way of fighting was by gun or sword.

The musket was a Spanish invention. It is said to have first made its appearance at the battle of Pavia, and to have contributed to the execution of the famous French general for the day. Its use, however, seems for a while to have been confined. It appears not to have been generally adopted till the Duke of Alba took upon himself the government of the Netherlands in 1567. M. de Strozzi, Colonel-General of the French infantry under Charles IX., introduced it into France. The first Spanish musquets had straight stocks; the French, curved ones. Their form was that of the hauebuck, but so long and heavy, that something of support was required. They were employed in the height of a man's shoulder, with a kind of fork of iron at the top to receive the musquet, and a ferrule at bottom to steady it in the ground. On a march, when the piece was shouldered, the ferrule was turned in the right hand, and subsequently hung upon the wrist by means of a loop tied under its head. A similar rest had been first used by the mounted arquebusiers. In the time of Elizabeth, and long before, the English musqueteer was a most encumbered soldier. He had, besides the unwieldy weapon itself, his coarse powder for loading, in a flask; his fine powder for priming, in a touch-box; his bullets in a leathern bag, the strings of which he had to draw to get at them; while in his hand was his burning match and his musquet rest; and when he had discharged his piece, he had to draw his sword in order to defend himself. Hence it became a question for a long time, even among military men, whether the best way of fighting was by gun or sword.
The name of the fusil, as a fire-arm, in England, says the same authority, does not appear to be older than the tidings of the year 1630. There are in the British service three regiments of fusiliers or fusileers, the Scots, now the 21st foot, raised in 1678; the English, now the 7th foot, levied in 1685; and the Welsh, now the 23rd, formed in 1684 or 1685. The Sieur de Reigersberg, in his work on the same proportions as the musquet, and furnished with a fire-lock; adding, that 'although by coughing the cheek you can take better aim, yet it often misses fire from the use of the pipe, but seems to have been of the same length, and calibre, but lighter than the musket. In modern times its size has been diminished. The musquetoon, or musketoon, was also of French origin. The word fusil, applied to a small despatch-bolt, or as not so well as the fusil, nor capable of carrying a ball so far by one hand, its third, its barrel not rifled, but differing from the carbine in being furnished with a fire-lock instead of a wheel-lock, and from the carbine of extraordinary not only in this, but in its fluted bore.

The floating-piece, though properly speaking a tabulation for the sole purpose of killing game, is entitled to a place in the history of military weapons from the circumstance of thundering guns, and noticing that with a few observations, compiled about the year 1646, and published in 1671. He says, 'It is very fit likewise that you have in each company six good foiling pieces, of such a length as a soldier may well be able to take aim, and to shoot off at a sufficient distance, each being placed, as you may when you bring a division of foot to skirmish with an enemy, on the flanks of a division of foot, and six on the other flank, as you shall see them placed in these three battles, when six soldiers charge the foremost pieces ought to have command when they come within the distance of shot of that division of the enemy that they are to encounter with, that they shoot not at any but at the order of that division.' We have here plainly the origin of riflemen.

The President Fauchet, who lived in the time of Francis I., and that of his successors till the time of Henry IV., introduces to our notice a piece called a Petronel or postrinal, better known by the term of postrangers. These were soldiers that carried the forsworn manner, 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 proper 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 Hengrave Inventory of 1603 we have 'Hern ij postrhelners.' Nott, in his treatise on tactics, gives us a description of the weapon and, on account of its weight, carried in a broad baubrick over the shoulder.

The blunderbuss, this is a fire-arm shorter than the carbine, and with a wide barrel. Sir James Turner, in his Pallis armatd, p. 137, thus describes it: 'The carabineers carry their carbines in bandoliers 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 blocks 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, donder signifying 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 Bueche. 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 the time of Charles I.; but as for the soldiers called dragons have been most absurdly said to have been so denominated from the Draconari of the Romans. They were raised about the year 1600 by the Mareschal de Briac, in order to be superior to the portuguese, 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, excursions of the term dragon (with no reference to the fire-arm called a dragon) will be found in Sir James Turner's Pallis armatd, published in 1684, and in Count Bismark. The dragon will be found among Skelton's engraved illustrations.

The hand-mortar. Grenades are said to have been first used in 1594, and gave rise to a variety to the troops thence devised to carry them. Like the dragon it appears to have been fired from the shoulder.

The dag. In pursuing the inquiry into the origin of this term, says Sir Samuel Meyrick, nothing could be more perplexing than the daggle, while the dag is of a kind of pistol, pistoleo, in the Italian language, signified a great dagger or wood-knife. The weapon appears to have been suggested by the demi-haque, and differs from the pistol solely in the form of the butt and stock, the latter being of oblique line instead of a knob. In this respect it greatly resembled a petronel, and that it gave the distinction is clear, from what is wrongly called a Highland pistol being by the Highlanders themselves termed a tuck, and its having its butt made flat and terminating slant-wise. The dag was of various sizes, and hence in inventories of arms we meet with long, short, and pocket dags, and dags with different kinds of locks. It appears to have been almost of the same make as the flintlock pistol, and was in the reign of Henry VIII.; for in the inventory, taken in 1547, of stores in the different arsenals in England, 'one dag with two pieces in one stock' occurs, with 'a white tawke with her looke graver, and all the stocke white bone: one dagge with the butt of the tawke fenirshed, and her looke vernished with rode stockes, shettes covered with blanket velet garnished with silver and guilt, with purses, flakens, and touch boxes of black velet garnished with iron guilt; two dags for soldiers, and two for the officers, taking the usual double locks.' The making of this dag seems to be alluded to in the play of Jack Drum's entertainment:

*He would show one how to hold the dag. To draw the cock, to charge and set the flint.*

The pistol, 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 took to pistols to get a use in the very dangerous situations when properly managed.' These reiters, or more properly ritters, were the German cavalry, who gave such ascendancy to the pistol as to occasion in France, and subsequently in England, the disuse of the matchlock. We learn this interesting fact from Davilla, 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 the civil wars, ceased to carry head-arms. He says, 'the Germans, having 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 the king of England, no longer was forced to 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 trenched as carabineers, a term subsequently introduced into England. John Bingham, in his Notes on the Tactics of Althin, published an 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 obtained of their form. The first ordnance of Henry II., the 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 manual exercise of this weapon is detailed and exhibited in several plates in Captain Cruso's Military Instructions for Cavalry, published in 1632. Sir James Turner, in his Pallis armatd, published in 1670, says, the French then used locks, but it was not the custom which part the English and Scots; the Germans rose or wheel-locks; the Hollander used both.

The tricklock. 'A match tricklock complex' 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 match-lock of that of Charles II., and a trickier fire-lock of that of James II., upon this principle, are preserved in Mr.
the firelock in his hand. This is an important feature, for it proves that, relatively speaking, the firelock was equally applied to the wheel-lock. The firelock was evidently suggested by the snaphance. It originated with the French about the year 1635. The steel post on which the fired piece had been placed was got rid of, and that set upright on the cover of the pan. The cock was moved sufficiently near to permit its opening; the pan, by the sudden impulse on striking this fired piece, performing the work of priming. We are informed that the use of the firelock, or "fire-arm," was first known at Skelton's engravings. The term firelock was no longer applied to the fire-arm with the wheel, which was now termed the "rose or wheel-lock."

The Self-loading Gun originated in Italy about the close of the English Protectorate. The butt was made to answer the purpose of a flask, and a small touch-box was attached to the pan. At the breech was a cylinder, with a hole to receive the bullet, with a movable piece of steel, to be set as 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, was not a matchlock, or plunger-lock, experienced as the long bow; but the contrivance was attended with great danger, and occasioned the subsequent inventions of a moveable breech containing several charges, or a small barrel, which was brought to the breech when requisite to load, &c.; but most 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 even general purposes.

Musket-Arrows, sometimes called fire-arrows, are at least as old as the time of Queen Elizabeth. They occur in the incunabula, folios of 1482. The matchlock, that it covered 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 holes, were invented out of the matchlock, and were termed Carous. They are thus described by Walsham, a captain of the town of Danzig, in his Art Militaire pour l'Infanterie, printed in 1615. "It is necessary that every musketeer should know how to charge 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 then 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, to be latterly worn by our grenadiers on one of the cross belts in front of their chests.

The Powder-horn and Flask. The convenient form of the horn to hold powder, 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 hoppers of fire-arms, naturally suggested itself 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 this, the small horn was suspended in front from the necks 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 a swan's neck, the invention of which is lost, but which was known in England as early as the reign of Henry VIII., and appears on a hackbut of that date in one of Strutt's engravings, taken from an original drawing in the British Museum, suspended like the horn, but at the tip, instead of the muzzle. So we have 'One horn for gunne-powder, garnished with silver. Three great flasks covered with vellum, and three little touch-boxes.' And in that at Hengrave, 'xxij flasks, and as many toothe boxes.' M. Montgommeri Corboson, in his Treatise on Armes, says, 'The English were the first to have been introduced in the reign of Henry III. of France. The earliest Instance which Sir Samuel Meyrick met with of the bandolier was in Montfaucon's Monarchische Histoire de la Guerre, in the reign of Henry VII., but it would induce the belief that the English received them from the Wallonians in the neighbourhood of Liege. Sometimes six were placed before, and six behind the person, when sung over the shoulders; sometimes more. Nine are appended to a waist-belt in Mr. Meyrick's collection. The medal numbers still remain at Hampton Court. Sir James Turner, who published his work in 1870, says they were first laid aside about thirty years before by the Germans. Soldiers who were without cloaks could by this means keep snow and rain which soopstole them, and made the powder useless; and in surprisals, the noise which they made betrayed those who carried them.

The Cartridge. Turner, speaking of the pistol, says, 'all horsemen should always have the charges of their pistols ready in cartridgues, the powder made up compactly in paper, and the ball tied to it with a piece of pack-thread.' In this description we have evidently the cartridge, though not expressed by name. It is to be observed 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 Art of War, says, on long service, 'it would be convenient to allow the use of bandoleers, but a great approver of boxes of cartridges, for then, by hitting off the bottom of the cartridge, you charge your musket for service with one hand.' It is curious to observe that even 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 bandoleer 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 Patron was an upright semicylindrical box of steel, with a cover moving on a hinge, filled with a block of wood with fire perforations to hold as many pistol-cartridges. Skelton has engraved some of Elizabeth's time, and in the Armamentum General Armaturae Equitabilis, printed in 1617, the German cavalry are represented with a brace of pistols in the same holster at the saddle-bow, and patrons at their hips. The Sweyne-feather, and Musket-rest. To remedy the inconvenience of a musketeer's being compelled to draw his sword, and defend himself after the discharge of his piece, and to render him more competent to act against the pikemen, a long thin rapier blade, fixed into a handle, and carried in a sheath called a sweyne feather, i.e. hog's feather, which is by its position disposed to the hilt and point of the sword, and, in the interval of the discharge to the Swedes, was given him instead. This, after a discharge, he drew out of its scabbard, and fixed into the
The muzzle of his gun, which gave him a weapon of great length; but as the soldier had then more to carry in his hand than previously, an attempt was made to unite the swan-feather rest. This latter, instead of having a wooden shaft simply, was made of a thimble of iron, covered with leather, which held within it the feather. Thus it was preserved from rain; and when wanted, it could be easily inserted into the muzzle, which they called the king of arms, in particular when it was used by the monarch to unite the swan-feather rest. This latter, instead of having a wooden shaft simply, was made of a thimble of iron, covered with leather, which held within it the feather.

The Duke of Albemarle, in his Observations upon Military and Political Affairs, written in 1646, and printed in 1675, recommends arming musketeers and dragoons with muskets and swan-feather, with a view to the convenience of the troops. These rest, themselves were apparently disused about the middle, or toward the latter end of the civil wars; the weight and inconvenience 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 swan-feather was laid aside when the rest which contained it was relinquished, the muskets were reduced to the form with which they were accustomed to cope before it had been invented. To resume the simple swan-feather was not deemed expedient, as from its length it was extremely awkward to manage; and pikemen were a species of troops that had been born with their arms. This latter, however, 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 first made use of by the Swiss, who carried them, as bayonets à marches, and first introduced them into their army in 1671. These were formed with plain handles, formed to fit tight into the muzzles, rather enlarging towards the blade to prevent their entering too far into the piece. Subsequently, it was observed, by way of precaution, that a small mule was placed on the muzzle, in which way the French used it in the reign of William III., to the astonishment of the 25th regiment of foot, on whom they poured a volley, halting in their charge.

Besides the authorities quoted in this article, Green's Military History, Henry's History of Britain in the Different Periods, Strutt's Manners and Customs, and the various authors quoted by them, may be referred to.

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 improved his authority as a poet with much practice as a physician. He had, however, interest enough to procure the appointment of physician to the army in Germany in 1760. He died in September, 1779. There is a dedication prefixed to his Poems on 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 much to the elevation 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 Gilpin, he was a great reader.


ARMY, THE ENGLISH. The word army, like many other military terms, has come to us from the French. They wrote army, arry. The word derived from the Latin armis, which exactly defines 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 the Laws.

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 each 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 according to the will of the commander-in-chief, the general, and sometimes the generalissimo, that is, the chief among the generals.

We may briefly explain why we limit this article to a sketch of the origin of the English army, without including those of the rest of Europe, which is sometimes done in simple histories; but it is important to know the history of the armies of ancient nations. The armies of Greece, Rome, and the ancient Oriental nations, were, owing to various causes, different from those of modern Europe, and the armies of the modern nations, as those of the British, American, Russian, and others, are again different. Before we go to the various heads as Armies, Romans, Egyptians, &c., notice their military system, so 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 those heads. For other particulars connected with the formation of an army, see Enlisting, Recruiting, Soldiers, and also Militia.

Armies form the most important part of the government, by which the last extremity, that is, defense against invasion, is put forth to maintain order at home and against other states.

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 from the first by political philosophers. It is not a duty of the law to always appoint and always ready for the field can only be effect in a state of high civilization, when the various other offices in a great community are also properly distributed and filled. No better proof can be afforded of the high civilization of Egypt and other countries in early times than the well-appointed and powerful armies which they were able to bring into the field. This was effected in Egypt by having a particular caste or class of soldiers, corresponding pretty near to the Romans of modern times, having the 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.

The term army is derived from the Latin armis, the first term a 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 state is to the present day the proper and only use of arms, we are ready to defend himself, his family, and his possessions; 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
Cæsar when he made his conquest of Gaul; and such was
the order of the warlike, when we meet again, on the
British coast under the command of Cassivelaunus,
when he made that descent from which neither honour ac-
crued to the Roman arms, nor benefit to the Roman state.
In that warlike spirit was kept up by the
senses of danger, not so much from foreign invaders, as from
neighbouring and kindred tribes.

In the writings of Cæsar and of Tacitus, the two authors
from whom we derive our best acquaintance with the
manner and habits of the German nations, and 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;
compoing as more or less than a million of the
chiefs; with little defensive armour, and none offensive but
darts, spears, and arrows; throwing up occasionally earth-
works to strengthen a position—this is the outline of their
military proceedings. (Tacit. Annal. 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 Cæsar. His description of one of their chariots, driven
by a charioteer whose attention was solely directed to
the management of the chariot, 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
us with a picture this singular.

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 the protection of fields in the possession of the
remains of Roman authority in Britain, as roads, walls,
encampments, and inscriptions, are military. In that curious
relic of Roman time, the Notitia, which is referred to the
age of the Roman emperors, Arcadius and Honorius, etc.,
the reader finds the diaphragm 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.

These military qualities and in the exterior to
among the barbarous nations, but to employ such soldiers
in countries in 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
accounts of this period of warlike in which the
power of the nations was thus drawn away. There remained
only the quiet and the peaceable, or the females, the young,
the heathen, and the aged. As long as the Roman army was
necessary for their protection, it was well. But when that
nature was departed the necessity of the
people so weakened that 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 Cæsar 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 policy and war became the principles of
English policy. They seem to have been at first in that
state of society in which every man is a soldier; and the
different sovereignties which they established were the oc-
casion 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.

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 du-
ities under the inspection of the earls, and their deputies
in the counties in general, then in the manors and in the
musters of later times; 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 remain of those times, a piece of
needlework 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
memorials of Roman Britain from the first
descent. We see them clothed from head to foot in a cowl-
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 are
attached. Some are armed with shields, and battle-axes.
They have shields, the bosses on which are
surrounded with flowers and other ornaments; and there
are sometimes other devices, but nothing which can be
considered as very rudimentary. Some of the 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 many valuable copy was 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 ancient English and Norman
manners.

A great change took place in the military affairs of
England at the Conquest. It is to that period that the intro-
duction of firearms, a system of policy, and a method of
organizing military forces, which were quite novel 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, distrib-
uted the greater portion of England among his subjects 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 each year. The extent of the king's fees varied with the
situation of the tenants. The wages were $60, or, after the
time 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 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 king's land. When they were paid for their services, they
might continue on receiving pay.

Writs of military summons are found in great abundance
in what are called the 'Close Rolls,' and the contemporary courts of
which letters and 'Quartering Issuers,' under the
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
to exercises, 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 changed for others by a statute of the same
year, which was followed by 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 sheriff was the only person 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 at-
nounce the musters and calls, which were a species of review,
the 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 when the officers were
permanently appointed, they were selected in each county, who had the superintendence of these oper-
ations, and was called the lieutenant: this is the origin of the

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present lord-lieutenant of counties, an officer who cannot be traced to a period earlier than the reign of Henry VIII.

Foreigners were also sometimes engaged to serve the king's wars, but the king's power was never so great as to furnish the necessary troops, 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 to arm for war: general levy, the raising of troops by a tax levied on all persons who held the manors of the knights' fees or 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 the king thought proper to engage. But all these posse-comitatus could not be compelled to leave the kingdom, and only in particular cases the shire to which they belonged, the king had only his feudal and mercenary troops at his disposal, and he and his continuance, 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 other nations, would 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 crown accepting 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 by this method that the victories of Crecy, Poitiers, and Agincourt were gained.

In the office of the Clerk of the Pells in the Exchequer, Dugdale presents a number of indentures of this kind, and has made great use of them in the history which he published of the Baronage of England. A few extracts from that work will show something of the nature of these engagements.

Michael Poyning, who was at the battle of Crecy, 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 meal a year, and their wages for three years at the battle of Crecy. 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 rate of 200l. per annum for his wages during the continuance of his service. In the second year of King Henry VI., 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 20th 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 VI. John Grey was retained to serve the king in his wars in Scotland, under the command of Giles Lord Daubeny, 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 fifty miles; with one two lance, one 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 present 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 temporary occasions, and soon fell back again into the condition of the citizen or agriculturist, while the king's power was never so great as to furnish the necessary troops, 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 kings had even a body-guard, much less any considerable number of troops accustomed and ready for immediate action 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 nations, and is now a matter of permanent defence. In England, probably in a great degree owing to her insular situation, this took place later than in most continental countries. But the example, however, of the continental states, a sense of the great convenience of having always a body of troops at command, and the change in the methods 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 expense 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 2000 regular troops as a nucleus of his armed forces, which were paid out of the king's own revenue. James II. increased them to 30,000; but the measure was looked on as an attempt to gain great jealousy, and the only result was 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, was an act contrary to the charter, and this clause was 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>Active Force</th>
<th>Reserve Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>America, United States</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td>4,700</td>
<td>10,000</td>
</tr>
<tr>
<td>Missouri</td>
<td>1,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Ohio</td>
<td>1,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>2,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Virginia</td>
<td>2,500</td>
<td>4,000</td>
</tr>
<tr>
<td>West Virginia</td>
<td>3,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Washington</td>
<td>3,500</td>
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<tr>
<td>Wisconsin</td>
<td>4,000</td>
<td>7,000</td>
</tr>
<tr>
<td>Wyoming</td>
<td>4,500</td>
<td>8,000</td>
</tr>
<tr>
<td>Alabama</td>
<td>5,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Arkansas</td>
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<tr>
<td>California</td>
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<tr>
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</tr>
<tr>
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<tr>
<td>Indiana</td>
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<tr>
<td>Iowa</td>
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<td>Michigan</td>
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<tr>
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<td>Mississippi</td>
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<tr>
<td>Nebraska</td>
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<td>34,000</td>
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<tr>
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<tr>
<td>North Carolina</td>
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<td>40,000</td>
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<tr>
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<td>41,000</td>
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<tr>
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<tr>
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<td>46,000</td>
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<tr>
<td>South Carolina</td>
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<td>47,000</td>
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<tr>
<td>South Dakota</td>
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<td>48,000</td>
</tr>
<tr>
<td>Tennessee</td>
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<td>49,000</td>
</tr>
<tr>
<td>Texas</td>
<td>25,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Utah</td>
<td>25,500</td>
<td>51,000</td>
</tr>
<tr>
<td>Virginia</td>
<td>26,000</td>
<td>52,000</td>
</tr>
<tr>
<td>West Virginia</td>
<td>26,500</td>
<td>53,000</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>27,000</td>
<td>54,000</td>
</tr>
</tbody>
</table>

**Note:** The figures are approximate and subject to change. The data is from the early 19th century and may not reflect the current military strength of these nations.
ARN

1,700,000
4,900,000
3,400,000
33,800,000
209,000
1,570,000
143,000
825,900
4,730,000
4,200,000
41,000
3,000
100
33,578
110
146
1
104
10
60

It may be added, that, according to Schnabel's calculations in 1832, the standing armies maintained by the principal European States relatively to their respective populations were as follows:

<table>
<thead>
<tr>
<th>Country</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>1 in every 50 inhabitants</td>
</tr>
<tr>
<td>Sweden</td>
<td>53</td>
</tr>
<tr>
<td>Poland</td>
<td>60</td>
</tr>
<tr>
<td>Prussia</td>
<td>63</td>
</tr>
<tr>
<td>Bavaria</td>
<td>69</td>
</tr>
<tr>
<td>Russia</td>
<td>70</td>
</tr>
<tr>
<td>Austria</td>
<td>100</td>
</tr>
<tr>
<td>France</td>
<td>110</td>
</tr>
<tr>
<td>England</td>
<td>140</td>
</tr>
<tr>
<td>Two Sicilies</td>
<td>200</td>
</tr>
<tr>
<td>Tuscany</td>
<td>400</td>
</tr>
<tr>
<td>States of the Church</td>
<td>500</td>
</tr>
</tbody>
</table>

We should observe, however, that the data which he assigns 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 forces:

<table>
<thead>
<tr>
<th>Rank and file</th>
<th>Great Britain 77,847</th>
<th>India 17,480</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officers</td>
<td>Great Britain 4404</td>
<td>India 1095</td>
</tr>
<tr>
<td>Non-commissioned officers</td>
<td>Great Britain 6265</td>
<td>India 7739</td>
</tr>
<tr>
<td>Rank and file</td>
<td>Great Britain 88,516</td>
<td>India 109,672</td>
</tr>
<tr>
<td></td>
<td>Great Britain 20,156</td>
<td>India 109,672</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 famous Abelard. Having returned to Italy, he became a monk. The corruption of the clergy was very great at that 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 licentious life of abbots 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 satisfied with their tithes and the voluntary obligations 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 by many who could not understand his expositions against the clergy indisposed the Papal court towards him. By preaching against the temporalities of the church, Arnaldo 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 Otho of Freisingen and other historians. But at what time, and by what authority, is not 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. Mitford, and the historian's arresting story of his twenty years' journey to Flanders or Italy, and eventually to England. He then returned to France, where he seems to have found favour with the papal legate Guido, afterwards Pope Celestine II.; but he met with an unrelenting adversary in St. Bernard, who denounced him and excommunicated him. But St. Bernard turned 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 revolution. Luc 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 excommunicated Arnaldo. Arnaldo in the meantime had re-established the Roman republic with his consuls, to reinstate the equestrian order, and to emulate the deeds of their glorious ancestors. The multitudo, thus excited, hurried on the excesses with which Arnaldo probably had never countenanced. 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 Cassius. Fabius and Pompilius, however, Arnaldo, however, still remained poor; he really 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 senate 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., who 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 communicating to the first citizen in Tiber, a body of soldiers without a precedent. The Romans, who had set at nought the temporal power of the Pope, qualified before his spiritual authority. In order to be reconciled to the pontiff, they exiled Arnaldo, who took refuge among friends friendly to the Pope in Campania. When the Emperor Frederic L. camo to Rome to be crowned, the Pope applied to him to have Arnaldo arrested. Frederic accordingly gave his orders to the Margrave or Viscount 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 latter part 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 the death of his eldest brother, joined the Sorbonne in 1641. He exhibited an early disposition for theological controversy, by writing the Théologie Morale des Jesuites, in which he exposed the dangerous casuistry adopted by several of their teachers. Arnauld, who had not forgotten the hostility of the eldest Arnauld, returned against the son, by violently attacking his work De la Fregueste Communion, which was published in 1643. Soon after, the disputes which broke out among the French clergy about Jansenius, bishop of Ypres, and his book Discours,
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 occasion. A controversy was commenced between 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 his sister Angelique Arnauld was superior. Amauld, his elder brother, was at that time a prelate, and other learned men of that time, who were friends of Arnauld and shared his opinions, resorted for quiet and studious retirement. There they wrote various works on literature, philosophy, and politics. Arnauld was the principal author of them, and the basis of the French elements. He wrote parts of several of these works, such as the Grammaire Generale Rayonnee; Elements de Geometric; and L'Art de Penser. He also had a share in the famous letters written by Pascal against the Jesuits, which are known by the name of Lettres Principales. The disputes about Jansenius and his five propositions, after agitating all France for many years, and drawing bull's of censure from several Popes, to which a part of the French elements refused to submit, notwithstanding the imperious orders of Louis XIV., were at last appeased for a time by the conciliatory spirit of Pope Clement IX., who accepted a compromise. This was called the Peace of Compiègne. Arnauld was consulted in the arrangement by an eloquent memorial, which he addressed to the pontiff through the Abbe Rospigliosi, the Pope's nephew. After this peace, Arnauld was presented to the French Senate also to Loftus, a round table, in a manner he received with all possible grace and honor, and invited him 'to employ his golden pen in defense of religion.' His next work, in which he was associated with his friend Nicole, De la Perpetuite de la Foi de l'Eglise Catholique touchant l'Immaculat, 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 Renversement de la Morale de J. C. par la Doctrine des Calomnies touchant la Justification. He was regarded as the chief opponent of Arnauld, at that time engaged in his war against the Jesuits, and wrote the greater part of the work styled Morale Pratique des Jesuites, 8 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 patiently; 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 very earnestly enforced. Arnauld continued the course of his usual life at the height of the Controversy of Longueville, who esteemed him and appreciated his talent; but afterwards considering it prudent to leave France, he repaired to Brussels in 1679, where the Marquis of Boursin, a member of the French government, offered him of his protection. There he published, in 1681, his Apologie pour les Catholiques, which is a defence of the English Catholics against the charges of Titus Oates' conspiracies. 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 the Boursin, as the well-known reformed minister in Holland, who had accused the French clergy of being implicated in the English conspiracy. Jurieu, 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. (Evo. 1689.) It was published with the express consent of Arnauld's friends, 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 and distributed at his own expense. From his retirement at Brussels Arnauld made several excursions into Holland. His reputation bad spread everywhere, and he was kindly received. About this time he entered into a controversy with his old friend Father Malebranche, who, in his metaphysical works, had announced some peculiar doctrines on the subject of grace, predestination, and other theological problems. Arnauld began by attacking Malebranche's definition of the nature of our ideas, and his famous proposition that 'we see all objects in the same way.' In reply, Arnauld wrote De la Nature des Vrais et des Fauxes Idees, Cologne, 1683; and afterwards, Réflexions Philosophiques et Théologiques sur le Nouveau Systeme de la Nature et de la Grace du Père Malebranche, which was addressed to the Father on the same subject. This controversy was carried on by Arnauld with his usual vehemence, and it had the effect of souring Malebranche's naturally pacific temper. 'The Father wished for a truce; he declared 'he was tired of making himself a circus.' It was continued for a time with 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, and a mind of cool judgment, made him restless and fond of debate. 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 Malebranche, with the Calvinists, and with the sceptic philosophers, among whom was Bayle. Arnauld also wrote De la Littérature, of which he was the principal author, in which are given a list, for the first time, of all the works written in French and the Gallican church. His last work was Réflexions sur l'Eloquence des Prédicateurs, 1694. He died in his exile at Brussels, on the 9th of August of that year, after a restless and eventful life. There is an interesting account of his last moments by Father Quenuel, 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 conven. Boileau and Racine wrote epitaphs in honour of Arnauld. His works, which filled more than 190 volumes at various periods of time, were published in 80 volumes, and at Paris, in 50 volumes, 4to., 1757-93. 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 extebrate theology from scholastic subtleties; he adopted in his exposition of theological subjects, the method of his master Leibniz, 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 criticism of the Bible; and in the controversy of the French and English clergy, he was an advocate for having the Missal, or service of the church, translated into the vulgar tongue. His brother, Henri Arnauld, Bishop of Angers—where he died in 1694, at the age of ninety-five—bore the character of a most benevolent and diligent pastor. Another and an older brother, Robert Arnauld d'Andilly, filled several offices at the French court, but at the age of fifty-five retired to Port Royal, where he died, 1714. He wrote several religious works. Robert's son, Simon Arnauld, Marquis of Pompone 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 1565 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 spirit of many of his confreres, 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 speculative science, a branch of politicking, but divinity of practice, and not a practical example of the worldly kind. We do 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, Dutch, Flemish, Bohemian, and English, and has been highly praised by Mosheim, Professor Frank of Halle, Dr. Spener, and other distinguished divines. John Wesley, in his Memoirs, has left a memorial of the classical master, who was called the Protestant à Kempis. Arndt was a great promoter of practical religion, or that which, in ecclesiastical history, is called Pietism. He was accused by the executive, or doctrinal, or even by the attribution of too much to the strength and ability of man in the work of conversion. Osianer of Thüngen wrote against him his Judicium Theologicum. Yet Arndt’s book is still considered one of the purest vestments of Pietism ever written.

An English translation was published in 1815 by William Jacques—True Christianity, or the Whole Economy of God towards Man, and the whole Duty of Man towards God. 2 vols. Svo. London. Arndt was minister at Quedlinburg, and afterwards at Berlin. He had always acted as a preacher and as a writer. Several articles on the subject of the conquest of the world, which he had suspected, and an occasion for which he had left the town and to withdraw to the island of Sylent, where he remained for some years. In 1611 George Duke of Lauenburg 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 declared that he had delivered his last sermon. 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 made ignorant people suppose that he had discovered the philosophy which can be expanded. He was always at the expense of his church, and was, as he was said, a good steward at his own expense. Arndt was a remarkable man, and is the subject of a work by the Rev. Dr. Thomas à Kempis, and Tauler. He must not be confounded with Josia Arndt, also a Lutheran clergyman, born in 1626, who was professor at Rostock, and who published several works of philosophy, divinity, and history; among others, Lexicon Antiquitatum Ecclesiasticarum, 4to. Greifswald, 1668. He died in 1683.

ARNE, THOMAS AUGUSTINE, Doctor in Music, born in 1710, was the son of an usher in King Street, Covent Garden, and educated at Eton, having been intended for the profession of the law; but his bias towards music was so strong that he pursued his legal studies successfully, and after the usual struggles between 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 instruction his father had 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 favourite study. If he possessed any advantage, it was that he imbued his sister with a love of the vocal art, and qualified her to appear in Lampé’s opera, Amelia, in which her debut was of so promising a kind, that her brother, though then only eighteen years of age, set for her Addison’s Rosamond, in which she was then generally successful. In 1726 she became the celebrated Mrs. Cibber. The success of this opera led of course to the composition of others, and in 1728 Arne produced his Comus, in which he exhibited powers of the higher kind, and his reputation was at once established. In 1740 Arne married Miss Cecilia Young, a pupil of Geminiani, and a performer of eminence. 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 ascended to the request of the proprietor of Vauxhall, who was the Rev. Mr. Arne to the list of his vocal performers, her husband 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 that which has most contributed to his fame, 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 Librettist, Dr. Burney, said of it: "It is a happy example of that composer’s labours, and the judgment pronounced on it by posterity, prove beyond dispute its many and great merits. The drama is a translation, by Arne himself, of Metastasio’s Artaxerxes, and where it compared with many similar works, whether of his contemporaries or of his own school, becomes entitled to the praise which cannot justly be bestowed on mediocrity. Dr. Arne also produced, in 1765, an entire Italian opera at the King’s Theatre, Metastasio’s Olimpide, of which no notice is taken by any of his biographers, in which he imitated Mason’s Elifrida and Caracolus, additions to Purcell’s King Arthur, the dramatic songs of Shakespear, the airs for the Strauss Jubilee, &c. Love in a Village is a pasticcio, which, with several other operas, composed by him before, he offered to the public upon the 20th of February 1771. It is the first time since the Restoration that a love opera has been performed at Drury Lane. The design of the heroine, which is the first subject of the piece, and the measure of her distress, is the burden of the whole piece, and the most spirited passage in the opera. A sentimental song, in which the heroine exhorts her friend to forget her, is sung to a tune by Dr. Arne, and takes its title from the fame of the neima, or the opera, which the hero is to sing; it is a charming air, and one of the best songs that ever have been written. The other pieces, in the course of the drama, are, in almost every instance, restrained in a S.S.S. direction between the great central ridge and
offset from the same, which, detaching itself from the Fal- terona, divides the Casentino from the Mugello or valley of the Sieve, and succeeds from the Valdarno, forming the mountains of Crocebio, Guido, Cipollino, and Vallombrosa, and 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 large village of Poppio 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, detaching itself from the Monte del Catenaio toward the north, runs southward by Chiusi and Monterucchi, 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 Quarta, receives the waters of the northern Chiana, and then suddenly turns to the westward, entering a deep mountain gorge, appropriately called Tumulo, 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 valley about four-teen miles long, and five in width, 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 conical Arno. The valley is divided into a continuation of the ridges, and the plateaux, and the hills are covered with vineyards or verdant pastures.

Several neat towns and villages are scattered about, besides numerous hamlets and cottages of the hill slopes. Through this valley the Arno runs in a N:NW direction, its course being nearly parallel to that which followed higher up in the Casentino. At Ineisa the mountains close again on both sides, and the Arno runs through a deep channel excavated in a ridge of lime-stone rock which forms a continuation of the mountains of Vallombrosa, 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 mountains 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 westward by Vulturengo, 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 Siena, the Arno runs in a deep channel, being, except near the base of the river, equal to the Arno, said to have been cut by the old Etruscans. A wider passage being thus opened for the river, the plain of Flo- rence, which was a marsh before, was drained. The course of the river, now broad, separates one of the main courses of the north. 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 coming from the south, which has its source in the high lands near Sienna that divide the basin of the Arno from that of the Om- bron. On its right bank the Arno receives several streams which come from the northern Apennines above Pistoia, and from the lakes of Lisciano 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: 42° 41' N. lat., 10° 15' E. long. Formerly the mouth of the Arno was some miles more to the south, but that having become obstructed, partly by the Genoese sinking many ships in the bay, and partly by the sand which was brought and 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 at present flows. The ancient port 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 now runs into the sea, and between that and Lefernon. 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, in the time of Strabo (222), and even as late as the fifth century of our era, the Serchio, or river of Lucca, then called the Auras, instead of discharging itself into the sea, as it now does, entered the Arno below Pisa, and that city formed between the Arno and Serchio. The Serchio 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 Pisa.]

The Arno, like all the rivers which descend from the Apennines, is subject to sudden overflows. The quantity of earth and stones which it then carries down from the mountains 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 in the highlands where it has its source, the waters have sometimes dashed through the embankments and inundate a great part of the country. Among the more disastrous inundations, that of September, 1537, is recorded, when the Valdarno and the whole plain of Flo- rence were covered with water. Ducks, geese, and other birds, 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, and large spots of the ground near the mud from the streets and houses. In November, 1745, another great inundation occurred, owing to the prevailing scirocco wind, which melted the snows that had fallen on the Apennines. The confluence of the Sieve, just above Florence, a river which in some places is more than a mile wide, was also as late 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. (Possombroni, Memorie Idraulico-Storiche sopra la Val di Chiana.) A communication by water existed between Aretrium and Rome. But the bed of the Chiana becoming raised by deposits of earth, the declivity towards the north, 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 flowed from the upper parts of the southern Apennines were carried away by the Arno, and 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 Malte Brun's geography it is stated at 150. Its breadth varies from 140 to 220 feet; and its bed being generally at its mouth. In the city of Florence the bed of the Arno is con- siderably narrower, being confined by the walls of the quays. At Pisa, however, it retains still the 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 Tuscany. In the upper valleys of the Arno between the Arno and the Arno, the Arno and Pisa; and whole sheaves of the largest quadrupeds of other climates, the mastodon, elephant, rhinoceros, and hippopotamus, are found, as well as beds of lignite. [See APENNINES, GEOLOGY OF.]

ARNOLDO DI CRETO. See in 1606, Cretonis Liber hutrihis. (Illus- trius, 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 Institutiones is not ex- tant. Lactantius, the Ceoero of the fathers, was the most
A 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. Hieronymus informs us, in his Chronicle, that Arnobius wrote, 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 wrote these dreams to Lactantius, with the intention in order to convince the bishop that he was really converted. But the statement of Hieronymus, who refers to the twenty-first year of Constantine, a.d. 326, contains a manifest fallacy. Arnobius subscribes (i. e. c. 39) his change:—O, blindness! A short time ago I worshiped images coming out from the furnace, and gods made with the hammer on the anvil. Whence could I get a living power, and pray to the senseless stone for benefits; and thus unwittingly blasphemed even the false gods, by taking them for stocks, stones, and bones, or fancying that they inhabited such things. Now, I know what all those things were, because I was actuated by the mere spirit 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 tradition. The truth consisted in the fact that he himself mentions the time when he wrote his 'Disputations' (l. i. c. 71), saying that Rome had then been built about 1650 years. This would bring us, according to the era of Varro, in A.D. 192, in New Hollands era, 350, but seven centuries have elapsed since our Christian community began to exist, perhaps somewhat more or less. It may be, that Arnobius wrote his work at different periods. Without these dates we might ascertain generally the time when he wrote his 'Disputations' from their contents: he refutes that accusation which had excited the Diocletian persecution, namely, that the public calamities of the empire were a consequence of the spread of the Gospel. The averments of the sophists, and the like, are a subject of which Arnobius replied to this accusation:—If men, instead of relying upon their prudence, and following their own propensities, would try to obey the doctrines of Christ, which bring peace and salvation, the whole world would be soon changed, and the iron taken from the service of war would be employed in the works of peace. (l. iv. c. 36.)

Arnobius thus addresses the heathen (l. iv. c. 36):—If you were actuated by pius zeal for your religion, you should have burned those three New Zealander trees, instead of which the dishonour of the gods is daily proclaimed in indecent exhibitions. Why should our books be cast into the fire, and our places of assembly destroyed, in which the highest God is adored, and implored to give grace and peace to the magistrates, the armies, the emperor?—joy and tranquility to the living and to those who have been released from the bonds of the body,—books and places in which not only the true, but what is calculated to make men humane, mild, modest, chast, liberal in dispensing their property, and relatives of all who are united by one bond of brotherhood. (See Allgemeine Geschichten der Christlichen Religion in die Augen: Auf das August. M. Neander, ersten Bandes dritte Abtheilung, p. 1160-1165.)

Only one manuscript codex of Arnobius is known to exist; this is now at Paris. The first edition of the 'Disputations' of Arnobius is by Matthias Sabasius, Rome, 1544, fol. The editor being subject to the belief that Arnobius wrote only an eighth book, mistaking Octavius for Octavus. Subsequent editions were published at Basle, 1548, 1550, 8vo.; at Paris, 1580, 1603, 8vo.; at Antwerp, 1588, 1590, 1604, 8vo.; at Rome, 1583, 4to.; at Geneva, 1597; at Leyden, 1598, at Hanau, 1600, 8vo.; at Paris, 1605; at Hamburg, 1610, fol.; at Douay, 1634, 8vo.; Opus cum commentaria varie- rum, Leyden, 1651, 4to.; this edition contains many inaccuracies: at Paris, 1656, fol.; at Leyden, 1677, fol.; at Paris, 1715, fol. Venetiis in Gallandi Bibl. Vet. Patrum, 4to.; at Vienna, 1786, 4to.; at Wolfenbüttel, 1778, 8vo; in Vienna, 1810, and last by Conrad Orelli, Leipzig, 1816, in two volumes, 8vo.; this is the best edition of Arnobius. The 'Disputations' of Arnobius were translated into Dutch by Joachim Oudendyke, Disputat, Amsterdam 1678, 8vo.

The works of the Semi-Pelagian Arnobius of Gaul have sometimes been erroneously ascribed to Arnobius Afer. Arnobus of Gaul wrote, about a.d. 460, a commentary on the psalms, edited with a preface by Erasmus, at Basle, 1597; but this was never published until 1816. He translated the Iliad with great ardour, and raised a company of volunteers at Newhaven, in his native state. His activity, boldness, and skill, soon brought him into notice; and when in the summer of 1775 it had been determined to attempt the capture of Quebec, the country was left behind and it was ordered by Washington to conduct the expedition. The march of Arnold across a then unknown and pathless region at the close of the year, is one of the boldest military exploits on record. The march took about seven weeks, and about the middle of September from Boston to Newbury Port, at the mouth of the Merrimack; from which point they were conveyed by water to the mouth of the Kenne- daw, and thence to the head of the bay, on which they embarked in 200 boats on the Kennebeck at Gardener's Town, and made their way up the river in the face of such a variety of difficulties, that their progress was never more than ten, and sometimes only a mile or two miles a day. After reaching the head of the river, they had a work of nearly as great fatigue and difficulty still before them—the passage of the mountainous ridge which divides the territory of the United States from the sea. It was only after a struggle of a month that they reached the river Chaudière, down which they proceeded to the St. Lawrence, into which it falls. When they reached a house, on the 3d of November, they had been through eight of a hundred miles. Arnold distinguished himself greatly in the military operations that followed; and was severely wounded in the leg in the unsuccessful assault upon Quebec on the 31st of December, in which General Montgomery fell. On his return from this enterprise he continued in active service, and gave on many occasions the highest proofs of bravery and military talent. In one of the actions which immediately succeeded the surrender of General Burgoyne at Saratoga, on the 17th of October, one of Arnold's leg was struck, while he was on horseback, by a cannon-ball; and this accident rendering him unable for some time to take the field, he was appointed by Washington to the command of Philadelphia, which the English had recently evacuated. In this situation the vices of his character soon began to display themselves; and he was guilty of such acts of napa- city and oppression, in order to support the exaction and luxury in which he indulged, that on a representation being made to congress he was ordered to be tried by a court- martial. The result was, that on the 20th of January, 1779, he was sentenced to be reprimanded by the commander-in-chief. On this occasion Arnold appeared before the court. The embarrassment of his affairs, however, was so great, and the demands of his creditors became so pressing, that he soon found it necessary to attempt something to repair his broken fortunes. In these circumstances he appears to have announced to his friends that he would write to his name is now chiefly remembered, and by which it has
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 fought, for a certain sum of money; 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. By this means, he was enabled to support himself, for he was 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, 1780. We refer the reader to the Memoirs of Arthur, for an account of the manner in which this treasonable scheme miscarried. Major André was the person intrusted by Clinton with the active management of the negotiation with Arnold; and the British officer having hitherto been unknown in a shoemaker’s shop 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 boots of the plans and other papers which he had received from Arnold. By the arraignment of the officer to whom André was carried, he found means to convey an intimation of his capture to Arnold, by whom it was received on the morning of the 23d, just in time to permit him to make his escape. Taking a hasty farewell of his wife and child, he immediately rushed to the river, and leaping on board a barge which he had in readiness, he ordered himself to be rowed to the English sloop, which 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 he last wrote 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-
tions, with the view of inducing his countrymen to lay down their arms; but these attempts were not more success-
ful than one of a different description by which they had been preceded. In the beginning of the following year he was sent with an expedition into Virginia, where he com-
mited great devastation. After this he made a still more destructive incursion into Connecticut, his native state. Having taken Fort Trumbull, near New London, he har-
ried the inhabitants, burning the stores and the arms of the fort-
sword, and set the town on fire. He served afterwards in Nova Scotia, and also in the West Indies, where he was taken prisoner by the French, from whom, however, he managed to escape. After the conclusion of the war he took up his residence in New York. We have come across the sum of 400l., granted in 1792 to the children of a Benedict Ar-

Arnold, whom we presume to be the subject of the present notice. In July of that year a duel was fought near Kil-
burn Wall, between General Arnold and the present Earl of Lauderdale by Mr. Locke; and his lordship declined to return his adversary’s fire, but said, that if he was not satisfied he might fire on till he was. On this the parties separated. Arnold died in Gloucester Place, London, in 1801.

ARNOLD, SAMUEL, Doctor in Music, was born in 1740, and patronised from his birth by the princess Amelia, daughter of George II., who placed him among the choris-
ters of the royal chapel, under Mr. Bernard Gates: he afterwards completed his musical studies under Dr. Nares. His first production was an air, 'Sir! is thy joy to wound a lover,' which immediately spread itself far and wide, and, though a mere trifle, at once made the author popular. At the early age of twenty-three he became composer to Covent-garden theatre, and also undertook the direction of the Haymarket, then the property of the senior Colman. In the discharge of these duties, he produced about forty musical pieces, the most popular of which were, The Maid of the Mill, The Son-in-law, The Castle of Anadala, in which she played the musical character of The Sailor; Inkle and Yarico; The Battle of Hesden; The Surrender of Calais; The Children in the Wood; The Mountaineers, &c.; each containing besees that never The Mountaineers, &c.; each containing besees that never before was attempted. In 1780 he composed Dr. Browne’s sacred ode, The Cure of Saul, which was to be the best work of the kind since the time of Handel. This was followed by the oratorios of Ammelech, The Resurrection, and The Prodigal Son, which were performed at the Haymarket. As these were printed in four large volumes, a collection of sacred music, as a continuation of Dr. Boyce’s admirable work, to which it had proved a most valuable addition. During many years he carried on a private business as a Dancing-master, and while he was in his hands, he published 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 as 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 rest his remains. His name is further used in many of our dairies to give a reddish colour to cheese, which it does without adding any disagreeable flavour or unwhole-

some quality.

The Arnott 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 flag-leaves previous to being packed in baskets. In South America it is employed to add to the above mentioned whilst the same is further used in 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 flag arnott. This superior description, of which but little is imported, is known as roll arnott.

Arnott is with difficulty dissolved in pure water; it is usual, therefore, to add some alkaline substance, usually potassa, 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 arnott in potassa 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 proper-
ties, an opinion which is confirmed by the fact of the supe-
riority 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 so great a sacrifice of quality. It is usually made too, undergo, and without having recourse to the process of fermentation. Some experiments made with this view by Vauquelin seem to confirm this supposition.

The consumption of arnott has been much increased in the country in 1800. In 1790 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 10d. to 20d. per pound, according to its quality. (Ann. de Chim., tome 47.) Bertillon, *Eléments de l'Art de la Tentative de la Libération de l'Homme* (Vegetable Substances, Materials of Manufacture; Government Statistical Tables.)

**ARNSBERG** (or Arnstadt), the largest of the three towns forming the circle of the same name, which forms the Prussian province of Westphalia. In 1863, 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 1815. Arnstadt is bounded on the north-west by the circle of Münster, and on the north-east by that of Minden; on the east, by the princedom of Waldeck, and Hesse Darmstadt; on the south-east and south, by the duchy of Nassau; on the south-west by the district of Hanau; and on the west, by those of Cologne and Düsseldorf. According to the latest measurement, its superficial extent is 2952 square miles; and its population, which the census of 1818 stated to be 383,465, amounted at the close of 1831 to 452,065 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, 36,147 horses and cattle, 171,356 oxen and cows, and 166,588 sheep and goats. The Dorset breed, the most valuable, is the chief breed of sheep. It possesses an abundance of forests, and abundant pastures, and good meadows. The manufacturing towns and villages, are united into a single town, with 122 market-towns, villages, &c. The northern part of the circle, a considerable portion of which is occupied by the forest of Arnstadt, consists of valleys hemmed in by high hills and mountains; but its southern districts have more level, fertile land, where a sufficiency of grain, flax, and potatoes, for the consumption of the inhabitants; its more intricate growth is the timber, which is sold in the forest of Arnstadt, 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 Arnstadt is the Spree, which rises at Winterberg, within its borders, and flows into the Rhine between Duisburg and Ruhrt. Its mineral sources consist of iron, marble, salt, and brick-earth; but its manufacturing industry is limited to the production of inconsiderable quantities of linens and woolens, together with utensils and articles of wood.

**ARNSTADT**, the capital both of the larger and lesser circle, is situated on a hill, surrounded on almost every side by the river 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 Westphalan barons used to meet in secret tribunal, form a striking feature. Arnstadt 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 potash, and the manufacturing of brandy, beer, and a few linens and woolens. 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 school. At the close of 1831, the number of inhabitants was 3805; which gives an increase of 1172 since the year 1817. 51° 22' N. lat. and 8° 2' E. long. of Greenwich; about forty miles in a direct line S.W. of Paderborn.

**ARNSWALDE**, the capital of the circle, lies about 120 miles N.E. of Berlin, contains 3,350 inhabitants, a parochial church and two hospitals; it manufactures linens and woollens. It stands between three lakes, which are well-stocked with fish.

**AROIDEAE**, an order of monocotyledonous plants, which approach dicotyledons in the form and veining of their 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 gymnasia 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 marts for fruit, grain, and timber, in this quarter of Germany, and abounds in oil and flour mills, one of which, the 'Glühenthurm,' has thirty sets of grindstones. A profusion of gardens and orchards lie scattered round the town; and the remains of two ancient burges, the Käferburg 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 created 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 500.

**ARNSWALDE**, in the New-Mark, one of the twelve 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 28,138, of whom 6417 were males, and 21,721 females. At that period it possessed 3,512 horses, 10,644 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 3,350 inhabitants, a parochial church and two hospitals; it manufactures linens and woolens. It stands between three lakes, which are well-stocked with fish.
The power of medicines is frequently judged of 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 odour of flowers, and in many cases, to an extraordinary degree. The approach to Ceylon can be determined by the fragrance of the air, at the distance of many miles; the magnolia glucina (beaver-tree or swamp magnolia) being in full blossom, by which it can be recognized at the distance of three miles, among the swamps districts, and consequently moist atmosphere, in which it grows. This powerfully affects many persons while travelling or hunting; and the magnolia may be 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 obvious symptoms, it 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 so cold, that it is impossible to extract from cinchona bark, or other febrifuge medicines, that can be given, even of a slight degree, to prevent and cure the disease, unless aided by aromatics. Hence Cayenne pepper is added to them; and indeed Cayenne pepper will often cure the fever without any barks. Lately pipirin (the active principal of pepper) has been employed for the same 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 A. C. R.] It may be stated, however, that pipirin when pure has no aromatic property.

The preparation of iron (carbonate) which is found to be so useful in curing tie-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 aloetic purgatives, for the treatment of indigestion and constipation, occurring in literary and sedentary persons. Aromatics are frequently used to disgust the 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 quinia is nearly covered by mixing one part of it 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, and those of a very irritable constitution. They must 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. It is necessary to observe, that in all degrees and stages of inflammation of the stomach, the patient is apt, or feels, to indicate their use; but under such circumstances they are extremely hurtful. The same observations apply to the aromatic teases, such as balm and sage, in 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 pepper, being about to go to sleep, and that it put him into a 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 drowsy; and the following day he still complained of head and drowsiness. In the past, such cases are of frequent occurrence. Persons predisposed to affections of the brain should abstain from such articles, especially mulled wine at bed-time.

ARONA, 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 Simplon road from Switzerland to Milan, from which another post-road branches out at Arona, leading to Novara, Verceil, and Turin. Diligences 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 the Italian and the cumbian States. Arona is a neat and bustling little town, with a small harbour on the lake; it carries on a considerable trade transit between Piedmont and Switzerland.

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As an object for miles around. The head, hands, and deck, are east, the body is made of large stones, and is covered with sheets of hammered copper. (Bertolotti, Viaggio di Milano di Gioacchino. The reasons of the choice of these materials are very good. The Saint appears holding his breviary under his left arm; the right is extended, in the act of bestowing his benediction on the country. A staircase is made through the inside, and the ascension of the church is very easy. The Aragon lies thirty-six miles N.W. of Milan, in 45° 47'. N., lat. and 8° 28'. E. long.

ARGEGIO, in music (ital. to play on the harp), is, when applied to keyed instruments, the striking the notes of a chord in rapid succession, as in the manner of touching the harp, instead of playing them simultaneously, the notes, when struck, being held out the full remainder of the time. Example—

On the violin, flute, &c., where the notes cannot be held out, the argegio is commonly executed thus:

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exception of those on Mount Garganus, extends far up the mountains' sides. The river Liris runs in a deep bed: its full, clear, rapid stream, very different from the muddy, sluggish, and sluggish current of the Garigliano. The 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 Fibreus, a deep, rapid, pellicy stream, assumed an aspect of cold mountain stream, which has its sources in a part of the Appenine chain that separates the vale of the Liris from the Fucine lake (now the lake of Celano), joins the Liris by a gentle water-fall, about three miles above the town. The banks are strewed with poplar trees of exceeding fine growth. Near its mouth the Fibreus forks into two branches, between which and the Liris, whose waters wash its base, there is a beautiful little inlet of a triangular shape. This bay, now called 'L Isola di San Paolo,' is more frequently, since 'L Isola,' is supposed to be the 'Athalites' of Cicero, which was one of the orator's favourite retreats. (Cicerio a Atticene. 1, 16, ii. 1.) Opposite to the island, and in an angle formed by one of the branches of the Fibreus and by the main stream of the Liris, there stands a building called La Villa di San Dominiaco, which was built for the accommodation of some monks of the Dominican order in the middle ages, on the site of and mainly out of the ruins of the great Roman Arpino villas, and which, in its turn, is deserted, and almost a ruin.

The monks seem to have also occupied the site of the habitation of Marius. At the distance of a few miles from the town of Arpino, on the right bank of the Liris, is a religious house occupied by Trappists (the only monks of that severe order in Italy), which has always borne the name of 'Cassamari.'

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 cloister, or common sewers of the city, which, like those of ancient Rome, are capacious, and have stone arches with niches 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 countryman, 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 inlets, on which the piers of the bridge were built, and which lie across the bed of the river in that direction. Only one arch remains, which is of very good Roman construction, remains entire, but, as well as can be judged, there were three other arches.

Within the town there are several fragments of old Roman roads, or paved streets, and of some inscriptions in certain statues. Two monuments, busts of Marius and Cicero still 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 was called the 'Porta del Musico,' and the seat of 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 Apennines. Broccia, white marble, schiatta rosa, 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,' who was born in the city, and died in 1640.

ARQUEBUS. See Arms (WEAPONS).

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, or Bethune, which falls into the sea at Dieppe. The town has a handsome parish church, and a castle now in ruins.
This spot was signalled 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 Mayence. The engagement was not remarkable either for its ferociousness 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 Arques.

ARRACACIA is a genus of umbelliferous plants which comprehends a species of such importance in the tropical parts of America as the parsnip and carrot are in Europe. This plant, the Arracacia esculenta of botanists, is cultivated in great quantities in the neighbourhood of Santa Fé de Bogota, in the colder districts among the mountains, and in other parts of the state of Colombia, where it is called Arrachea. 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 arrachea 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. 3092.

ARRACK. [See Arrack.]

ARRAGONITE, called by Mohs the prismatic lime-halode, is a mineral substance, admitting of cleavage in planes parallel to the faces of a right rhombic prism of 116° 5' and 53° 53', 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 106° 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° 57', 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 BB 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 fig. 3. These crystals have been found abundantly in a ferruginous clay in Arragon in Spain, where they occur accompanied by sulphate of lime. From this circumstance the mineral has derived its name. It has also been found very beautifully crystallized in a vein of a massive variety of the same mineral traversing basalt at Bilin in Bohemia. (Mohs.) Fine specimens have been found at the following places in England:—in the Duffton lead-mines; in a cavern of gunnweack near Merridge, Somersetshire; and also in several parts of Devonshire, &c.

![Fig. 1](image1.png)

![Fig. 2](image2.png)

![Fig. 3](image3.png)

![Fig. 4](image4.png)

In an old coal-mine six miles south-west of Cockfield, Durham, it is remarkable as occurring depending from a root of clay-plate 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.

In a chemical and crystallographical point of view, Arragonite is peculiarly interesting, as presenting to us carbonates of lime differing in its system of crystallization from that of the common Cale-spar, and thus affording us an instance of the influence of any difference in the aggregation of matter in changing its several properties and paring this substance with the rhombohedral Cale-spar, with which it agrees in chemical constitution. In the scale of Mohs, its hardness (see *Harold*) varies from 3 1/2 to 4, while that of Cale-spar is 3. The specific gravity of
whereas the carbonate of strontia is in small and varying proportion, and must therefore be considered as an accidental impurity.

ARRAIGNMENT. This word is derived from arraisoner, ad rationem ponere, to call in account or a-resner, or, abbreviated to a-resner. Conformably to this etymology, arraignment means nothing more than calling a person accused to a court or court of law to answer formally to a charge made 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 requiring him to say whether he is guilty or not guilty. Until lately, if the person accused pleaded that he was not guilty, he was asked how he would 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 of law, be tried 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, 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 Martiners 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 king hath offered war or combination, or otherwise, and that 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 rations), and his answers to the charge to be heard before proceeding to judgment against him, as it is in record of this case.' Accordingly, it is evident that the prisoners were adjudged to be drawn and hanged, without having been arraigned (arramai) thereupon, or having an opportunity of answering to the charges made against them, contrary to the law and custom of this realm. (Hale's Pleas 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 the person 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 Centre [see OAKLY] and the island of Ayrshire; 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 from the nearest point in Arran to Skipnish Point in Centre 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 greatest length, measured from near Loch Ranza in the S.S.W., is more than twenty miles, and the greatest breadth from Drumdune Point to the headland between Brodieck and Lamlash bays, about twelve. The coast is less than a mile broad, and though a few miles north and south from Ranza on the north side, and on the east the bays of Brodieck and Lamlash, are the chief inlets. Lamlash Bay is sheltered by Lamlash or Holy Island, which lies across the entrance, and though only two miles broad to the north, with an average breadth of half a mile. The cliffs of Lamlash Island are chiefly basalt, in ruda 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, and the depth of the water is sufficient and room enough for the largest navy to ride at anchor. Brodieck 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 ruinous castle (Arran 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 fathom water; but it is only in moderate weather fit for large ships. Its mouth is narrow, perhaps a mile in width, 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 into it, the lighthouse of Goatfell 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, from its interesting peculiarities particularly towards the north end, where the scenery is terrible 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 955 yards or 2865 feet; which is also Dr. Maceulloch'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 obsolete pyramid. The side of Goatfell is stony, and then becomes a mantle of red sandstone, 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 a few heaths. The view from the summit is very extensive, comprehending the whole northern coast of Bute and the Cumbrae islands, backed by the mainland of Scotland; the peninsula of Cantire; 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 Goadh Rhein, 'Mountain of Winds.' The name of Goatfell has been given by the strangers who have visited the island. It is sometimes incorrectly called Goathfell.

The geology of Arran is of great interest, particularly from the fact that it has attracted much attention. The prevailing line of the coast is low, although it occasionally rises to precipitous cliffs. Red sandstone is the predominant rock, extending with little interruption from near Loch Ranza on the north end of the island, along the eastern and southern shore, to Silderry water, near the S.W. extremity of the island. From hence it occurs alternating with claystone and porphyry to Drumdune; and extends, with one interposition, from the river Lomond to the river Lomond, to the far distance of thirty miles, considerably disturbed in places by Sechistone 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.
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 Lorn, and in the care these two areas and geological events occur. The scisto-schists rise from beneath the sandstone on the eastern coast, and form, as already noticed, the western coast north of the Lora. The centre is occupied by the granite, and forms the lofty and craggy mountains of Arran and Kilmord, stretching from the eastward to Ca Maui, Caillich, Ben Huish, and Ben Brecach, in the centre; and Ben Vearau on the west. The granite approaches the sea so nearly on each side as to reduce the space occupied by the clay-slate and sandstone beds in its eastern and western sediment, to 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 pour down, almost perpendicular, to the sea.

The districts occupied by the different kinds of rock in the southern division of the interior are not so distinctly 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. Veins of claystone, clinkstone, and porous sandstone make their appearance in some places the granite. (McCuiloche’s Description of the Western Islands of Scotland.)

The island, from its small dimensions, cannot be supposed to have been inhabited, which variety of Loch Leman, or Tannoch or Tanad (the length of which is vaguely estimated at a mile or a mile and a half, and its breadth at a quarter or half a mile) is several hundred feet above the level of the sea. A small stream, the Lora (pronounced Eeras), flows from it into Lochry Bay on the west coast. Other rivulets, some of them forming cascades, flow from the hills and through the deep glens into the sea. These are more numerous and more permanent than the size of the island would suggest. Their numbers and extent lead us to expect. One, bursting from an orifice in the Dipping Rocks, which are rudely columnar basaltic cliffs about 300 feet high, near the south-east corner of the island, falls into the sea at some distance from the base of the rocks.

At Cory or Corry, on the north-east coast, are quarries of sandstone of a beautiful white colour, well suited for building, and drawn from them was used in the construction of the Crian Canal. (See Argyleshire.) Slates were once procured near the ‘Cock of Arran’ (an enormous mass of sandstone lying loose on the north shore of the island, and forming a well-known sea-mark), and were used by the inhabitants of the island for a long time. The remains of a slating and Slate Pipe, showing, as far as they lead us to expect, one, bursting from an orifice in the Dipping Rocks, which are rudely columnar basaltic cliffs about 300 feet high, near the south-east corner of the island, falls into the sea at some distance from the base of the rocks.

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The island was originally a royal domain mostly clothed with wood; stocked with roes, red-deer, wild-boars, and other animals of the chase, and used much by the kings for hunting. Among the remains of ancient times, and censers, coffers of birch, ash, and oak, spring up amidst the cliffs. The earliest creations of private property were in favour of monastic establishments, from which, upon the dissolution of the religious houses, the lands came into the hands of the earls of Hamilton, as chiefs of the island, and have continued ever since in that family, by which the greater portion of the island is still possessed. The land which admits of cultivation is not fertile, and is of small extent compared with the surface of the island. Oats, barley or rye, potatoes, peas, and beans, are grown. Till of late years the farmers were in a wretched, depressed condition, owing to the nature of the tenure of land, and the extent of holdings.

The native breed of horses is small, patient of hunger and fatigue, and remarkably sure-footed. Horses of a larger size are imported from Argyleshire. Hogs were only introduced about 1777. Of wild animals the island produces deer, hares and rabbits. Mr. Pennant mentions that one of the beasts of the island, which is common, is the otter and wild cat.

The birds are blackcocks, grouse, pheasants, plover, and mallards, and the common red and green woodpecker are the most usual. The otter is frequent in the island.

The sea-fishery of Arran is carried on in the same manner in which the natives engage. Shals of these fish often wash ashore from the coast, or the fishermen repair to Loch Fyne (see Argyleshire), or other places. The basking shark or sail-fish is occasionally taken; they are sometimes near forty feet long, and weigh a ton. The salmon and trout are taken in the island over its origin to Ann, dean-von, and Minnow and Hamilton, in the seventeenth century, and little seems to have been done from her time till about twenty years since, when roads were made, partly from the expense of the Public, partly from Brodie, and from the last to Blackwater on the south-west coast.

The population of Arran, which contains two parishes, Kilnory and Kilbrid, was, in 1831, 6297. 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 Cumbrae islands, make up the shire of Bute. It is in the presbytery of Caithne and the synod of Arran, and in the diocese of Dunblane. It was the residence of the Earls of Arran, in the twelfth century, 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 suffered a temporary asylum to Robert Bruce, and was the scene of a petition of the League of the islands to the south coast. Aarrison 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 of the Shetland Islands and the Island of Arran; Pennant’s Voyage to the Hebrides; Transactions of the Geological Society, &c.; MacCuiloche’s Highlands and Islands of Scotland.)

ARRAN, ISLES 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 Arranmor off the coast of Donegal, which is sometimes called Nab 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 Inisheer. 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. The rivers are narrow, very full, and produce a small kind of oat without any husk. The stoutest calves 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 Ballinakill in the archdeaconry of Tuam. The population, in the year 1821, was 3679. Many, or indeed most, of the inhabitants are engaged in fishing, and use a corraga, or boat made of a frame-work of wood 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, 326 feet in extent, have been erecuted under the direction of the Rev. Mr. Hally, a Protestant missionary for the Irish fisheries, at Kilconnig, in Arranmore, the largest village in this group of islands, which has a population of 974 persons. This has caused an extension of fishing, to the number of 140 boats, and the employment of vessels. A number of vessels rendezvous here during
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, 165 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 Cité, or what may be termed the old town; the Ville, or 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 from no other cause than their respective station, as compared with the Cité and Ville of older writers, though it is probable they do. The Cité and Ville were formerly separated by a ditch and wall; there was also between them a narrow valley, through which the little stream, the Cernch, as it is called in the province stones and large stones (squares) of Arras entitle it to rank among the finest cities in France, as far 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 barracks, 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-cellars. Part of the surrounding country can be laid under water in case of need.

ARRAS appears in the Roman writers under the name of Nemetacum, but it afterwards took that of Atrebuttes, from the people who possessed the town with the surrounding territory. From this name Atrebuttes, both the town (Arras) and the county (Arrage) receive their name. To be found in 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 Arras, 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 renounce all claim to sovereignty over that 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 dominion of France by the treaty of 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.

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the herring season. The number of pupils at school in the year 1821 in these islands was 234, viz. 181 boys and 53 girls.

Arranmore was also called ARRAN or ARRA Naomh, i.e. 'Arran of the Saints,' a number of churches having been erected in it, in which the bodies of many Irish saints repos[e. It is said that there were antiently on this island, and five on the opposite shore, 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 1485.

The inhabitants long retained, and perhaps still retain, the persuasion that, on a clear day, they can see from this coast HY BRAZEN, or the Enchanted Island, of the paradise of the drowned. 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, (Seward's Topographia Hibernica; Letters from the Irish Highlands, &c.)

ARRAS, a remarkable institution, which formerly subsisted in Otaheite, 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 this voyage published the following year was however generally supposed to have received a colouring from the vivid pen of Hawkesworth, by whom the book was written. In the narrative of Cook's second voyage, the institution 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 minute details of the history. The fullest account, we believe, that has appeared, and at the same time the most recent, is that given in Ellis's Polynesian Researches, vol. i. pp. 311-34.

Hawkesworth's account would lead us to suppose that the most distinguishing characteristic of the Arras society 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 institution; and this notion receives considerable confirmation 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 Arrar society was that no child born to any of the members should be suffered to live. Given upon the earth, 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 human being to be born in the Arroo, 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 was not 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 Arroo. Mr. Ellis gives it as his opinion, founded on the informations he has received from the writings of Baretti, 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 general rule, evinced the least repentance to the horrid act, or the least shame in acknowledging it. Baretti, again, was told by Omai that the mother generally endeavoured to save her offspring, and that the deed was always perpetuated in such a manner as to show the general feeling to be that it was not done 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 people, which supposed the child to be born 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 enjoyment of all the advantages which the climate, riches, and general admiration which they showered upon them. 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 accidents which generally attend such processes, they were really the order of public players. They appear to have collected large audiences around them, whom they amused with dances and other exhibitions. Another conjecture, for it can scarcely be granted, of the kind that they were the body of the national soldiery, and that the privileges they enjoyed, and the high estimation in which they were held, were the inducements offered by the state to engage them in general. We may 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 it is a common observation, that the men of the higher class are always more numerous in any society, and that the lower class are generally admitted more readily than the former. When the society is formed, it is plain that nothing but the impossibility of obtaining admission into the association could have induced any person to decline entering it. Besides, the case, enjoyment of the privileges which the men of 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 necessity imposed upon them that 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 seen, the degree was a custom of universal 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 some form of election which gave the power of admission and rejection to the society itself. A circumstance which favours this last supposition is, that there are known to 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 by the acquisition of privileges and emoluments, 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 youngest 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 wharnonou, signifying 'bearer of children.' The children are said to have been commonly destroyed by suffocation; but various other methods were in use.

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 may have had in the lessening of the population remains in 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 deranged, that there were four or five males to every female. Malinconio, whose opinion that the Arreoy was in all probability originally instituted with the view of preventing the increase of population, and his readers, that from the unsteady and erratic relations of the population which the association 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. One of the existent inhumanities has given it as his opinion that such infanticide had usually, from its tendency to promote marriages, 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 accused, which may be done, committed an offence, in order that he may be brought before a magis- trate; and then, if there appears sufficient ground of suspi- cion against the party to justify his being put upon his trial, the magistrate takes measures for securing his pres- ence 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 for the arrest of one for a felony will issue from the supreme court, either by the judge, or by the secretaries of state, and some other public officers; but the only warrants which occur in the ordinary administra- tion 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 person 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 requires it, and extend it to his own attendance.

But in many cases an arrest may be made without a warrant; particularly, by the constables and other peace-officers, where the law gives them power to arrest. 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, he cannot be otherwise ob- tained; he may likewise, in apprehending a person charged with a breach of the peace, break open doors of the house, and if 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 justifiable; but if he kill the officer with the intent to oppose him in the execution of his duty, it is murder.

Private persons also are not only authorized, but re- quired, to apprehend any person who commits a felony in their presence, and in pursuance of the same, they will be justified in breaking open doors and that for which they are 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 power; he may be charged with burglary, 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; and if he be killed, the offence is the same, and not manslaughter; and if the person be 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 whatsoever is authorized to apprehend for any felony against the Vagrant 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 authorized by him.

When an officer has arrested any one, he ought to take him before a magistrate to be examined as soon as possible. Where a private person has arrested him, it is his duty, in 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 Vagrant Act, but the Larceny Act, 7 and 8 Geo. IV. c. 29 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; but he cannot be arrested by force or violence.

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 Bail.]

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 comes into operation at the beginning of the action, and is, in all such cases, 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 frequent proceedings of the courts, to almost every species of complaint; and by later regulations 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 his action by suing out a writ, called a *capias*, directed to the sheriff, who, on its being delivered to him, grants a warrant, provided the plaintiff or his attorney has previously secured 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 goal within twenty-four hours by force or fraud, nor to hold him in any place of safe custody. He is in general taken to the house of the officer (vulgarily called a ‘spunging-house’), where (if not sooner lawfully discharged) he may be confined until the expiration of the eight days limited for the putting in of 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, which, if doubled, a warrant may be given by the sheriff for the delivery of the defendant. This sum, however, being in its nature, partly for 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 the 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, liable 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 payment is not made within sixty days from the entry of judgment, the process may, in his lifetime issue afterwards against the property. [See Execution.]

An arrest is made by seizing or touching the defendant’s person. Without jurisdiction of the officer,陂aking 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 XIII., a principle was introduced which, at the present 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. during the first year of the commercial debt, the amount of 200 francs (6l. sterling), arrest forms part of the sentence as a matter of course.

2. 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 time, 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.

3. In actions of a purely civil nature, arrest takes place only in those cases in which specific execution is ordered by the law. The French 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 discretionary power to pronounce sentence of imprisonment, if they think fit; the length of confinement varies in this instance from one year to ten, the lowest sum which a person can be arrested.

4. All public servants are liable to arrest in respect of any sum of money to the amount of 300 francs, 12l. sterling, and to by virtue of their office to be put to public stamishment. 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, all civil infringement 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, of the lowest sum to the amount of 150 francs, or 6l. 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 the debt in full; or by proving that he is possessed 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 stellionatus, the stellionatus 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 regard for age, any person, of whatever age, who, on his 70th year, is 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 neglect to advance the sum which the law requires him to pay for the support of the debtor. This sum is now fixed at 25 francs, 6l. 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 Bononius.]

See the Code Civil, Arts. 2059-2070; Code de Procedure Civile, Arts. 790-805; law of 17th of April, 1832; Felix, Commentaire sur la Contrainte par Corps. (Arrhidiereus) a bastard son of Philip III. of Macedon, who, on the death of his half brother Alexander, B.C. 2059, was named at that time, which is the Macedonian name for Trebizond, having been then 17 years of age, was reigned to the Macedonians for the first time. His title was strengthened by marrying Eurydice, grand-daughter of Pericles, Philip’s older brother. Being of weak intellect, he was a mere tool in the hands first of Pericles, then Antipater, and finally of Polypressheron, who, in conjunction with Olympia, set up a rival to him, and Alexander, son of Alexander the Great by Roxana, who, in his youth, had been already defeated by the assistance of Cassander; but falling into the hands of Olympia, was, with her husband Arrhidæus, put to death, B.C. 317. [See Antigonus, p. 102. Antipater, Pericles.]

ARRHIDIUS, FLAVIUS, a native of Nicomedia in Bithynia, and one of the most pugilistic 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 twenty-fifth year of the reign of Trajan, Arrhidius was at Constantinople, as one of the embassies to the emperor, and in this capacity he addressed a letter to the emperor, containing an account of his voyage from Trapani (Trebizond) on the coast of Syria, along the coast of Asia Minor, and to the Black Sea. The chief object of the voyage was to inspect the garrisons on this coast. The letter of Arrhidius to Hilarion is written in Greek, and contains, besides an account of the governor’s own voyage, a complete Periplus, or description 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 Nicaea in Epirus, having before given up the authority of Dionysius thefavours of 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 Ep- ceta's Encheiridion and wrote with 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. Gallius, 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 aspired to the character of a philosopher, was on terms of intimacy with Epictetus and probably saw him during his stay at Athens in a.D. 132 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 his youth, received a considerable share in the world to his literary reputation. After the death of Epic- tetus and the publication of his philosophical works, Arrian acquired the privileges of a Roman citizen and the Roman naturalization; it is not common of such to have been as he was governor of so important a province as Cappadocia: whether he ever enjoyed the consular dignity does not appear quite certain. Suidas (Διαθήκη) says, on the authority of Helianthus, that he attained the consulship. That he was governor of Cappadocia for three years is 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 Photius that he was himself called by his own city, and Hadrian, 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 Hadrian's capital. Arrian's head-quarters were at a place called Pharsamnæus. (Don. Cassius, lib. 69, cap. 15.) The activity of the governor appears to have checked this rising without any further measures than a vigorous display of force; and the terms by which it was arranged were curious from the name of the people headed by Pharsamnæus. They are called Alani, possibly a mistake for Alban. (See Dion.) We still possess a fragment by Arrian, entitled 'The Order of Battle against the Alans,' probably a part of a larger work in which the Athenian wrote on 'The Art of Tactics,' written in the 29th year of Hadrian. (See the conclusion of the Tactite.) Gibbon's remark (note, chap. i.), 'that with the pure impartiality of a Greek, Arrian chose rather to describe the phalanx of which he had read than the systems which he had committed to paper, is not correct, if the fragment on the Alan 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 'Tejan's Parthian wars,' in seventeen books; the 'History of Dion of Syracuse'; the 'History of Bithynia,' his native province, in eight books; and, to give a connected view of the progress of the arts, with the biography of the robber Tibullorus, a fellow who for some time annoyed the neighbourhood of Mount Ida. (Luetian, Alexander.) A work on comets and meteors, known as the Meteorologica, attributed to Arrian; but whether the author was Arrian of Nicome- dia cannot be determined. The work by which he is now best known to us is the 'History of Alexander's Campa- ins in Asia,' in seven books, founded principally on the historians Berossus of Babylon and Herodotus of Halicarnassus, in which the son of both of them, the compan- ria of Alexander in his wars. This is almost the only source for the history of Alexander's conquests that we have, with the exception of a few quotations, and it we should be utterly unable to form any judgment at all on the military operations of the Macedonian king. Ar- rian's narrative, however, is often incomplete, and occas- sionally obscure; the obscurity sometimes, though rarely, arises from the language of the writer, but mainly from the difficulties which he must have experienced in reconciling 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, and, 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. Croix tells us, on the authority of Hudson, that Arrian, who himself was a sav- ing, believed it was one of his later productions, written during his retirement and the decline of his life. The fol- lowering passage in his History of Alexander may help to verify this:-he speaks of the variety of opinions which makes allusion to his honours; but he praises himself still more on his literary labours, which he had prosecuted 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 is a great deal of curiosity matter on the natural produc- tions of that country, and the manners of its inhabitants. It contains also an extract from the 'Voyage of Nearchus,' (see a.p. 26, E.v.) which is also the title of the account of the Delhi 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 part of his narrative, if he would only undertake to write it 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 Erytherean Sea.)

Arrian in general affected to imitate the Attic Greek of Xenophon, but the little treatise on India is written in a kind of Ionie dialect. Arrian, as we may see from his letter to Hadrian, was no unskilful courtier, 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 assimilate his text 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 doctrines of his countrymen. Arrian undertook to write an account of Epictetus. Xenophon wrote an account of the Expedition of the younger Cyrus, and gave it the appropriate name of the Aranias or Aesent; Arrian also gave to his History of Alexander, the less appropriate name of the Anabasis of Alexander. Xenophon wrote his Helenics, or History of the Greek and Persian Wars, a kind of supplement to the Ilipeonne- sian War; Arrian wrote a History of Alexander's succes- sors, Xenophon wrote a Treatise on Hunting; so did Arrian. Both works still remain. Finally, Arrian very modestly calls himself the younger Xenophon, and some- times simply Xenophon. It is unnecessary to pursue the parallel farther; the following quotation from his book on the River Nile sufficiently shows his admiration of his master: 'Xenophon wrote with a good judgment and attributed to the name 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 shows by his remarks that he was a true lover of fields- 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 rather by his being hindered for the Celtic breed of dogs, and with the Scythish and Libyans breeds of horses.' Arrian's description of his favourite dog Hormes (Opalh), his constant companion and friend, is written with great affection, and is a very just and char- acteristic approbation 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 fails to complete the parallel between him and Xenophon, who
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*, Sc.; Dodwell's *Dissertations* in vol. i. of Hudson's *Minor Geographers*.)

"There are many editions of separate parts of Arrian; but only as far as we know, of all his works; that by Borhebeck, 3 vols. 8vo. Lengo, which is very incorrect. The latest edition of Arrian's History of Alexander and his India that we have seen, is by Schneider, Leipzig, 1798. The *Periplus of the Erythraean Sea* in Hudson's *Minor Greek Geographers*, vol. i. A translation of Arrian's book on Coursing was by J. Bohn, London, 1831, with classical and practical annotations, and with an appendix and other valuable embellishments. It was originally in 260 copies printed. Dr. Dibdin calls this book a 'dear delight.' An English translation was published in 1729, in 2 vols. 8vo., by Mr. John Rook, of the History of Alexander's Expeditions, 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 Falmer, published in London, in 4to, in 1805. The latest translation is a part of *Histoire des Expéditions d'Alexandre*, par P. Chausard, 3 tomo. 8vo., Paris, 1802.

**ARRIEGE, or ARRIEGE**, a river in France, one of the tributaries of the Garonne. It rises in the Pyrenees, 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 isolated valleys of the Pyrenees. 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 Saverdun; from thence its course is N.W., where it passes through the Lenaube, a principal tributary, 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-trout; and also for the gold which is found in its currents. It is formed of Charnoise at four miles, 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 Villaros, which is nearly two miles below Crampagnac, serves as the southern limit of the gold-searchers; Pamiers may be considered the centre. It is between Villaros and Pamiers that the largest grains are found; these have, in some very rare instances, weighed half an ounce. The gold district, as far as Saverdun, fourteen or fifteen miles below Crampagnac, 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 softish, easily crumbled, calcareous cement. The gold, however, is found detached from the pebbles with which it is intermingled. The soil above the pebbly stratum produces excellent crops. There are many places which fall into the Arrèige 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 inconsiderable.

Some suppose 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 disputed. (*Encyclopédie Méthodique*; Pigouchet; *France Malte*; *Histoire des Paysans*).

**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 district of Comminges, forming the southern part of the Pyrenees, which form its 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 Pyrenees). 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. Balbi; or 2193, according to M. Falmand, forming part of the department of the Salat, the Volp, the Arize, and the Arriège, 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 Las, streams of considerable size, of the department of the Arriege, flow to the brooks westward from the Arriège yield gold; they traverse a soil similar in its nature to that through which the Arriège flows in the gold district.

The mountains are very lofty. The following are the principal summits, with their altitude in English feet.

Montealemb, 16,663; Peak of Estats, 10,611; both near the head of the valley of the Vic-de-Sos, a feeder of the Arrèige. Peak of Serres, 9646; Peak of the Port (or Pass) de Siguelier, 9613; Peak Pedrons, or Pedrons, 9511; Peak of Montoulion, 9492; Peak of Fonte Argente, 9750; Peak Lanoux, 9390; Peak of Monvallier, 9249; Prigou, or Peirie, 9112; Mount Carbere, 8553; and Roc-Bian, 8292. The Peak of des Rats, at the head of the valley of Vic-de-Sos, is 7427 feet high; that of Puy Morins, to the east of the last, is 6299 feet.

The mineral wealth of the department is considerable. Jangles, lead, copper, and iron are found; the last, however, not in any great quantity. There are mineral waters at Ax, a little town on the Arriège 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 pasturage. A considerable quantity of cattle is reared. Medicinal plants are numerous, and the vivid colours of the flowers add to the embellishment of this high esteem with the florist. The northern and lower part of the department has a far higher temperature, 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—cork, resin, and wool; and in mules, which are in estimation for their strength. Some manufactures are also in these parts, at Foix and Pamiers; of 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 transport of goods, which is chiefly effected by means of horses and mules.

The chief towns are Foix, the capital, on the Arrèige (population 5000); Pamiers, also on the Arrèige below Ax, (population 4980); Foix, on the Arriège (population 4500). Pamiers is a bishopric, and comprehends the whole department in its diocese. It is under the jurisdiction of the archbishop of Toulouse and Narbonne. [See Foix, Girons, St., and Pamiers.] Ax, on the Arriège, 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. Mirepoix, on the Lessaut, four miles north of the Garonne (population 5081), is a flourishing town, with a bridge, and many inns.

The department sends three deputies to the chamber. It is judicially subject to the cour royale (assize court) of Toulouse.
edge is an ariss, whether formed by square mouldings or by the intersection of curves. In Grecian architecture, the raised edge is seen 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 ariss.

ARRIS PILLET, 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 sky-lights, which have the same inclination as the roof, and as an abutment above in forming with others a triangular wedge.

ARROBA, a Spanish measure, both of weight and of capacity, and used as one or other both in Portugal and the Canaries. It exists in Morocco, under the name of Kroba, 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: 39.35
- Alicante: 39.38
- Valencia: 39.25
- Aragon: 39.76
- Majorca: 39.93
- Lisbon: 39.38

**Measure Arroba in Imperial Gallons.**
- Spanish standard: 3.84
- Greater Arroba: 3.38
- Lesser Arroba: 2.78
- Malaga: 2.49
- Valencia: 2.93
- Canary Islands: 2.38

The standard greater arroba (used for wine) is also 581 cubic inches, and the lesser (used for all) is 771 cubic inches.

**ARRO, ARROW, ARROWHEAD.** (See Sagittarii, 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 ancient Susa), and more rarely in Egypt. The arrow-headed characters have also been called Latin cuneiformes, and in German keilformig, or die Kelschrift; 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 barred 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 their 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 round 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. 397 is a copy, somewhat reduced, of one that is to be seen 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.

In that part, except for Mr. Lardner's classical writers make any very distinct mention of the arrow-headed character, though it has been conjectured that the *Aσιανος γραμματος* of Herodotus, iv, 57, and of Thucydides, ii, 7, was written in 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, into Persian. In his inscription 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. If we write such a fiction, it is, these characters are 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 characters all different, obtain the same value, according to his interpretation. The names 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. Grotefend, published several dissertations upon these characters. It is said that he was led to make this theory of his peculiar attention in consequence of a trifling dispute with one of his friends; in the course of which he had a wager that he would discover one of the Persepolitan inscriptions. His dissertation under the title *Proevia de Cunea, qua recant. Inscriptionibus Persepolitanis legendi et explicandi Relatio,* was read before the Royal Society of Göttingen in the year 1806; it was reviewed by Tychsen in the forty-ninth number of the Götttingischen Nachrichten, September 18, 1802; 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. Grotefend has also published dissertations on the same subject in various numbers of the Fundacibns des Oriens.

The leading points of Grotefend's views are:

1. That the arrow-headed characters are not simple ornaments or numerical figures, but real alphabetic characters.

2. That there are on the inscriptions of Persepolis three different systems of arrow-headed or cuneiform writing; that every inscription is triple, so that whoever is able to decipher one will know the sense of the two others. This is the first occasion in which Grotefend applied the name belonging to the National or Royal Library at Paris. In this opinion the late Professor Tychsen of Rostock agreed.

3. That the arrow-headed characters are not syllabic; otherwise they would be found in all the languages of the East.

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 Grotefend supports by the analogy of the Zend. Tychsen and Münster say nearly the same.

6. That the inscriptions of Persepolis are in Zend.

7. That these inscriptions belong to the time between Cyrus and Alexander. Grotefend thinks that he has discovered in every inscription which he has examined the name of either Darius Hystaspis or Xerxes.

In the *Letter de M. Silvestre de Sacy a M. Millin sur les Inscriptions des Monuments Persepolitains, extraite du Magasin Encyclopédique, Année VIII.* (1803), tom. v. p. 438, this great orientalist points out the inconsistencies in Lichtenstein's statements. In the *Monthly Magazine.* 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 *Turcmen Parchaliane Assyrie,* 1815, and is not continued by De Sacy. Though De Sacy was more inclined to favour the system of Grotefend, he objects to the grounds on which he maintains that the characters are not syllabic; for De Sacy observes, that in Arabian, Egyptian, and the Arabic languages of modern times, 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 Sacy objects that the Sanserif has more than forty consonants, and that in various Shemitic alphabets the shape of the character is altered according to their position, so that there seem to be more consonants than actually exist. Compare the Arabic and Syriac alphabets.

The Lager, professor of Oriental languages in the University of Padua, published at Milan in 1811, his Illustration d'un Zoildac Orientale, which contains matter bearing upon our present subject. The work of Maurice on the Ruins of Nineveh, and Babylon and Persepolis, 1816, contains some observations which coincide with that made by Colonel Montgell's Account of the ruins ofNineveh, and the Milan tour, 1816, while the American quarterly journal of Cuneiform Inscriptions, by Mr. C. Bollino, 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 Her Porter's Travels, 1822, p. 418-426, 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 Perspolis, by Mr. Ouseley, Ambassador to the Court of Persia, London, 1825. One of these inscriptions contains a combination of hieroglyphics and arrow-headed characters on a scroll, found in the Mahanian Egyptian museum. The Monume relatifs aux Antiques Inscriptions, Perspoli, de la Province de Azerdbijan, des Inscriptions et Belles Lettres, by M. J. St. Martin, 1823, contains some modifications of the opinions of Grotefend. Kelly's treatise on the Antient Inscriptions of Perspolis, 1825, is the result of a tour through Azerbaijan, Eor. (London Geog. Journ. 1833).

He remarks, that five miles from the fortress of Aria, on the banks of the Lake Van, are some remarkable rocks containing inscriptions, which place is frequented by pilgrims of all religion. The Mohammedans even consider them sacred, though they allow their date to be anterior to the existence of their religion. Colonel Montgell 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 Schismatists of America, the views of the Editors on the subject, and their observations on 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 that the editor directed attention to this branch of the invention to the Persepolitan remains; and proposes to give a further development of his system. He considers that the arrow-headed characters were first used to symbolize 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 hieroglyphics, as representations, but simply as symbols.

The editor of the Morning Watch believes that the specimens of cuneiform writing found at Ninivah, Perspolis, and Babylon, differ from each other in the individuals of the shape the characters are altered according to their position, so that there seem to be more consonants than actually exist. The evening inscriptions being different from those of Perspolis; and the Babylonian writing, including the characters of the two others, with some in addition peculiar to itself; that they differ in four or five combinations; the characters of Perspolis always stand detached and never come into contact, being grouped by juxta-position only; while the Babylonian characters are scarcely ever combined without contact; shining stars, crosses, squares, and triangles in very variety.

This writer divides the Babylonian inscriptions into four classes,—a calendal, astronomical, genealogical, and magical, or as it is packed in the drying-house and sieved 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 calendal 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 of lines, and of groups 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 Innes, contains only four lines, and more than 680 varieties of grouping. The calendal class has been led to consider the bricks to be by arguments deduced from the order and recurrence of the signs, he states that he has contained inscriptions corresponding to the periods of solar and lunar eclipses and is of opinion that in 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 date of a particular event at the bottom.'

The talismanic, or magical character, he states, is very uniform, though very abundant, and never designed to have a meaning, being merely a confused medley of forms somewhat similar to those which we know, but so arranged as to be wholly unintelligible. The form in which this is so far preserved as to have the appearance of a meaning in order to keep alive interest and induce the belief of hidden mysteries; while the disorderly clustering and crowding of random forms in this the same form from the very same stamp, demonstrate the design to mystify and deceive by opposite means. The talismans or anulites themselves are found in great abundance, there are one kind of characters, the proper raised 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 dates 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 farinaceous substance, prepared from the roots of certain plants. That which is brought from the coast of China is called the Galanga or Dinaece; 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 CUCURBITA, &c.)

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 two plants it is extracted. The root, or tuber, as the case may be, must be first carefully washed, in order to remove the adhering particles of earth, and then it is either grated or beaten to a pulp, which is then either boiled, or at least simmered in a weak solution of alkali. The pulp is next intimately mixed with a considerable quantity of pure water, by which operation the fibrous portion is separated from the farina, which remains mechanically suspended in the water. This fibrous portion is then removed, and the larger parts being strained and sieved, after the farina, the residue, are then 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 is to be kept hermetically in a vessel containing 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 manufactured, or from some dealer of repute, and 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 *Mariana 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. (Library of Entertaining Knowledge, Vegetable Substances, vol. ii.; Porter’s Tropical Agriculturist; Government Statistical Tables.)

ARROW-ROOT. [See MARANTA.]

A’RSACES, 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 flattery of courtly writers which traced it to the royal and ancient Persian family of the Achemenides. Justin speaks of him as being of doubtful origin, but true valor; a man 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. (xli. 4.) According to Arrian (ap. Phot. Bibl. No. 55), a personal acquaintance led him to raise the standard of revolt from the Syrian empire, B.C. 250, during the reign of Antiochus Theos, father of Seleucus, who, bussed with his Egyptian wars, 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 we possess, to have been a successful, and probably, therefore, a prudent and able prince; and, as a token of respect, the Parthian monarchs, to the end of their empire, assumed from him the general title of Arsacidæ. He obeyed a proverb: ‘He that is clad in the purple must be clad 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 exhibit must rather be conceived as a specimen of the coinage of the dynasty than as one which can with certainty be referred to any individual of the fiscal department. (From Visconti.)

ARSENAL. The word Arsenic is derived from the Greek ἀρσενικός, which is found first in the works of Dioscorides, and of some other authors who wrote about the beginning of the Christian era. It denotes, in their works, the substance called ορνιθίδας by Aristotle, and ἀρισενίκας by Theophrastus (although Play. lib. xxxiv. 18, seems to make a distinction between ορνιθίδας and ἀρισενίκας), and is said to be the *auri pigmentum*, the well-known paint, orptiment.

Arsenic is a peculiar metal, which, though long known, was first examined with tolerable precision by Brandt in 1745; it is very frequently met with in nature, both in its pure metallic state, but most 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 5.884 by Turner's experiments; when sublimed, Dr. Thomson states that its density is only 4.235; the native metal is granular, and the artificial crystalline: 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 by Berzelius to be a peculiar oxide of arsenic; and when it is employed as a medicine, as a mixture of arsenious and arsensious acid, and 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 arsensious acid; according to Berzelius it consists nearly of

\[ \text{arsenic acid} \]
\[ \begin{align*}
2 \text{ atoms of arsenic} \times 8 &= 16 \\
3 \text{ atoms of oxygen} \times 2 &= 6 \\
\text{atomic weight} &= 16 + 16 = 32 \\
\text{combining weight} &= 32 
\end{align*} \]

As a natural product, arsensious acid is extremely rare;
it may be abstractly prepared by heating the metal in atmospheric air, when, being very combustible, it burns and combines with oxygen; the white vapour of arsenious acid so formed, speedily condenses, 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. These processes, however, being most expensive, for arsenious acid is met with abundantly, and very pure, as an article of commerce; being formed and volatilised during the roasting of cobalt ores, it is first condensed in an iron vessel, and precipitated by a second precipitation with iron vessel. Arsenious acid (oxide of arsenic, 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 broken, frequently yellowish, and transparent, and of a glassy appearance and fracture; by exposure to the air the transparency is lost; the density of the opaque kind is 3.769, and that of the glassy 3.599. Arsenious acid is volatilised at 386° Fahrenheit; the vapour has not the garlic smell, like that of metallic arsenic. According to Dr. Christison, 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 this metal. 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 the liquid, but only about 3-66th of that taken up remains dissolved; 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 very slightly. The nature 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 found combined with as many as five, and 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 Berzelius, more important, but in nature and the properties it cannot be described at any length. The first is the red sulphuret of arsenic, commonly called red arsenic; this is found native in several parts of Europe, and sometimes crystallised. It is of a deep red colour, brittle, easily reduced by powder, inodorous, tasteless, and insoluble in water: its specific gravity is about 3.336. It may be artificially formed by melting a mixture of arsenic and sulphur in a covered crucible, or the common red arsenic may be used. In the latter cases, sulphurous acid is formed and evolved, owing to the oxygen of the acid combining with a portion of the sulphur. In close vessels, it sublimes unchanged. It appears to be poisonous, but not as much as arsenious acid. It is sometimes used as a paint, and is composed of—

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The second is the yellow sulphuret of arsenic, usually called orpiment. This sulphuret is also a natural product, occurring rarely crystallised: it is commonly composed of the arsenic, which is 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 chloride decompose it. When heated in close vessels, it loses about a sixth of its weight; when heated in the air, it burns with a pale blue flame, and gives a white smoke, and a smell of sulphurous acid. It may be formed artificially by passing a current of sulphuretted hydrogen gas into a solution of arsenious acid. It is sometimes used as a pigment, and as a seauquihuret composed of—

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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, and the compound is detached from the metal in brown-coloured flocks. It is probably a—

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Another method of preparing chloride of arsenic, is to put 1 part of arsenic and 12 parts of sulphur 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 water. At temperatures above 160°, the mixture comes over with the chloride towards the end of the operation, and this hydrated chloride does not mix with, but floats on, the anhydrous chlorid first distilled.

Arsenic does not unite 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: two of these, sulphur and arsenic, which are important, but in nature and the properties it cannot be described at any length. The first is the red sulphuret of arsenic, commonly called red arsenic; this is found native in several parts of Europe, and sometimes crystallised. It is of a deep red colour, brittle, easily reduced by powder, inodorous, tasteless, and insoluble in water: its specific gravity is about 3.336. It may be artificially formed by melting a mixture of arsenic and sulphur in a covered crucible, or the common red arsenic may be used. In the latter cases, sulphurous acid is formed and evolved, owing to the oxygen of the acid combining with a portion of the sulphur. In close vessels, it sublimes unchanged. It appears to be poisonous, but not as much as arsenious acid. It is sometimes used as a paint, and is composed of—

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resulting arseniuretes are decomposed by water, the potassium and sodium are oxidized, while the hydrogen of the water converts the arsenious into the brown arseniuret of hydrogen already described.

The metallic arseniurtes are not of sufficient importance to require a more minute description. We have now to notice the salts that contain the arsenious acid, and which are most of earthy arseniates.

Arseniate of ammonia may be prepared by dissolving arsenious acid in solution of ammonia. It cannot be obtained in a solid form, for by evaporation the salt is decomposed, ammonia is evolved, and octahedral crystals are obtained, which are more 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 salmine 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.

Arsenite of soda is prepared as the last mentioned. By evaporation, a viscous mass is obtained; and when the evaporation 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 even in some saline solutions.

Arsenite of barytes is a white powder, slightly soluble in water.

Arsenite of strontia 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 biperussulphate of copper (blue vitriol). By double decomposition, 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 arsenie.

Arsenite of iron, in several cases, is presented to us by nature. Thus, in Cornwall, arseniate of iron occurs in small green cubic crystals, and also several beautiful varieties of arsenite of copper. Arsenate of lime, called pharmacolite by mineralogists, is sometimes, though rarely, met with.

The earthy arseniates are generally procured either by direct combination or by double decomposition; and the metallic arseniates usually, if not always, by the latter method. We shall describe the arseniates in the same order as the arsenites.

Arseniate of ammonia. This salt is prepared by adding the alkali to a rather concentrated solution of the acid, until a precipitate appears. If this and the solution be exposed to spontaneous evaporation, large rhombic crystals are obtained, which, being washed half of their base, and are converted into bisearseicate of ammonia. When subjected to distillation, the arseniate of ammonia decomposes as it becomes dry, ammonia, water, and arsenious gas, are obtained, and the arsenie is reduced.

The bisearseiate 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 octahedral crystals are formed: when heated, it yields arsenious acid, but not arsenic.

Arseniate of potash. It may be procured by saturating the acid with the alkali. It is an uncrystallizable deliquescent mass, and may also be obtained by fusing a mixture of arsenious oxide with a requisite proportion of salt, and distilling the arsenic being evolved, and sometimes a portion of the arsenious acid is reduced.

Bisearseiate 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. The nitrate of arsenious oxide yields oxygen from the decomposed water, hydrogen gas being evolved, and sometimes a portion of the arsenious acid is reduced.
muriatic acid in a flask furnished with a bent tube; or sulphur of iron may be formed by melting in a crucible a mixture of equal weights of sulphur and iron filings; this sulphur may be decomposed by dilute sulphuric acid, without heating the mixture. By the action of sulphuric acid on arsenious acid, a green precipitate is formed, and by heat, or after exposure to the air, the excess of sulphuric hydrogen is got rid of; and yellow precipitate of arsenic is thrown down; this is to be collected, dried, heated in the tube with black flux, and metallic arsenic will sublime, as already described. The same treatment may be adopted with any substance which may be suspected to be either yellow or red precipitate of arsenic (orpiment or realgar), supposing them to have occasioned poisonous effects.

If the suspected liquid be 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 ammunniuret of copper and the ammoniuret of silver. The former is prepared by adding a solution of hiper sulphate of copper (blue vitriol) to one of ammonia, nearly as long as the alkali 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 arsenie of copper. It is to be noticed, however, that if the arsenious acid is added after the 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 former, which is in fact the ammoniuret of copper, is probably the best. The 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 but slightly in excess; this ammoniuret is colourless, and when added to a solution of arsenious acid in water, a yellow precipitate is formed, which is arsenie of silver, and which becomes dark brown by exposure to light.

The washed precipitates of using sulphuric acid 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 sulphuric hydrogen; but these can scarcely be confounded with or mistaken for a more 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. It should be observed that the white or silver very rarely, if ever, in such circumstances, give a precipitate with muriatic acid and muriatic salts; this, however, is colourless, and insoluble in nitric acid. If, therefore, any chloride of silver should have been thrown down with arsenic, so to speak, by the precipitate of the latter, by diluting its yellow liquid, add nitric acid to the suspected mixture of chloride and arsenie 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 arsenie 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 sulphuric 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: sulphuric hydrogen throws down from a solution of the former yellow sulphuret of arsenic, as with arsenious acid; but with ammoniuret of silver it gives a peculiar reddish precipitate of arseniate of silver, which may be reduced in the tube already mentioned, by heating in a boat provided with a tube of copper, to get immediately arsenite 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 arsenious oxide we shall consider it as a poison; 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, if 50 parts of boiling water dissolve 97 parts of the transparent acid, retaining only 18 parts; then 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 acrid and corrosive; but Dr. Gordon states, that it is at first always acrid, but afterwards somewhat acid. (Gordon, Dissert. Inaug. de Arsenie, Edinb. 1814, p. 9; Edinburgh Medical and Surgical Journal, vol. vi. p. 124.)

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 strychnia, which, when swallowed, produce a sensation of the mouth and throat, which may, in extreme cases, amount to insensibility; while the evidence is certainly very great. If a small quantity, such as 1/4th or 1/2th of a grain be swallowed, in about a quarter of an hour the individual experiences an agreeable sensation of warmth and weariness about the stomach, which gradually extends itself over the whole of the system, and is attended with a sensation of fullness in the abdomen. For the time the pulse is not so fast, and the respiration becomes more abundant, and the evacuations from the intestines often more frequent, and of a pulpy or purry character. From the intestinal channel the poison is distributed 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 face is covered with a breathing 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 gently 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 characterizing the whole functions of the system.

It is observed that the white oxide of arsenic in large doses, 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 by the employment of arsenic, 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 cheese. 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 incon siderate use of this very powerful agent. We only wish to show that much prejudice exists against it, in order, when necessary instances 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 oxide of arsenic may accumulate in the system, give rise to slow poisoning, cannot be questioned; but if prohibited 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 neutralizing power. Every medical man must be aware that large doses of opium may be given with safety and benefit in tetanus and some other diseases: it has been stated, under Arvinmont, that very large doses of tarrate of antimony may be administered in certain states of the consumption in the West Indies, during the state of insensibility following the bite of a snake called the coluber carinatus, eight grains of the white oxide of arsenic and eighty drops of tincture of opium have been given in the course of four hours, with beneficial effect. (See Paper by Mr. Ireland, in Medical-Chir. Trans., vol. ii. p. 392.)

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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 chosen is that of its combination with potassa, or as a unguent of potassa, which is the basis of the ligur 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 deposited. Hence the regular introduction of this into medical practice, it had long been employed in Lincolnshire for the cure of intermitents, under the name of the Tussilago Agnus; and from having been introduced into the pot to be boiled in water, 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 coming into direct or immediate contact of the stomach.

Being considered essentially an anti-poison [see A. O. vol. i. p. 225], it has been used in most diseases which partake of a periodic character; the chief of these we shall here 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 quinoline 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 time; certainly they should not be given in such a manner or in such quantities, 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 is given in some intermittent fevers, which approached nearly to the character of intermitents.

In rheumatic cases it has been used, and is most successful when the pains are markedly periodic, or true to a particu lar period. It is equally applicable when these be general or local, as in some rheumatic affections of the eye. (See Travers On Diseases of the Eye.) In no instance of the bones 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 cardia gastrica, or heartburn, when chronic, if combined with belladonna, it often affords speedy and lasting relief. It has sometimes been advantageously employed in hooping-cough, angina pectoris, epilepsy, and chorea, when tonics were required. In some chronic nervous affections of the mental faculties it has been found useful, such as melancholia, and spasmodic diarrhea. And if the power of the nose, and the bites of serpents, it is certainly more valuable than any other means we are acquainted with.

In cancer it has been employed both internally and externally, and in general use under the name of pâte arsenicale, but it is not free from danger, and requires great caution. Its internal employment has been mostly in cases where it depends upon constitutional rather than local causes; but if hectic fever be present, it will do more harm than good. It seems to be of more service in cancer of the lip and face than in affections of the glands, as the mammary or testicles. In cutaneous diseases, such as lepra and leprophanae, it is often serviceable, and its beneficial action may be increased by giving liquor potassae along with it.

We hold that the previous failure of other and more common remedies is a sufficient justification of the employment, with due caution, of arsenic in any of these diseases.

In cases of an overdose, or of intestinal poisoning by arsenic, it is proper that we should indicate an antidote, and point out the mode of treating such a casualty. Both these are difficult. First then, in the case of a substance so opaque as arsenic, the poisoner cannot see what he is likely to be of service; more especially as the white oxide either adheres firmly to the inner coat of the stomach, or gets imbedded in its substance. A more rational plan is to give a large quantity of potassa, or, as the arsenic of lime is almost insoluble, and nearly inert. After the emetic of sulphate of zinc (31 in a pint of distilled water); then copious draughts of oil (coster oil if possible) or milk. After which the case must be treated on general principles.

**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, according to the new chemical arrangement of Berzelius. This family comprehends fourteen genera, a tabular view of the principal species of each of which is here given:

**First genus.**
Species. Metallic, or native arsenic

**Second genus.** Metallic arsenates.


Fifth species. Antimonial copper: arsenen of bismuth.

Sixth species. Axometric arsenical pyrites (Mohs).


**Third genus.**
Species. White arsenic, or arsenous acid.

First species. Arsinochlorite: arsenite of lime.

Second species. Cobalt bloom.

Third species. Nickel ochre.

Fourth species. Scorodite: martial arsenite of copper from Cornwall.

Fifth species. Oliventite: of there are two species, the one crystallised in the right, the other in the oblique, prismatic system.


Seventh species. Cube one: hexahedral lirocrite: arsenite of iron.

Eighth species. Rhombohedral lead spar.

In addition to the minerals classified in the above genera, several other substances contain arsenic, acting, however, as the electro-positive element; consequently such compounds do not obtain a place here: of these there are but two particularly worthy of our attention, namely, opiment and realgar, both of which are sulphures of arsenic in definite, these being different, and the most abundant species. A particular description of which will be found in their proper place, are obtained of great purity from China and Persia, and afford a valuable and beautiful pigment.

The geological position of arsenical minerals is confined to primitive districts, where the occur in metaliferous veins, 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 species, but we have not the arsenures 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 connection with the fifth, and are either isomorphous; consequently the phosphoric acid is frequently more or 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 character istic colour of the vapour of metallic arsenic. In performing this operation it is necessary to be careful to submit the mineral to the interior of deoxidizing flame, or, in order to ensure the reduction of it, 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 opiment or realgar, it must be mixed with a small quantity of black flux in a glass matrass and heated in the flame of a spirit lamp, by which the arsenic will be liberated, and a sulphur of potassium for the stomach-paralyzed.

Native arsenic is usually found in veins, accompanied by sulphur and sulphures; it occurs massive, also in reticulated and stalactitic shapes, and of a curved lamellar combination, especially like the lamellar asbest. When fractured, the native arsenic presents a metallic lustre and a tin-white colour, which, however, soon tarnishes, becoming a very dark gray. It is brittle, has the specific gravity 5:766, and its hardness is 3:5.

According to Mohs, it is frequently met with in the mines of Annaberg, Schneeberg, Marienberg, and Freiberg in Saxony; at Joachimsthal in Bohemia, at Andresberg
in the Harz, in the Black Forest, in Alsace, at Allemont in Dauphiny, at Kongersberg in Norway, at Kapnik in Transylvania, and in beds at Orawitz in the Banast 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 by Carolus Praxias and Carolus Nickel. The arsenical silver, which is probably the fourth species, has not been sufficiently investigated. Professor Hausmann considers it as a more or less intimate mixture of prismatic arsenical pyrites with antimonial silver, a compound, according to Klaproth, to be an arsenical silver containing 16 to 24 parts of antimony and 84 to 76 of silver. The same chemist states 96 parts of arsenical silver to contain of

| Arsenic | 35 |
| 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 dark grey color. The specific gravity has been stated at 10.46 by Klaproth. The antimonial silver is found in veins at Altwolfach in Fürstenberg, and at Andreasberg in the Harz; the arsenical in various mines in the Harz, at Guadalupe in Spain, and also in Hertford mines, Cornwall, &c. It is scarcely necessary to mention that this mineral, when found in sufficient quantity, is highly valuable for metallurgical purposes.

Axomorous arsenical pyrites is a compound of arsenic and iron, occurring in beds of prismatic iron, and also in primitive mountains, accompanied by cobalt and nickel, at Schladning in Styria. Its specific gravity is 7.228.

Prismatic arsenical pyrites, described by some mineralogists under the name of mispickel, is composed, according to the analysis of Stroth:—

(FeS²⁻4Fe³⁻₆As⁴⁺)

Arsenic, 35
Arsenical Silver, 12.75
Iron, 44.25

Berzelius considers it to be a definite chemical compound, expressed by the following formula:

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 adorned with loadstones, 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. (Plin. xxxiv. 14.)

Strabo (x. 460) attributes to this Arsinon the founding of a city called by her own name on the banks of the Acheus, in Ætolia. (See Steph. Byzant.) This fact, if true, will tend to confirm the opinion of the Arsinon, the wife of Lysimachus, being given to the wife of Ptolemy Philadelphus, who was his half-sister, and to the strange adventures of her life, and the confusion in this period of history, render it very difficult to believe all the history of Arsinon, as it is given by the various authorities. A statue of Arsinon existed at Athenaeum, the temple of Puteanisians (i. 8). The beautiful metal of Arsinon, which we have given, with a cornucopia on the reverse, confirms what Athenaeus says (x. 18), "that the kind of cup or drinking vessel called Rhetum (ρηθον) was first devised by Ptolemy Philadelphus as an ornamental object for the statues of Arsinon; 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 Almutha." ARSINOE, the wife of Lucretius, king of Thrace, was the first wife of Ptolemy Philadelphus (according to the opinion of some critics), by whom she had three children.
Ptolemy, Lythmachus, and Berenice. But it would appear 
from Paustianus (i. 7) that this Arsinoe was the second wife. 
Supposed that she was plotting against his life, Ptolemy 
banished her to Coptos, or some city of the Thebais. (Schol. 
Th. xii. 128.) It is probable that she escaped and fled to 
Cyrene, where she was received with much kindness by its 
kings. Many stories were told concerning her, and the 
marks of Ptolemy's favor to his wife. Magas married her, and adopted her daughter, Berenice. 
To put an end to the quarrel existing between 
Ptolemy and himself, they agreed that Berenice should 
marry the son of Ptolemy, who was, as far as we can under-
stand, the half brother of Ptolemy, to whom 
the death of Magas put an end to the negotiations, and 
her mother gave her in marriage to Demetrius, son of De-
metrius Polioretos, whom she summoned from Macedonia 
for the purpose. (Strabo, p. c. 217, and is said to have contributed not 
little to gain the victory. [See Antiochus.] Ptolemy 
was afterwards, seduced by the charms of Agathocles, ordered 
Arsinoe to be put to death. (Justin, xxx. i. 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 eastern 
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 nearly to that of Arsinoe. 
(Stрабо, xvi. 769.)

 Arsinoe was also the name of a nome, or one of the 
antient provincial divisions of Egypt which corresponds to 
the modern Faюiu. 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, a eye-witness (p. 811).

Arsinoe, a name given by Ptolemy Philadelphus, in 
honor of his wife, to Patara in Lycaon, after he had re-
paid his first wife; the old name soon prevailed, and the 
new one was disused. (Strabo, 166.)

Two cities in the island of Cyprus were also called 
Arsinoe. (See the article Arsinoe in Stephan. Byzant.)

The Arsinoe occurs in Egyptian Phonic characters at 
Gau, Edfu, and Dakhla.

The fact of so many places being called by this name, 
taken in connection with the medals of the first Arsinoe, 
helps to fill up the blanks in the history of this period.

ARSIS (spec. elevation) is a technical term in ancient 
music and antient metrics. In the latter it denotes the 
elevation of the voice which we now call metrical accentua-
tion; but 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 matter of dispute.

The musician is said to have struck the ground with his 
foot to mark the arsis, and hence the Latin term ictus 
(stroke) has been used in the same sense. The arsis is 
OPposed to the thesis (θέσης) or depression of the voice, the 
precise meaning of which is of course subject to the same 
ambiguity. The order in which the arsis and thesis recur, 
constitutes the law of any verse or metre. It must be re-
collected, however, that although only two terms are used, 
yet one arsis may be more emphatic than another, or the 
other weaker than another. Thus in the ordinary iambic 
measure of six feet, there are six places marked by the arsis, 
 viz., every even syllable, the second, fourth, &c.; but the 
struck foot may vary with the amount of rhythm, and the 
Latin writers on metrics accordingly called the verse 
we are speaking of sixfold (senarius), while the Greeks 
applied its the name of a triple metre (trimeter), the 
former including every arsis, the latter only those which 
are more marked.

Bentley, following the Greek principle, has inserted only 
three accents in his edition of Terence, yet he was fully 
awake, and often speaks of the arsis 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 arsis is important for another reason. 
After the stronger arsis, the thesis must be very well 
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, Sapphic metres, 
&c., will affect examples. In many metres, certain varia-
tions in the position of the arsis are not merely permitted, 
but even desirable, at least in poems of any length. In our 
ow own iambic metre of five feet, commonly called the heroic verse, 
the stronger arsis is the second, according to the law; or, 
the weaker, the fifth, according to the older, and less 
specific law. Again, in the hexameter of Homer, the daictyl 
arsi, or the arsis followed by two depressions, is the pre-
valing law; whereas in the Latin hexameter, in addition to 
the pure dactylic rhythm, we find a large proportion of lines 
in which there is an approach to an atypical rhythm and 
the beginning of a line, as in the second verse of the Hymn:

"Istam gau prophulgatu Lastmepruit victur."

Perhaps this variety may have been more pleasing to 
the Roman ear, as it is certainly more common in Latin hex-
ameters, from an old attachment to the Saturnian verse, in 
which Homer, on his removal to the hexameter, must have 
terminated the line; or, in other words, perhaps the Latin 
hexameter may be a compromise between the Greek hex-
ameter and the Latin Saturnian. A metre in which the 
stronger arsis is very considerably misplaced, as the English 
reader is the Sapphic, the true melody of which runs thus:

\[
\begin{array}{l}
\text{\textless} \quad \text{\textless} \quad \text{\textless} \\
\text{\textless} \quad \text{\textless} \quad \text{\textless} \\
\text{\textless} \quad \text{\textless} \quad \text{\textless} \\
\end{array}
\]

where \(\text{\textless}\) mark respectively the stronger and weaker 
arxis; \(\text{\textless}\) the thesis; whereas the ordinary English intona-
tion is

\[
\begin{array}{l}
\text{\textless} \quad \text{\textless} \quad \text{\textless} \\
\text{\textless} \quad \text{\textless} \quad \text{\textless} \\
\text{\textless} \quad \text{\textless} \quad \text{\textless} \\
\end{array}
\]

\(\text{scc.}\); 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 
psudo-Sapphic ode on a Knife-grinder in the Antiocabin.

[See Progress, Accent.]
ART

section of the same statute, setting fire to coal-mines is also declared to be a capital felony; and by the 17th section it is further enacted, 'That every person shall unlawfully and maliciously set fire to any stack of corn, grain, pulow, straw, hay, or wood, every such offender shall be guilty of a capital felony; and if any person shall unlawfully and maliciously set fire to any crop of corn, grain, or potatoes either standing or cut, or to any part of a wood, coppice, or plantation of trees, or to any heath, gorse, furze, or fern, wheresoever the same may be growing, every such offender shall be guilty of felony, and be liable to be transported for the term of seven years, or to be imprisoned for any term not exceeding two years, and, if a male, to be whipped, in addition to such punishment.' The firing of

ART AND PART is a term used in Scotch law to denote the charge of contriving a criminal design, as well as that of participating in the actual perpetration of the criminal fact. The derivation of the phrase is uncertain. Sir George MacKenzie, in his Discourse on the Law and Customs of Scotland in matters Criminal, says, that 'art by art is meant that the crime was contrived by the art or skill of the accused (coram arte); and that by part is meant, that they were shares in the crime committed, et corum pars mundi, ful.' By other writers it has been considered as an abbreviation of the Latin phrase of artifices et particeps. It is a charge of very extensive meaning, comprehending not only the offence of sacrileges before and after the fact, according to the English law, and the ope et consilio of the Roman law, but also all interference and assistance at the time of the commission of the criminal act. By an ancient Scotch statute, passed in 1592, it is required that in all criminal libels or indictments, the offenders shall be charged as having committed the imputed offence 'art and part.' This enactment was occasioned, as its preamble intimates, by the frequent instances of failure of justice in criminal trials, in consequence of a variance between the evidence and the particulars detailed in the libel or indictment. Thus, previously to the statute, if A and B were charged with murder, and the indictment stated that A held the deceased while B stabbed him, and it appeared in

determination that the facts as before were reversed, and that B held him while A stabbed him, neither of the accused persons could be convicted. But by the insertion of the charge of 'art and part,' such a failure of justice could not occur; for, in fact, both the parties, or prisoners, are substantially charged by 'art and part,' and are therefore comprehended in the general charge of the indictment. This subject is very copiously discussed in Hume's Commentaries on the Law of Scotland respecting the Description and Punishment of Crimes.

ARTA, GULF OF (the Ἀρταία ἐξόγος of the Greek and the Ambraeus Sinus of Latin authors), is an arm of the Ionian Sea, between the ancient Ephirus and Aecarnania, and now the boundary between the Turkish province of Albania and the kingdom of Greece. It is twenty-five miles long and ten wide, and is contained between the parallels of 38° 32' and 39° 30', and the meridians of 20° 43' and 21° 10' E. of Greenwich.

Across the entrance is a bar composed of soft sand and sea-weed, over which the greatest depth of water is fifteen feet, and the channel is intricate. Having passed this, the gulf is navigable vessels of the largest size; it is perfectly free from danger, except off the low shores, where flats extend in some places nearly a mile: but these may be distinguished by the light colour of the water; the surface is rarely raised while in the open sea; but the bottom is of 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 780 yards, and half a mile inland is its general breadth in the N.W.; it then turns sharply round a low point to the S.E., and is about 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 ridges of La Scara and Madouno to the north of the basin of the gulf, and there the depth of water is low sandy ridians, 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, is called Mount Zalunga, is about 1500 feet in height, and continues its undulating descent to the ruins of Nicopolis, three miles north of Preveza. After a considerable range of low hills of the range rises again to a remarkable three-peaked mountain, called from its colour Mavro Volano (Black Mountain), which has about the same elevation as Zalunga, but its surface are rugged. Between its feet and the lakes before-mentioned, is the plain Largo; but, from the thinness of p-pulation 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 Makronero ridge, about 250 feet high, along which runs the road from Albania into Greece; this road is capable of being strongly defended, and is called 'The Road of the Poor.' The western part of the wide plains of the same name are covered with the best soils, and the hills scarcely admit a passage between their bases and the gulf. The southern shore is generally rocky except at the bottom of the bays formed by its irregular line; the hills are round-topped, insulated, and barren, composed principally of limonaceous schists and quartz, and the

descend steeply to the shore. One of these, to the eastward of Vonitza, called Anamurio, rises to the height of 1000 feet. The western shore, from Cape La Scara northwards towards Lake Moratza, is first rock, and steep, then come grassy cliffs, with a narrow shingly beach at the foot, and lastly, the hills slope gradually down to a low shore. The only towns on the shores of the gulf are, Provesa, on the northern side of the entrance, and Vonitza, at the bottom of a bay of the same name on the southern shore. The town of Arta, whence the Gulf derives its appellation, is seven miles from the north coast. At Salamon, which is the summit of the road from Arta, the sea is exposed to the wind, a custom-house having been also in Karavasara and Loutraki bays. The only village is that of Koronikionis; at Ylica, Arepi, and Karavasara, there are also a few huts.

The ruins of Argos Amphicoecum are now visible at the bottom of Karavassara Bay, in the Gulf of Arta. They are of Cyclopian masonry, situated on a steep acclivity 350 feet high, near the sea. The town which occupied the summit was encircled by walls, and these were augmented by two others, descending the hill and meeting at an angle within a few feet of the beach. The high road from Albania into Greece winds round this angle through a deep ravine commanded by the town, which thus offers a very strong military position. There is a custom-house, and a few huts near the ruins, known by the name Karavassa. 35° 51' N. lat., 21° 10' long. East of Greenwich.

Two rivers, the Lara (antient Charadrus) and the Arta (antient Archaitus), flow into the gulf on its northern shores; both are navigable for boats, seven or eight miles from their mouths. A small stream also flows through the town of Vonitza, affording an abundant supply of excellent water.

The gulf abounds in fish of the finest quality, particularly of the mullet kind; there are also soles, eels, and sandies, and very large prawns. The sardine fishing is generally formed from the Greek government, and the fishery, however, is their naval superiority, by parties of Sici-
...
Plutarch's play, *good war* naval province and soon recalled and mother, daughters, of Themistocles, Sardis afterwards the ARTAXERXES, n. c. 359, the death of Ochus, n. c. 338, are both correct, this story seems to have little foundation. (Diodorus, lib. xvi. x.; Justin, x. 3; Plutarch's *Aegaeus*).

ARTEDI, PETER, a distinguished naturalist, the second son of Olaus Aredi, was born 22nd February, 1705, at Anund, in Angermanland, a province of Sweden. Possessing excellent talents and a good memory, he was destined for the church, but at a very early age his mind was attracted to the study of natural history, particularly to the study of fishes. He wrote many works on alchemy. In 1724 he went to the University of Upsal to study philosophy and theology, but he gradually abandoned this study and spent the whole period of their residence at Upsal, which was seven years, during which time an honourable rivalry subsisted between them, each abandoning to the other the departments of natural history. He was appointed to the chair of medicine at Upsal and devoted himself to the study of fishes and the amphibia. Distinguished by a knowledge of birds and insects. In testimony of his friendship, before the departure of Linnaeus for Lapland and of Aredi for England, they mutually constituted each other to their papers and collections of natural history, the survivor pledging himself to publish whatever manuscripts might seem worthy of the public eye.

In July 1727: Aredi sailed from Stockholm 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 *Ichthyologiae.*

In 1725 Linnaeus went to Leyden, where, after residing a few weeks, he agreeably surprised himself to be joined by his friend Aredi. The means of Aredi being now almost exhausted, he meditated 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, recommended Aredi to him. Previous to this Aredi assisted Linnaeus in his great *Systema Naturae,* particularly in the departments of fishes, and in the innumerable plants, in the arrangement and construction of the genera of which, he recommended the adoption of the following principle: *"Nothing but the generically close is synonymous, the synonyms, the genera, and species of nearly all that remained."*

About this time, Linnaeus, having finished his *Fundamenta Botanica,* hastened to Amsterdam; this Eron showed Linnaeus his *Philosophia Ichthyologica,* which had been the work of several years' labour.
This delightful and advantageous interchange 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 one of the alcoves of Antemus, and no assistance being at hand, he was not discovered till morning. Thus, in the thirtieth year of his age, perished one whom Linnaeus justly pronounced an honour and ornament to his country.

Without conformity with their testamentary arrangement, claimed his manuscripts; but the landlord, on account of some small debts, refused to give them up, and even threatened to sell them by auction. They were purchased by Dr. Clifford, and by him presented to the Philosophae Ichthologica, a work of immense labour, complete, but confused; the Descriptions, good; the Bibliotheca, unfinished; and the Systema nearly complete.

Linnaeus 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 1 vol. 8vo, Leyd. 1738. Linnaeus had previously availed himself of them, for the department of fishes, in his Systema Naturae, published at Leydon in 1735.

Cuvier and Valenciennes, in their history of Ichthyology, prefixed to their Histoire Naturelle des Poissons, Paris, 1826, pronounce this the first work which gave a true and characteristic character to the natural history of fishes, completing that which had been so well begun by Wilioughby and Ray.

Artedi founded his orders solely upon the consistence of the fish, upon the opuscula of the gills (branchiae), and the nature of the rays of the fins. Of these there are four, (for we do not admit the cetacea,) denominated the malacocephyl, the acanthocephyl, the branchiostegyl, and the chondropterygyl. The branchiostegyl, being badly constructed and badly 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 the fifty-five only were defined, thirteen being merely indicated in the supplements to the Genera and the Systemoagoga.

Genera of Artedi.

I. Malacoporphyle.

II. Acanthocephyl.

III. Chondropterygyl.

IV. Pterophragyl.

Genera indicating in the Supplemena.

I. In the Symnoagoga.

Sparta.

Rhagias.

Cypria.

Cyprius.

Cyprius.

Trachinui.

Sophia.

Acanthophyle.

Chondropterygyl.

Hetero.

Chondropterygyl.

Cyprius.

Sparta.

Acanthophyle.

Acanthophyle.

Acanthophyle.

Acanthophyle.

Acanthophyle.

Acanthophyle.

In his botanical labours he was not so successful. The involution of the general umbel and the involucelle of the partial umbel (in other words, the general and partial involucres) are merely bracteae, on which, In no other case, has it ever 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 one much superior. (See Neue Acta Academia Caesarea Naturae Curiosorum, vol. xii, part 1, p. 35, and Decandolle, Memoire sur la Familles des Ombelliféres, Paris, 1829. Decandolle, Prodromus Systematis Regni Vegetabilis, vol. IV. Umbelliféres, p. 55, Paris, 1830. Linnaeus called a genus of umbelliferous plants after his friend, Artedia, of which only one species is known. A. sovoisii.)

In his Systematico Ichthologico was reprinted and enlarged by J. Wallbaum, three volumes quarto, Lubeck, 1788, 1789, 1792.

ARTEMIDORUS OF Ephesus wrote a treatise on general Geography, in eleven books, besides some other works. His era 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.

He was one of the passage of the Minor Greek Geographers, vol. I. We can collect from Strabo that Artemidorus visited Spain, Rome, and Alexandria. He was sent by his citizens on an embassy to Rome, in order to recover two valuable salt lakes near the mouth of the River Tiber, which day belonged to the city of Dareda and was seized by the Roman publicani (farmers of the taxes). Artemidorus was successful, and was rewarded with a golden statue. (Strabo, xiv. p. 842.)

ARTEMIS, to Linnaeus, summoned Daldianus, from Daldia, a city of Lydia, which was his birth-place, is the author of a work in five books, entitled Versus poetae, or, The Interpretation of Dreams. He lived in the time of the Antonines; and collected his materials by traveling in Greece, Asia, Italy, and seems to have appropriated and altered communications as he was favoured with by those who studied the interpretation of dreams. (See Lib. I. cap. i.) The value of the work, which is written in very fair Greek, consists in the view which it gives of the superstition about dreams in that age: it is also useful for the explanation of several mythological allusions and symbols. The fifth book, entitled Artemis, or 'Dreams,' is addressed to the author's son: it contains ninety-two short stories, related to different individuals, and the events which followed. Some of the dreams are remarkable as samples of what people's dreams were seventeen centuries ago. The first edition was published in eight doubles, 8vo; the second in two doubles, 8vo, one of text and the other of notes. An English translation was published in 1644, in 12mo, under the title of 'The Interpretation of Dreams,' digested into five books, by that ancient philosopher Artemidorus.' Of this work a tenth edition was published in 1690.

Artemidorus wrote other works besides that which we now have; See Suldias (Aρτεμίδορος), and the author's work, Lib. II. cap. i.

ARTEMIS, one of the ancient Greek divinities, known to the Romans as Diana, whose attributes were so numerous and of such opposite kinds, that it is difficult to imagine how they should have been assembled in the same deity, if we did not know that the imaginative spirit of the Greeks loved to invest their gods with the most opposite characters. In the poetry of Homer and Hesiod she appears as the daughter of Jupiter and Leto (Latona), sister of Apollo, and the goddess who presided over hunting. She traverses the woods, armed with the bow and arrow, and attended by numerous nymphs. Her bow is employed, not only against the beasts of the forests, but also against man; and in those early poets she is represented as never yielding to the arguments of love. She is one of the Orphic Hymns (55, 36) we find her invested with other attributes. There she assists child-birth, is the assuager of pain, looks with benignant eye on the labourers of man, and is the supplier of abundant harvests, of peace, and of health. In this she looks after herself part of the duties of Ceres, and indeed, according to Asclepius, she was daughter of that goddess. In a temple at Megalopolis in Arcadia her statue stood by the side of that of Ceres, and she was clothed with the skin of a hind; a quiver hung from her shoulder; she had a lamp in one hand and two serpents in the other. (Pausan. viii. 37.) In the Greek tragic poets she appears under another character, allotted to her with the favour of nature obtained by the sacrifice of human victims. Iphigenia, daughter of Agamemnon, on her return from the Tauri, introduced this barbarous feature in the worship of Artemis. At Sparta there was a temple of Artemis Orthia, where they exhibited an old wooden statue, said to be that brought by Iphigenia from the Tauri; and though in later times human victims were not offered, the thirst for blood, which the goddess was supposed to feel, was satisfied by the severe and hard ruling of the Spartan young women. (Plut. viii. 9.) All these various fables were collected by the Alexandrine poets of later times, and fitted to one another so as to form a whole.

The works of Artemis was very general throughout Greece and the colonies, but she was more particularly the goddess of the Arcadians, if we may judge from the numerous temples found in that district. There almost every height, fountain, and river, supplied her with a distinctive
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arthritic, so that the poet Alcaeus (who flourished probably n.c. 679) says, that she `derives names from ten thousand mountains, cities, and rivers. She is Lycaon on Mount Manaulus (Paus. viii. 35), Chonaeatis at Tages (viii. 53), Symphyla on Symphysa (29), Canacis and Condyles (Cath. 23); it is for her that gold is given the title of old Peloponnesian divinity is frequently found in connection with streams and rivers. She is annim domina, a mistress of rivers,' in Catullus (34, 12); Nylysvres terna-ropes, a superintendent of vortis in Callin- sales (ii. 40).

Artemis was a favourite subject with the artists of Greece, and they have generally represented her as a huntress. They endeavoured to invest her with all the freshness and vivacity of a wild life. She was a slender, graceful girl, clad in the stele, the artist still continued toon fry her full and well-formed figure. In the works of Scopas, Praxiteles, and Timothos, Artemis was, like Apollo, represented of a slender form; her hips and breasts without 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 Direct vest (χιτών), either tucked up high, or reaching to the feet; and the shoes are Cretan. Sometimes a dead or dying stag lies at her feet. See Flilbol, Galerie Néapolit., p. 356; Voss, Catalog. der alten Zeug., Leipzig, 1852; Müller, Die Dorier (translation) vol. i.; Voss, Mythol, Br. iii. 1. See DIANA, SELENE, and HERCULES.

ARTEMISIA, the daughter of Lygdamis, became queen of Halicarnassus, a city on the coast of Asia Minor, when her father died. She possessed qualities to entitle her to the women of antiquity, if we may credit the account given by her countryman Herodotus. She attended Xerxes in his expedition against Greece n.c. 480, and furnished five ships, which were second only to those of the Sidonians. In the counsel of war before the battle of Salamis, she strongly represented to Xerxes the folly of risking a naval engagement, 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 women, 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, 87-103.) She was mother of Pherousa, who died of the plague (as it was called at Spatha) which was erected to commemorate the great defeat of the Persians. (Paus. iii. 11.)

ARTEMISIA, daughter of Hectomarsus, king of Caria in Asia Minor, was the mother of Metho and Artaces, and on his death n.c. 253. From all the accounts transmitted to us respecting her, she has been truly attached to her husband; but that she should have drunk the ashes of his body mixed with water, as Pliny tells us, is a statement rather extraordinary. (See also Valerius Max. lib. iv.) She proposed two prizes, one in tragedy, and another in oratory, to those who should pronounce the best panegyric on her husband; and among those who came forward, was Theopompus, Theodectes, and Naurates; some have even added Isocrates. The successful competitors were Theopompus and Theodectes. 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 funeral monuments. Theopompus has to have existed in the time of Strabo (vii. 664). She died after a reign of 100 years, and was succeeded by her brother, Idreus, n.c. 351. (Diod. xvi. 45.)

ARTEMESIA, an extensive genus of plants belonging to the Compositae, and remarkable for the abysmal 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 flowers are all tubular, but those in the circumference of each head are very imperfect.

The most interesting species are wormwood, tarragon, and southernwood; (Artemisia dracunculus) a Siberian species, which with frequently in waste places all over Europe and the northern parts of Asia. Its leaves have a silky or hoary aspect, in consequence of a thick covering of exceedingly delicate hairs, and they are deeply lobed. The flower-heads 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 liqueurs; it is grown for its name from its use in destroying worms in children.

Tarragon (Artemisia dracunculus) an odorous herb found all over the south of Europe from Portugal to the Dardanelles, and thence by Palestine, Persia, and the middle of Asia into China, is frequently seen in old-fashioned gardens where it was cultivated for its peculiarly aromatic form and the moist heat. It is a plant of the northern countries a shrub, and even in us acquiring a woody stem after a few years; its branches bear loose panicles of nodding yellow flower-heads, which are externally grey with down; the leaves belonging to the panicles are much longer and narrower than those of the stems.

All these are increased either by division of the crown of the root or by what are technically called slips, that is to say, cuttings rudely torn from the woody part of the stem and suspended; they strike root readily and make young plants in a month or two.

ARTERY, from the Greek ἀρτηρία (arteria), signifying an air-vessel; because the antients, ignorant of the circulation, and finding the arteries always empty after death, supposed 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: as the larger or the middle, which conveys blood from the different parts of the body to the heart. [See Vena.] All the arteries of the system proceed from two great trunks immediately connected with the cavity of the heart, by the pulmonary artery, which arises from the right, and the aorta, which springs from the left ventricle. [See Aorta.] The pulmonary artery conveys blood from the left ventricle of the heart to the lungs; the aorta carries all the blood towards the extremities, and conveys it to all the 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 Arteria.] The arteries derived from the aorta contain arterial, those derived 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, decarbonized or proper nutrient blood. [See Vena.]

The arterial system is arborescent, that is, the 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 3 to 1; and these branches, in their turn, divide into branches, and the larger branches into branches and more minute, it is obvious that the blood in the arterial system is always flowing from larger into smaller tubes.

In the organization of the arteries is peculiar, and differs considerably from that of the veins. [See Vena.] They are of a yellowish-white colour, loose and flocculent on their external surface, but their internal surface is smooth and
polished. They are composed of three distinct membranes, which are superimposed one upon the other, and which are intimately united by delicate cellular tissue. Each of these membranes is called a tunica, or coat, and each possesses a peculiar structure, and performs a separate function in the circulation of the blood.

1. The internal tunica consists of a membrane, colourless, transparent, and thin, yet so firm and strong that it is supposed to resist more than any of the others the bursting of the artery by the current of the blood; for, in a living animal, the vessel is repeatedly re-set, or tied, without being removed, and is found capable of sustaining the impetus of the circulation, and of preventing rupture from the dilatation of the artery.

2. The middle tunica, called also the fibrous and the muscular, is composed of one, which passes in an oblique direction around the calibre of the vessel, forming segments of circles which are so joined as to produce complete rings. In the larger trunks, several layers of these fibres can be raised in succession by the forceps, so that this coat is of considerable thickness, and it is proportionally thicker in the small branches than in the large trunks. This coat is firm, solid, and highly elastic. It is the main tunic by which the artery resists dilatation, which pass in the transverse direction, which it does so effectively, that when the left ventricle of the heart propels a fresh current of blood into the aorta, little or no dilatation of the vessel is perceptible. The characteristic property of the fibrous coat is contractility, which is highly important in the living animal, such as ardent spirit or ammonia, be applied to it, the vessel contracts forcibly upon its contents. This contractile power, which properly belongs to the muscular fibre, is believed to be the cause of the elasticity of the muscular fibres; but careful examination has shown that its organization possesses nothing in common with that of the muscular tissue, while chemical analysis has demonstrated that it contains no fibrin, which is the basis of muscular fibres.

3. The external tunica, called also the cellular, consists of small whitish fibres, very dense and tough, interlaced together in every direction. It is much thicker in the large trunks than in the small branches, the reverse of the fibrous coat. To this coat is covered a loose and delicate cellular substance, which connects the artery with the surrounding parts, and particularly with the sheath of the vessel. Its firmness and tenacity are so great, that it is not divided, however firmly a ligature may be placed around the artery; and its elasticity, especially in the longitudinal direction, is so remarkable that it has been called, by way of eminence, the elastic coat.

Arteries, besides capillary vessels, terminate also in veins, in exhalant vessels, which are supposed to open by minute orifices on various membranous surfaces, perhaps in lymphatic vessels (see vein), and in excretory ducts. [See Gland.]

The principal diseases to which arteries are liable, are inflammation, osification (deposition of bony matter), calcareous deposition (deposition of chalky matter), and aneurysms.

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, produced so much as to supply the wants of man; and they are highly useful in districts where springs or rivers are scarce, or where the usual surface water is of indifferent quality. These perforations have been named Artesian wells (Puits Artesiens) by the opinion that they were first used in the district of Artois in France. They are seldom more than a few inches in diameter, and are made by means of the accompanying diagram, representing a geological section of a country in which Artesian wells may be established.

Let h, i, k, l, m, n be the surface of a country upon which stands the town T: a, b, c a bed or thick mass of rock, either impervious to water, or through which it percolates with difficulty: A, B a bed of porous rocks through which water percolates among the strata that occur between the rock a, b, c, and are conveyed by the latter in the plain below the town, the T, stands, but crop out, as it is geologically termed, or rise to the surface from beneath the rock, a, b, c, at the heights a, b, c, where h, k, m, n is the land through which water either cannot pass, or percolates with difficulty. It will be obvious that the rain-water, falling on the heights, h, k, m, n, 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 downward 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 endeavour to seek its own level, the water will flow as far as was felt along the impermeable bent 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, and water adopted into the rock b, b, the water in the latter will rise over the surface of a, a, at w, in proportion to the height of f, h, above the level of w, 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 any other 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 impervious 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 water, coming in the upper side of the pipe 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, d, e, f, g, h, i, j, k, l.

In nature, great areas or sheets of stratified rocks, particularly those of a certain relative antiquity, are seldom unbroken; but are, on the contrary, fractured in various degrees 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 place where the porous bed receives the rain-water.

Let the line a, b, c, in the above wood-cut, represent the surface of a country; d, d, a porous bed, or one through which water, received at c, easily percolates upon each other, among which the rock a is of a structure to permit the complimentary free passage of water, entering at f, while through the other rocks water either percolates with difficulty, or is unable to pass. In this case, the rock a 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, k, l, 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, in the valley between the hills a, a, the water rises 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 certain relative antiquity, are seldom unbroken; but are, on the contrary, fractured in various degrees 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.

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 s, 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 more extensive. Springs from 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, and some severe droughts, 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 the 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 sinking Artesian wells, that one or more of the lines of water from which may be more or less of this 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 afterwards met with. Thus may be obtained the following figure, a, b, c, d, e, f, g, h, i, j, k, l, representing various beds of rock bored through in the process of sinking an Artesian well, a, a water, a, a water, a, c, being 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 second boring is increased from the surface of the bed, or interstices between the strata, where the bad water is supplied, and a hollow cylinder is passed down through the strata to the centre of the well, 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 one or more known 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 but seek its level; its rapidity in effecting this is proportional to the freedom with which the water ascends, and the pressure of the water is, however, checked by its friction among the particles of sand or against the sides of the strata, so that
memorial. It is also probable that they were known to the ancients, for, according to M. Passy, in Description Générale de la France, Niebuhr cites the following passage from Olympiadores:—"Wells are sunk in the cases from 200 and 300 to 400 yards in depth (the yard being equal to half a foot), whence water rises and flows over the sides."

The cities of Ghent, Ypres, Bruges, and the country or district of Bruges, which was called de France, or 'free country.' Bruges during this period repeatedly revolted against Philip of France, 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 by Philip, who had soon after defeated him 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 by Philip, who had soon after defeated him 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 by Philip, who had soon after defeated him and kept him till the people of Ghent, who were then jealous of their neighbours of Bruges, rescued the count.

In order to secure the seaports of the Flanders on account of their allegiance to the French crown, he advised Edward to assume the title of King of France. Count Louis, who was then in favor with Philip, opposed him, and in a diet held in the town of Bruges, he caused one of the promoters of the English alliance to be seized and beheaded at Rupelmonde. The people of Ghent, infuriated at this proceeding, marched to Bruges, and compelled the burgurers to join the English alliance and the insurgents, strengthened by the assistance of the English, defeated the count and his nobles, who were obliged to evacuate Bruges. The count withdrew to France, but returned again in 1338, and made an attempt to conciliate his refractory subjects. Having entered Ghent, he tried to persuade the popular leaders to side with him and with Philip of France, but the burgurers shut the gates, made the count prisoner, and compelled him to sign a treaty of alliance offensive and defensive with King Edward (Dec. 1339).

Louis soon after found means to escape from Ghent, and again withdrew to Paris. The war now raged between the French on one side and the Flanders and the English on the other. The latter besieged Tournay, but were repulsed by the French near St. Omer in 1341. A truce being agreed upon between the hostile powers, King Edward went to Ghent to meet Count Louis, who, he tried to win back by open political and personal blandishments, sent him to Paris and his daughter, and with a safe conduct, with instructions to return from there to Ghent, was sent by the French on his return to England. Count Louis, seeing his subjects wholly estranged from him, and his authority openly set at nought by Artevelde, once more withdrew. The count then proposed that Edward should marry the young Prince of Wales, afterwards called the Black Prince, should be elected governor of Flanders, on the under-standing that the country was to be made by Edward a foreign duchy. But the Flemings, although they wished to humble their count, were not prepared to disinherit him and his line altogether; and they began to mistrust Artevelde's intentions. A dispute broke out between the Flemings and the English traders, who were armed against the weavers, and a battle was fought in the great market-place between the two factions, which lasted all day; 1500 fullers were killed, and the weavers, being victorious, drove the rest of the fullers out of the city, and the Flemings were driven out, but in an open part in the contest, but being jealous of the rising authority of Gerrard Denys, the dean of the weavers, he secretly introduced into Ghent 500 English soldiers, whom Denys had engaged, and plundered the town. He then made a sortie, attacked Artevelde, and killed him, with many of his English soldiers, in July, 1344. The Flemings, however, continued in their hostility to Count Louis, who fell at the battle of Crecy in 1346, fighting in the French ranks. He was succeeded by his son Louis II., called de Male, from the castle of Male, his favourite residence. Artevelde's authority in Flanders last seven years, during which, in spite of many acts of violence and injustice, the cities prospered in their trade, and enjoyed great respect among their neighbours. (Oudogradt, Chroniques et Annales de Flandres.)

ARTEVELDE. PHILIP VAN, was the son of Jacob Artevelde. Philip, Edward III's queen, heath him at the battle of Crécy. He was born in Ghent, and his father left him wealth, and his mother, a woman of a prudent character, watched over his youth. She negotiated an early marriage for him with a lady of good family, after which her son Philip and Charles de St. Louis were exposed to constant danger, keeping aloof from all public affairs. But he had a name which was connected with party feelings and recollections. A fresh revolt broke out at Ghent in 1379 against Count Louis de Male, and after many engagements, Philip, the son of the first Philip, succeeded in intercepting all supplies to the insurgent city, which was reduced to great distress. Van der Bosch and the other leaders of the Ghentese, finding that the people were no longer willing to support them by their own strength, strengthened themselves by engaging Artevelde as the nominal chief of their party. They proposed him to the people, and he was elected Captain by acclaimation. 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, conceived the idea of marching out with a chivalry of men and attacking the count, who was then at Bruges. He left Ghent on the 24 of May, 1382, with 5000 men, determined to conquer or die, and halted in a good position, expecting the English to lend them the support of the festival in that city. In the midst of the processions and rejoicings, news came of the Ghentese being at hand. The count went out to encounter them with a body of 800 knights and esquires, followed by a numerous but disorderly multitude of the people of Bruges, especially of the butchers, glaziers, cordwainers, and boatmen, who thought they were marching to certain victory over a few half-starved Ghentese. The Ghentese had a march in front of their position, and their arrows were directed against a line of carts; these commenced with a brisk fire of artillery upon the assailants, which checked their ardor. Artevelde, by a skilful movement, having succeeded in drawing the enemy into the march, the men of Bruges fell into confusion, many of the knights were killed, and the rest carried along by the flying multitude. The count re-entered Bruges with only forty horse-men, and the Ghentese poured in at the same time. It was now night, and before the citizenry had time to reconnoiter from their windows, the city was given up to plunder. All the count's people, as well as the butchers and other tradesmen favorable to them, were hunted out and killed. The rabble of the town, as well as many of the ser-vants of the count, were butchered, and a great number of the populace killed or were taken and made prisoners. Artevelde succeeded in stopping the indiscriminate slaughter in the morning; but the magistrates and nobles were deliberately sought after and led to execution, and the count's fiefs and followers were delivered to their country. The count remained concealed that night and the following day in the

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house of a poor woman, who had often received charity at his palace gate.

On the capture of Bruges, the other towns of Flanders, with the exception of Oudenarde, opened their gates to Artevelde. 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: he had become Pendragon of all the other provinces, but also luxuries. He began the siege of Oudenarde, in which, however, he was unsuccessful. Meantime the people of the neighbouring states, Hainault, Brabant, Luxemburg, were dispersed by Mr. de Marnes. Hengist, with the Flemings, and the spirit of revolt spread also into France, where the people were dissatisfied with the exacting and oppressive taxes of their nobles. The feudal nobility at that time had lost much of its old chivalrous spirit, as well as of its power. The same thing happened in England, where, although 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 skilful and able admiral; the oriflamme was displayed, and the campaign began in November, 1382. The French advanced to Rooseboke, between Courtray and Ghent. Artevelde rashly advanced to attack them; his men, equal in numbers, but inferior in morale and skill, were soon routed. Many of them had no room to wield their weapons. The battle lasted only half an hour, and 23,000 Flemings were killed, most of them in the pursuit. The body of Artevelde, being found under a hedge, was interred in the church of Rochefort. The battle of Rooseboke has been considered, for the importance of its results, to those of Attila against Attila, and of Charles Martel against the Moors. "Had the Flemings been successful," observes Froissart, "the insurrection which had already begun at Paris, would have spread all over France, and would have proved more terrible than the Jacqueries; the whole of the nobility and gentry would have been destroyed. The troubles of Flanders continued for some years longer, until, 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. (Bunau, Histoire des Ducs de Bourgogne de la Maison de Valois.)

ARThUR. [See Gour.]

ARTHUR. We shall divide this article into two heads: the first, containing those particulars of the life of this celebrated British chief, which are derived from history and tradition; the second, giving a short account of that mass of fiction concerning him which forms the earliest portion of our national literature. Truth, indeed, has been so overlaid by fiction, that some writers (Milton among them) have set down Arthur as a mere dreamer. 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. Besides the later works of Nennius and Geoffrey, the most ancient specimens of Welsh poetry, the Triads, the poem of Llywarch Hen, and of Taliesin, speak of him, not as the fabulously prodigal described by later romancers, but as a prince and captain of eminence, yet not distinguished by a marked superiority over others his contemporaries. The following are the incidents of his life which appear to best attest it.

He was a prince of the tribe of Britons called Sutres: according to some accounts, the son of Meirig ap Cadwallon (Owen, Camb. Bith.); according to the common story of Uther, named Pendragon (Dragon'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 of his accession to his paternal inheritance, it is vain to inquire. He appears to have commenced his martial career about the year 500, and was raised to the Pendragonship, according to Owen, in 517; according to Whittaker, in 568. Nennius ascerts that he received a number of great victories from the hands of the Saxons. Of these, eleven have been determined by Mr. Whitaker (Hist. of Manchester, vol. ii. chap. 2), with great acuteness and plausibility, to have been fought in Lancashire, or still farther to the north, at a period anterior to 570 A.D. 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 mere string of corrupt or unknown names, assisted by scattered notices in the ancient chronicles, and by knowledge and popular tradition. All this early history of Arthur is placed in the north, whether he is said to have been sent by Ambrosius, his predecessor in the Pendragonship; but after his death he became Pendragon of all Britain, 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 Llongborth (literally 'the haven of ships') near the Porthe, and won the allegiance of Llywarch 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 Erbin, who fell in it. He mentions elsewhere another battle, in which 'Arthur did not yield to Gwilym, but defeated him, and the most important battle is that of Barlow (placed by Whittaker at Badby in Wiltshire; by Camden and Turner at Bath; by Carte, in Berkshire), the twelfth battle in the list of Nennius, mentioned also by Gildas, Beo, 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 received the title of Pendragon. The date of this depletion is placed. Whittaker, following Matt. West, says, 220, 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, was put down, or the fighting led to the victory of Camlan in Cornwall, in 542. Modred was slain, and Arthur, with his household and retinue, was wounded, was conveyed to a sea vessel of Glastonbury, where he died and was buried. Tradition preserved the memory of the place of his interment within the abbey, as we are told by Gildas that he was interred in the nave of the cathedral. The door of that church 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, Icni sceata regis. In this inscription, as seen by Leland, and copied from an unattested copy by Camden. This story has been elegantly verified by Mr. Watton. A popular traditional belief was long entertained among the Britons that he was not dead, but had concealed his wounds in Fairy-land, and that he would reappear to avenge his countrymen, and reanimate them in the sovereignty of Britain.

The Arthur of romance is a very different person. He is the son of Uther Pendragon by Igrana, wife of Gorlois, Duke of Cornwall, and owed his birth to a magical device, by which Uther assumed the form of the lady's husband. He succeeded to his father when fifteen years old, and immediately proceeded against the Saxons, who had occupied the north of England. He defeated them on the banks of the river Duglas, which, according to Geoffrey, was near York, but Whittaker has placed it in Lancashire. (See his very ingenious map, vol. ii. chap. 1.) He again defeated them under the walls of Lincoln, and compelled them to quit England and abandon their booty, as the price of their safety. Breaking this agreement, they sailed round the island, and landed at Totness in Devonshire. 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 429 men with his good sword Culibrum and his lance Rou. Again he hastened with all speed to Scotland, to relieve Dunbarton (Alctudy), besieged by the Scots and Picts. Having done this, and pursued these barbarians into the fastnesses of Loch Lomond, where he fitted out a fleet and crowned them to sea, he returned to Britain, where he celebrated 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, and then returned to Britain, where he reigned for twelve years in 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 festival at Caerleon in Monmouthshire, where he entertained a multitude of tributary kings, including Uther 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 intelligence of the invasion of the Saxons. He hurried himself with the Saxons, Scots, and Picts. Arthur gained two victories, one on the coast of Kent and one
neighbouring Winchester, and forced Modred to fly into Cornwall, where a third engagement, fatal to both, was fought on the river Caman.

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 differs from the romances of German authorities. Yet Geoffrey professed to draw his account from an Armoric or Breton original. Whether he indulged in these amplifications himself, or whether tradition had already so transformed the story as to make it impossible to say, is not clear, 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, v. i. p. 83, &c.) It is remarkable, however, that these romances were, and are, more popular in the Picts, Scots, and Irish, than of the Saxons; more traces of Arthur's presence in the north than in the south of the island, though the southern districts may be supposed to have been most familiar to the Breton bards. So in the romances founded on those tales, Merlin, Morte Arthur, Lancelot, and others, the scene is more frequently laid in the north than in the south; and York and Carlisle occur more frequently than Caerleon or Caerleon (Winchester). Cornwall, however, is a favourite country in romance, and this may point to an Armoric original. On the other hand, our British authorities, Taliesin, Gildas, Anuerin (Gildas and Anuerin, it seems, were both neighbours of the Llynewr Hen, were all connected with the north of England; yet they are silent as to Arthur's exploits there, and only mention his resistance to the Saxons in the south. This concealment of what had happened, 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 invests Arthur with certain mythological attributes of royalty, which led Mr. Owen to quote, into some very mysterious speculations. The island abounds with memorials of the name of Arthur, whether he be a real or imaginary person: we have Arthur's Seat; Arthur's Round Table; Arthur's Palace; thefamily; the constellation Lyra Arthur's Harp (Telma 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 work of Geoffrey, and the early romances which grew out of his, have been fully treated in Warter's History of English Poetry, vol. i.; Ellis's Specimens of Early English Metrical Romances, and Dunlop's History of Fiction.

ARTHUR, DUKE OF BRETAGNE. [See John.]

ARTHUR'S SEAT. [See Edinburgh.]

ARTICHOKE. [See Cynara.]

ARTICLE, 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 adjectives of language, whether of voice or not, appears to depend upon no very accurate principle; and the distribution of the parts of speech would perhaps not be the less philosophical, if the so called articles were restored to their proper place. The indefinite article an is only a corruption of the adjective one, as our ancestors wrote it, and is a still more violent corruption of the same word. Thus in German ein is at once equivalent to our one and to 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 aeoun (a joint) was invented by the Greeks long before the Romans were to begin, that is, 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 will be found on examination to have a considerable amount of force. The element or object of the in their language, corresponding in power to our word this, was employed perhaps originally to denote a physical object pointed out at the time by some action of the body; secondly to an object mentioned just before; and thus more or less generally to any object known to the hearer; or, lastly, to an object for which the speaker 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, what is equally good, existed in the present, must be (or may be) expressed in the singular number. 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 propositions together and give to the one article from the other, 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 are perhaps more clearly well illustrated by the Latin article whose expression is very expressive of these two articles. In which, in all cases, or nearly so, do perform the duty of connecting two propositions together; and hence we ought not to be surprised that a large proportion of the conjunctions have their origin in the relatives or demonstratives. But the repetition of the defining, demonstrative, or relative particle is no way necessary. Whether we say I gave you that book (pointing to it), or, You asked for a book that (or 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 expression— I gave you the book or that which you asked for— are represented by the pronoun and by the article. It is only a luxury in language (in the same person, language), that we may, according 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 pronoun, to be the same. We know, however, that this, etymology, of his Grammar has so fully satisfied, that it is not necessary to ask him, that he treats of the article under the three heads—1. of the article; 2. of the article as a pronoun (he means a demonstrative pronoun); 3. of the article for the pronoun relative.

The Latin language had but an imperfect definite article in its pronouns hic, ille, it; but besides these we find the relative at times employed where the English idiom at least requires the demonstrative his, and what is called the position of the word (the same thing is also the case with the French qui or the French which). The form is a relative, the and the meaning of ge, 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. See complicate a German agrees with the English when der throw off much of its demonstrative power to play the part of the mere article, a kind of doubleness, deiner, was adopted for the pure demonstrative, on the same principple of formation as der, from de, with the same name in Greek. And lastly, the English philologist will find the same threefold power among the derivatives from the English root the, viz. among the forms this, that, then, (compare the Latin the, the, the, etc.) the form that is still retained, as was before observed, with the power of the relative; but in the older writers, there, then, thence, &c., were freely used where we now only employ where, thence, &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 be, to take. (Discourse of Parley, Taylor's edition, ii. 63.) We need not repeat that it is allied to the German der, for the he is merely the characteristic of a masculine nominal, to the Gothic sa or ha, and through these to the Greek element hsi, a form which actually occurs in the English son, to which 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 all referable to the Latin demonstrative hsi, ili, &c. [See Review.]
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 portions of the body are composed of moveable, or articulated, masses 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 considerable diversity, which it enables them to perform among themselves, they are generally provided with a skin, which is either soft (as in the leech), or horny and crustaceous (as in the crab and crawfish). Certain families are destitute of feet, but two great orders 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 the greater number of pieces which constitute 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 osophagus, or gullet, and continued along the abdomen, unite here and there into knots, or ganglia: in some crustacea it is still more simple, consisting merely of two knots, one placed at the head, and another at 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 antennæ (in the Articulata) may be considered as representing it. The arrangement of these organs is variable; some being composed of 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 above two or three, but always lateral; and frequently there exist several of these jaws. When an addition is made to the anterior of which are termed mandibles.

The respiration is effected either by branchial, as in those which habitually live in water, such as the crustacea, or by tracheæ, t. e. by tubes. Some of these 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 openings termed stigmata. More rarely, there exist cellular cavities analogous to lungs.

The organs of the circulation vary very much. Sometimes there is a distinct heart, whence proceed blood-vessels, which ramify in the different parts of the body. (See the Histoire naturelle des Crustacés, by MM. Audouin et Edwards, quarto, Paris, 1827; also, Annales des Sciences Naturelles, 1827.) In other instances there is no distinct heart, and the vessels are adapted for the circulation of the blood only, as in the sipunculæ and annelides, which are not yet well ascertained; this is more particularly the case in those articulated animals which require 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 the orders and necessary details, under the heads ANNELIDA, CRUSTACEA, and INSECTA.

ARTICULATION, the term by which anatomists express the connexion 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 connexion is established, namely, a firm and strong membranous tissue termed ligament [see LIGAMENT], which may be considered as the hand by which the bones are tied together, and a peculiar substance termed cartilage (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 mechanism 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 intelligent surgeon more careful study. The manifold and serious changes which we may observe as the various modifications of dislocation and fracture, afford him an opportunity of exemplifying the inestimable value of his art, in the sure and speedy reappearance of such injuries by his skill, and in the happy and beneficial effect, and sometimes the calamity, which results in contrast with the suffering and deformity which result from neglect or from want of skill.

The objects to be obtained in the economy by the union of the several parts of the body are generally two; to replace a lost member or limb, and to provide, in the case of almost any animal, 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, namely, those which form moveable, membranous, and bone joints.

1. One joint 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 of the spinal cord; and the abdomen, which enclose 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 of no movement, or, when they proceed with a certain degree of it, the union being effected somewhat by the apposition of the surfaces of strong and flat bones; at other times by the formation of numerous prominences and depressions which mutually receive each other; examples of both these 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 bones, the surface of one bone being roughened to correspond to that of the other; by this mechanism the bones become firmly united, and deflexion in extent of contact is compensated for by what may be truly called (and it is an admirable example) dovetailing; the teeth go to the mode of union, and the bones of the cranian 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 into a groove in another. The bony part of the septum which divides the nostril 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 movement is of less importance than the previous. In some cases the bones are in contact, but not continuous with each other; such, for example, is the union of the arm with the shoulder, the fore-arm with the arm, and the wrist with the hand, the lower jaw with the upper jaw. In some other 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 tissue, but partly also by the bone-pressing 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.

The strength of the joint and the movement 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, depend on very different circumstances, and 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 to which it is applied united, such as the spine (carilage), and the movable in admitting some degree of motion between the surfaces. The articulations between the several bones that form the spinal column afford examples of this mode of union. There are numerous modifications of these several kinds of articulation, which
are described with great minuteness in anatomical books, and most of which are distinguished by specific names.

ARTILLERY. [See Voice.]

ARTILLERY, a word believed to be of French origin. The first introduction of fire-arms is ascribed to the old war machine, called the balista, from the old war machine, to fortify. 

Vossius (De Vitae Sermonibus, lib. iii. cap. 1) says the ancient word, instead of Artilleria, was Arcula, from arcus, a bow; the earliest military engines of this description having arisen of necessity upon the bow. The bow was the natural weapon of the sea-fights, and its most general significance, implies 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, &c., to the action of which new machinery is now to be added; and includes their ammunition and propellants.

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 first engines were, in all probability, those for casting stones of prodigious weight. Of Uxinn (A.D. 1000), in 2 Chron. x. xvi. 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 names Ballista, or Balista, and Catapulta imply a Greek word. 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 Dio-Demosthenes, in his Hist. vii. 40, Oxf. i. 353) says they were contrived in Sicily, about the same time with the battering-ram, alluding to a period not more than 300 B.C. Albinus (Far. Hist. vi. 15) ascribes the invention to the Phoenicians, or to the Elders themselves 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, Senece, 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 Pontifici, & c.) Ammianus and Vegetius are both particular in describing the construction of the balista. Vegetius, who lived in the fourth century, under Valentinian, speaks of balistae, onagri, scorpiones, arcubalista, fistubilli, and fundus, as engines of artillery (lib. iv. c. 29).

We have no notice that machines of this description were known in England previous to the arrival of the Normans. According to the testimony of William of Poictou, machines of wood (exclusive of the cross-bow) were used for purpose of arrows or catapults; and so early as when the Normans first entered the country.

It is worthy of notice, that among the new machines to captivise the Domed Sunday Survey, balistae were common and the heaviest engines. But the writer, however, in the Norman period, was least frequently used in sea-fights, when with new machines, 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 I.'s wars against the Saracens, says, that in his barges and galleys he had mills, which were turned by the wind, and by force of the sails; the stone was not only fire, but stones which were taken from the Rhine.

In the practice of war, it is not 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 signs of great importance occurred without the invention of some new engine. Grose, in the prose to his Antiquities of Scotland, has given the number of a considerable number. Some of these were distinguished by the apppellations balista, catapult, espingral, trebuchet, mangon, mangon, brolla, petra, mafatsudara, bery, and the name of the latter is known in the balista ar-avre, 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 1302, are said, according to Hemingford, to throw stones of 300 pounds weight.

This ancient 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 Ville de France, tom. i. p. 319.)

Greek fire continued also to be employed in war long after the introduction of fire-arms; and, for alliances and defence of strong places as at Ypres and Burgibus in France, in 1383. (Walsingh. edit. 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 De Metallis Commentariis, says, that the Balista, which he calls 'crakys of war' were used by Edward III., in his first campaign against the Scots, A.D. 1337. Du Cange, in the article Bombarda, shows that the French used gunpowder at the Siege of Puy in 1380, and Edward III. used them at the battle of Crewe, as well as at the siege of Calais in 1346, seems agreed. Four pieces planted on a little hill at the battle of Crewe did great execution among the French troops, and having been before unknown to them, was the slaughter of the success of the day. (See Rapin, vol. i. p. 425. By degrees, the use of cannon became more and more common. Petroch, in his Dialogues on the Remedies of Good and Bad Fortune, written in Italian, and now translated into English, as no longer rare, or as viewed with astonishment and admiration.

Cannon, or, as they were then called, bombards, were the most antient of arms. The first cannon were clumsy and ill-contrived, wider at the mouth, 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 is said to have invented gunpowder, and had, besides 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 these were too long to be carried in the horse, in which respect to England, A.D. 1370. 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 Norwic by Richard II., A.D. 1370, to buy two great cannon in London, or in any other place, and also to buy certain quantities of saltpetre, sulphur, and charcoal, for making gunpowder. (Ryn. 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 on 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. (Pére Daniel, tom. i. lib. 6. p. 321.) The 400 cannon, or the observation of the battle of Poictiers by Froissart, says, that in the battle of St. Malo, A.D. 1378, mentioned by Frouard (Lord Berners's Transl. chap. cccxxii.), must have been of this kind: though Dr. Henry conjectures that these hand-cannon were first brought into Britain by the Flemings when they were banished from France, in his return to England, A.D. 1371. The Scots, he adds, had a kind of artillery at this period peculiar to themselves, called cartes of war. They are thus described in an act of parliament, A.D. 1456. "It is tboct speidfullf, that the king may require, in certain of the great barrons of the land that are of any myght, to make carts of weir, and in ilk cart two gunns, and ilk ane to have two chaillers, with the remanent of the graith, that effers thereto, and an currant man to manage thame."

A.D. 1471, the proles and barons 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 instance 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 names of these machines (besides those mentioned in the art of war) are called engine-a-virge, 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.

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A French translation of Quintus Curtius by Vasques de Lucene, a Portuguese, written in 1468, preserved in the
British Museum, and which formerly belonged to Philip de Cuyis, 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.

Monstrelet illustrates the clumsy form as well as the clumsy management of antient 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, girded 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 into the fields in front of the bastile of St. Anthony. It was pointed towards Carenton, and when first fired threw the ball as far as the galloons on the bridge of Carenton; 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 Maugué, 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 Maugué 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

aimed 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 Maugué 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 Maugué, who had lost his life in the king's service.' (Johnnes's Monstrelet, 4to, vol. iv. p. 402-403.) In 1477, when Louis XI. made his attack upon different towns of Flanders and Picardy, he ordered embarks of prodigious length and weight to be cast at Paris, Tours, Orleans and Amiens. His iron bullets were cast at thefounderies at Creil, and his stone bullets made at the same time in the quarries near to Perno.

From one or two of the preceding passages, it will be observed that the antient method of constructing cannon had been changed about the middle of the fifteenth century for that of casting. Père Daniel (Hist. de Milites France, t. 459) tells us, 'that about the close of that period, hard and mixed metal was invented for this purpose, called font-metal, or bronze. Cannon, it should seem, were now cast in one solid piece. It is probably this same metal that Swayne alludes to in a passage of his Annals. 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 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 1544, and presented by the States of Holland to Queen Elizabeth, was Queen into 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 Lesly's time, had this inscription: 'Machina sum Scoto Borthwiku fabricata Roberto.'

The largest cast cannon now existing is a brass one at Bejaipoor, called Malick e Meidan, 'the lord of the plain;' it was cast in commemoration of the capture of that place by the Emperor Alum Geer, in 1585. Its extreme length is 14 feet 1 inch; the diameter of its bore 2 feet 4 inches. An iron shot for this gun of proper size would weigh 1600 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, warring with France, made great preparation and provision, as well of munitions and artillery, as also of brass ordnances, amongst which, at that time, by one Peter Bawd, a Frenchman born, a gun-founder, or maker of great ordnance, and one other alien, called Peter Van Colen, a gunsmith, both the king's feed men, who conferring together, devised and caused to be made certain mortar-pieces, being at the mouth from eleven inches to seventeen inches wide; for the use whereof the said Peter and Peter caused to be 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 fire kindled, and the fire, for to burst in small pieces the same hollow shot, whereof the smallest piece burning any man would kill or spoil him. And after the king's return from Boulogne, the said Peter Bawd by himself, in the first of Edward the Sixth, did also make certain ordnance of cast iron, divers sorts and forms, as sawconet, sawconia, minons, sakers, and other pieces. Unto this Bawd, John Johnson, his covenant servant, surviving his master, did likewise make and cast iron ordnance cleaner and better perfect, and to the set and use of 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, denny cannons, weighing 6000, or three ton the piece.' (Annals, ed. 1631, p. 158.)

It appears from Sir William Monson's Naval Tracts, that the Falcon was a species of ordnance of two inches and a
ART

half bore; weight of shot two pounds; that the *Demis-Culberras* was another kind, of four inches bore; weight of the shot nine pounds and a half; and that the *Myonos* was another of three inches and a half bore; weight of the shot four pounds. This was a species of ordinance of five inches and a half bore; weight of the shot seventeen pounds and a half. The *Fowler* is not described by Monson, but is mentioned by Lodge in his *Illustrations of British History*, vol. i. p. 272. It is said by Fabricius to have been brought from the Cape by Captain Mynion, an officer of the South Sea islanders, and was a piece of ordinance 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 1580, at the siege of Cahors in January. (Du Thou, tom. viii. p. 376.) Montelirar and Emburro in Dauphiné were taken by *Léonides* in 1585, principally by means of *Petards*. (Lodger, *Art de Vérifier les Dates*, tom. i. p. 655.)

**ARTOCARUS** (or the Bread-fruit Tribe), a natural order of plants, nearly related to *Urticea* (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 *Urticea*. This opinion has been adopted by Dr. Lindley in his *Nizus Plantarum*.

**ARTOCARPUS**, or the Bread-fruit, is a genus which includes many of the tropics. Their milk, which is always acid, renders some of them intensely poisonous, as the Upas tree of Java, and certain species of *Artocarpeis* tree stamens; but if the plant is cut very much away from any particular part of an *Artocarpeis* plant, that part becomes ediable and even wholesome. Thus the fruit of the cultivated fig, up to a short period before its maturity, remains ediable, and is exceedingly wholesome, but when ripe the milk disappears, is replaced by sugar, and the fruit becomes, as we all know, extremely wholesome. The same explanation is probably applicable to the case of the bread-fruit, which forms an article of food with the South Sea islanders.

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 existence of natural relations of plants 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 discover more than an occasional difference in the form of the leaf, or 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; that is, it is impossible 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 *Urtica*, of which the common nettle is one, are trees also; consequently, in an extended sense, the nettle and 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 red-hot balls, so called, 25 pounds in weight, six to ten pounds, and the broad heads of the spot, nature, but the degree of 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 within a flesh receptacle, which is so much contracted to a point as to form a hollow case. These are 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 (*Urtica pilifera*) they are collected into round heads; a loose arrangement of the flowers is, consequently, not a character of even the nettle itself. In the fig, flowers are thus disposed within the receptacle, but not in the same manner; the flowers of the nectte, 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, and (in a certain sense) of the genus *Artocarpeis*; and (in a certain sense) also fleshly, but so much extended horizontally as to form a sort of sacuer, 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 *Dorstenia* were only curved inwards till they met, their *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 *Artocarpeis* and that of the *Dorstenia*; in both it consists of a species of little 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 calyx.

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 argument touching the difference in size, because we have seen, that if we have the objection, which we have thought it worth answering, is a popular one, which it appears desirable to set at rest and in a popular work.

**ARTOCARPUS**, or the Bread-fruit, is a 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 disposed in long heads, or at least in loose spikes (*fig. A*), and the pistil-bearing ones in round heads.
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 outside, 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 pistill-bearing flowers (fig. D), consist of two or three fleshy sepals grown closely together and meeting at the points, between which pass 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 Champscha and hirsuta, 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.

The Bread-fruit (Artocarpus incisa) is a native of the South Sea islands, and of many parts of the Indian Archipelago; it inhabits only such places as are both hot and damp; Dr. Roxburgh complains that the seinters of Bengal are much too cold for it. It there forms a moderate sized tree, rarely exceeding forty feet in height, with leaves deeply divided into sharp lobes, and sometimes as much as three feet long. The fruit is green and of considerable size, equaling a melon of the larger kind in dimensions, and is of many different forms: one variety produces it free from a receptacle on the surface or from seeds internally; this is the best sort: others are split into deep lobes, or covered all over with the sharp-pointed fleshy tops of the calyces. The nuts, when roasted, are said to be as excellent as the best chestnuts, but it is principally for the fleshy receptacle that it is valued. When roasted it becomes soft, tender, and white, resembling the crumb of a loaf; but it must be eaten new, or it becomes hard and choking. Others compare the flavour to that of a roasted potato; it is said to have curds, and in that degree, 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, not unlike apple-sauce.

It forms so important a part of the commerce 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 integrifolius) is also a native of the islands of the Indian Archipelago, and is in its general appearance like the Bread-fruit, but Bread-fruit is 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.

ARTOIS, 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 Hainault and by Cambresis, and on all other sides by Picardy. Former authorities give its length as twenty-five leagues, or six to 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 Seine (two tributaries of the Schelde), 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. Wool 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. Methodique, Paris, 1782, was 306,000. That of the department of Pas de Calais, which comprehends Artois and a small part of Picardy, was, in 1826, 643,300.

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 AIR, ARBES, BETHUNE, OMER, ST. PAS DE CALAIS, and POL, St. Artois takes its name from the people who formerly inhabited it, the Atrebates (from whose designation, also, the capital was called Arрас); 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 Atrebates, applied to the city Arras, was corrupted into Adertes or Adratas, and the province seems to have got the name of Pagus Advertiis. 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 Hainault in 1180. In 1230 it was made a county by Louis IX. (St. Louis), in favour of his brother Robert. After coming to the house of Burgundy, 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 1659, when it was yielded by Spain (for it had gone with the Spanish branch of that race) to France, with which it has been united ever since. The ex-Kings of France, Charles X. and Louis-Philip, are known in the early part of his life by the title of Count d'Artois. (Ency. Methode; Diction. de Martinier, &c.)

Previous to the revolution, Artois appears to have enjoyed several privileges and immunities. It had its council to manage the internal affairs, consisting of nine assize men, four stiputant bodies, the clergy, the nobility, and the commons.

[Artocarpus integrifolius.]

A, a shoot very much less than the natural size with stamen-bearing flowers; B, pistil-bearing flowers; C, the same opened; D, three pistil-bearing flowers, strem open at the bottom to show the ovary; E, a portion of the fruit showing the nuts in the inside.
This council seems to have regulated the levying of the taxes which were imposed by the king, and to have granted exemptions in cases where the pressure was very heavy.

ARTOTYRITES. [See HARRIATSC.]

ARTS, DEGREES IN.

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 existence and plan of Christianity; 2. The Literae Humaniores, under which head is comprised a sufficient acquaintance with the Greek and Latin languages and ancient history—with rhetoric and poetry—with moral and political science, the Greek and Latin historians, and; 3. The mathematics and the arts of music. This examination is undergone by those students who have been matriculated not less than six, and not more than nine terms: it is a kind of preliminary examination on which, in the opinion of some persons, would be more appropriate if enforced at the time of the student’s admission into the university.

In Cambridge, those who proceed to the degree of B.A. also undergo a previous examination (known in ordinary terms as the Tripos Examination), which is conducted in the spring of their undergraduate course, 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 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 Honors is conducted according to regulations confirmed by a grace of the senate, April 6th, 1832, and which were brought 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 being each day 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 do not require the principles 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 third and fourth days to the examination of 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 the senate house on the morning of 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 occupy the principal and under-grades, 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. The Masters of arts is the name of 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, it is black lined 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 the dresses may be seen in Ackermann’s Hist. of the Univ. of Oxford, 4to. Lond. 1814, vol. ii. p. 26; Hist. of Camb. 4to. 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. VIII. X. XII. XV.; on that of Dublin, Nos. XI. XIII. and on the Calendar of the University, especially the Schedule of Moderators, and also the Oxford, Cambridge, and Dublin Calendars.

ARTS, FINE. The fine arts are generally understood to comprehend those productions of human genius and taste, which are more or less addressed to the sentiment of beauty. They were first employed in embellishing objects of mere utility, but their highest office is to meet our impressions of beauty or sublimity, however improbable, by an 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 no longer unsatisfied; but there exists no state of society, 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 a right.

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 fine arts partake of these various qualities. Some are relatively free, others are involved in the bonds of the social order, and are directly related to the social order. The fine arts are therefore true to its developing causes whatever they may be, and nurture in the first instance by the soil from which it springs. In barbarous or degenerate nations, the sentiment of the beautiful has evicted sensations arising from the nature of the soil, 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 obscurity 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 proportions, is naturally one of 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; but it will at once be seen that this idea of use and beauty is in itself insufficient for the clear meaning of the term as applicable to the productions of human ingenuity. A positive use results, indirectly from the cultivation of the formative arts, precisely in proportion as their highest powers are developed to control and subdue at all times when the grandest 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 stricter sense, but this is not the application which best displays their nature and value, and which we can render to them. In their true function, they are potent utilities, in their function, as arts, in their function as beauty, in their function as sensibility, they are potent utilities, in the truest and least conventional sense of that term.

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, so the auxiliary which constitutes taste, and which we call the imagination, the auxiliary of beauty, is, in its highest influence, less allied to love than adoration. It is this last feeling which the noblest efforts of the arts aspire to kindle, which not only elevates the beautiful to the sublime, but makes it the terror 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.

In the arts of art, and in the classification of the arts, those are generally considered the most worthy in which the mental labour employed and the mental pleasure produced are the greatest, and in which the manual labour, or labour of workmanship, is least apparent. The fine arts, even in this least apparent effect, will 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 graceful and noble impression may be excited from mere natural, 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 thus regains its dignity. It would be an invincible 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 arts is a hazardous enterprise, and that the true and productive effect is most observable in the attempts to combine the principles of painting and sculpture. The drama itself, which unites poetry with many characteristics of the formative arts, and with a moral and poetical dignity, is the union of the principles 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.]

ARUM. [See Aroideae.] ARUNDEL. A borough and Cin. in the rape of Arundel, in the county of Sussex, on the river Arun, a short distance from the sea; 55 miles S.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 the town, and bears the name of the Thames. There is, however, a good deal of bark shired, as well as much timber for the use of the dockyards. The custom-house being at Arundel keeps up the business of the town, which is a port of London, and is an important port of the Thames. There is, however, a good deal of bark shired, as well as much timber for the use of the dockyards. The custom-house being at Arundel keeps up the business of the town, which is a port of London, and is an important port of the Thames. There is, however, a good deal of bark shired, as well as much timber for the use of the dockyards. The custom-house being at Arundel keeps up the business of the town, which is a port of London, and is an important port of the Thames.
in the reign of Edward I., and repaired and restored by one of his successors. This, with some of the walls and the knaves that remain in the immitation of the ancient building, is 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 15 feet by 9 feet in extent. The keep has been long tenanted by some owls of 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 volumes; and the nave of the ancient Saxon 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., of the great hall, called the 'Barons' Hall,' was begun in 1596; it is 70 feet or 34 feet high. The roof is of Spanish chestnut, curiously wrought, and the plan is taken from Westminster, Elytham, and Crosby Hall. 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 also 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 basse relief.

The park is very extensive and finely wooded, including a great variety of picturesque scenery. In the Museum Rusticum, i.e., a room, are innumerable, that round Arundel was covered with vineyards, from which wine was made; and that, in 1761, there was an excellent large vine, resembling Burgundy, in the castle, the produce of one vineyard attached to it.

The town was incorporated by Queen Elizabeth, and the corporation consists of six bailiffs, six mayorburgesses, a steward, and other 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 parliament since 1290. The area of the borough is 16,956 acres. The membership 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 having considerable purchases in the town, acquired 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, though the town is now a city; but the boundaries of the county parishes were altered. In their report, to add the parishes of Leominster and Little Hampton, which would swell the population to 5039 persons. The proposal of the commissioners met, however, with a remonstrance on the part of the inhabitants, who were 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 shoals in quest of a particular weed), the feeding on which renders them a great delicacy; and also for eels.

* The rape is a division between a county and a hundred, containing certain number of parishes. Hence, the term rape peculiar to Sussex. Its etymology is uncertain.

ARUNDEL MARBLES: certain pieces of sculpture, carving, bas-reliefs, busts, medals, multigated figures, altars, inscriptions, &c., the remainder 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 Ox- ford, by Mr. Henry Howard (afterwards Duke of Norfolk), the Earl of Arundel's grandson.

The gentleman was the founder of this collection, the only son of Philip, first Earl of Arundel of his family, by Anne, sister and co-heir of Thomas, the last Lord Dacre of Gilsland. The year of his birth is fixed by Sir Edward Walker, in his Historical Discourses, to 1572. He received his education 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 Maltravers, a hereditary title derived from his grandfather, the Fitzalans.

In 1603, 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 Surrey, and to most of the baronies which had been forfeited by the attainder of his father. He was appointed governor of the Duke of Norfolk. The dukedom itself was detained from him. Lodge conjectures that the Earl of Suffolk, 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 1667 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 family circumstances had hitherto prevented; and during his stay in Italy he procured for himself a stone table for the fine arts by which he was afterwards distinguished.

He remained abroad till 1669, and on his return was made K.G. The marriage of the Princess Elizabeth to the Duke of York after his accession to the throne was arranged 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, and the House of Lords took up his cause, the king's intention to marry this lady to Lord Lorne, the son of the Earl of Argyll, 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 June 8, 1669.

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 1631 he was appointed a commissioner for carrying into effect the extraordinary passages, which had been made between the king and the House of Lords. In 1632 he 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 mayor of the city of Nantes, north of Trent. 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 resumption of the public service of the Spanish king; a measure which the king had so entirely at heart, that he could not have given a stronger proof of his confidence in the elder's wisdom and fidelity, than by intrusting it to his management. The mission, however, proved unsuccessfull, and the ambassador, having returned to Germany, during which he expended not less than 40,000l. from his own private fortune in augmenting his already

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splendid library and cabinet, returned to London, and was received by the king with peculiar marks of favour. A Journal, or Relation, as it was called, of the occurrences which took place during this succeeding year by William Crowne, gent., a book now of extreme rarity; a copy is preserved in the Royal Library at the British Museum.

In 1637 the Earl of Arundel was appointed commander-in-ordinary of the forces raised for the reduction of those who opposed the liturgy and hierarchy in Scotland, and afterwards first commissioner for a new treaty. He was soon after appointed steward of the royal household; and in 1640 nominated governor and chief of the Tower. The following year, however, which marked the meeting of the Long Parliament gave a sudden turn to all public affairs, and prevented the effect of both his civil and military commissions. One of its first measures was the impeachment of Arundel, on whose trial Arundel presided as Lord High Steward, with a judgment and impartiality which was admired by all parties. It fell also to his lot to be deputed to give the royal assent to those two fatal bills which cost Charles his crown and his life, and deluged the country in blood; the bill of attainder against Strafford, and that by which it was enacted that the parliament should not be dissolved but by its own consent.

Sir Edward Walker, a merchant, exclusive of a petition, supported by another from several peers of great influence, beseeching the king to restore him to the dukedom; but Charles, for some unknown reasons, would favour him no further than by the grant of a patent creating him Earl of Norfolk. Disturbed by the stormy and formidable storm which was then gathering, he determined to quit his country, and the king favoured his design by appointing him to escort the queen mother, Mary de Medici, queen dowager of France, and there her sorrowful days in security. The family accompanied him, and he returned alone early in the following winter, and remained in England till February, when the king gave him another opportunity of leaving it, by deputing him to attend to Holland Henrietta Maria, and her daughter, the Princess Mary, who was in the preceding summer to William, Prince of Orange. He returned no more. After a short stay in the United Provinces, he went to Antwerp; and from thence, leaving there his counsellor, whom he never met again, to Spa. He wandered slowly over most parts of Italy, and at last settled at Padua, where he died October the 4th, 1646. His body was brought to England, and buried at Arundel.

The Earl of Arundel's character has been drawn at considerable length by two writers, one of whom was a man of eminence, the Earl of Clarendon and Sir Edward Walker. Both agree that he wished to be thought a scholar, but that he was more learned in men and manners than in books. Court expenses were without any measure, and always exceeded his revenue.

Sir Edward Walker remarks, 'He was the greatest faviour of arts, especially painting, sculpture, designs, carving, building, and the like, that this age hath produced; his collections of designs being more than of any person living, and his statues equal in number, value, and antiquity, to those in the houses of most princes; to gain which he had persons many years employed both in Italy, Greece, and so generally in any part of Europe where rarities were to be had. His paintings, likewise, were numerous, and of the most excellent masters, having more of that exquisite painter, Hans Holbein, than are in the world besides; and he has determined, that when the Earl of Arundel shall have a value on them in our nation; and so, the first person that brought in uniformity in building, and was chief commissioner to see it performed in London, which, since that time, has added exceedingly to the beauty of that city.'

When Lord Arundel died, he divided his personal estate between his eldest and second surviving sons, Henry Frederick Lord Maltavers, and William, afterwards Viscount Stafford. Henry, second son of the former and sixth Duke of Norfolk, also succeeded to his father's possession; and it was much influenced by the previous recommendations of Seiden as well as Evelyn, gave a part of his moiety (the inscribed marbles) to the University of Oxford; the remainder descended 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 William Brooke, and was disposed of by Mr. Theobald, in a communication to the Society of Antiquaries, made in 1758, says that many of the broken statues, which were thought not worth repairing, were begged by one Boyden Cuper, who had been a servant in the family, and removed by him to decorate a piece of garden ground which he had taken opposite Somerset Water-gate, in the parish of Lambeth; a place of resort for citizens and others in holy-day-time, and long afterwards known by the name of
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, Buckinghamshire, consisting, however, of the tenderest and the other to Fawley Court. Very few smaller fragments, and some broken fragments were given to a M. 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 of two oaks that was subsequently given to the Earl of Farnington, and was called 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 retaining, the broken fragments. The Greek inscription in the collection, 'Ad Chandleri exemplar eorum,' was published at Oxford in 1719, 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 places at the head of its collection is the Greek inscription known by the name of the PARIAN CHRONICLE, so called from the supposed of its having been made in the isle of Paros about n.c. 263. Another is that of a group of frieze between Smyrna and Magnesia, for the protection of Seleucus Callinicus, engraved on a pillar in the temple of Venus Stratonicea, at Smyrna, about n.c. 244.

Among the more important marbles of the Pomfret donation are the careful torso (for that portion only is antique) of a Minerva galatea, restored as a statue by Guelf; a Venus Vestita, or Leda; Terpsichore; a young Hercules; an Athlete, which has been called Antinous; a female statue, restored, of early Greek work; and three statues of senators, one of which is usually considered as Cicero. This last is etched by Woolridge.

Some of the statues in this collection, which have been restored, as far as the ancient original pieces go, have no positive attributes of the characters of gods, heroes, etc., which Guelf, who restored them, made them represent. (See Dugdale's Baronage, tom. ii. p. 327; Lodge's Portraits of Illustrious Personages; Selden's Marmor Arundelliana, and the Marmora Oconomica of Prideaux, Maittaire, and Dr. Chandler; Gassendi's Life of Pomfret; Gough's British Topography, vol. ii. p. 127; Lord Oxford's Anecd. of Painting, edit. 1756, vol. ii. p. 124; and Dallaway's Anecd. of the Arts 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 genera, it is now confined to a single species of Phragmites, and the species most nearly agreeing with it. These are a group 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 characters:—Spikeslets minute; in an erect raceme, which are distant from each other, arranged in two ranks, hermaphrodite, the uppermost being withered; glumos two, sharp-pointed, channelled, and keeled, nearly equal, membranous, as long as the flowers, and at some distance from each other; palea two, membranous; the lowestmost at the end, with a very short beard between the sides of the silt, covered externally, especially at the lower end and rachis, with very long silky hairs. Arundo Donax, native of the south of Europe, the Causus, 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 sword. 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 south coast of England, and which thus converts them into living barriers against the inroads of the ocean, differs a little from the exact character of the genus Arundina, and is called by modern botanists Ammophila arenariae. It is a very rigid plant, with a very thick stem, two to three feet high, terminated by a dense tuft of flowers.
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 780 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, and is litigated in all directions by offsets of the greater 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 one mile, and consequently, and 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 flavoured 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, etc. The whole population, excepting about 100 Jews, is of Bohemian-Slavonic, or Slowachian extraction. The capital of the district, Alsó-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 17° 10' 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 Chamonix; 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 alteration 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 coldness 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 2° of Reaumur, or 4° of Fahrenheit), an 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, causing 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 Nishni, Novgorod, lies at the confluence of the Arsha and Tsha, seventy-two miles south of N. Novgorod, the principal town. 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, industrious and thriving race of men, and independently of manufacturing large quantities of soap, Russia leather, and silver and iron wares, are extensively concerned in weaving and dyeing the krashenina, or blue cloth, which is so great a favourite with the Russians. They likewise export linen, sailcloth, and other domestic products to Moscow and St. Petersburg; and the crown has a large manufactury of potashess in the town. It contains between 1400 and 1500 houses, and is 9 ft. 9 in. lat. and 49° 19' long. The town is connected with the small town of Veshna, by means of a bridge across the Tsha, and their united population amounts to between 7000 and 8000.

AS, among the ancient Romans, was a weight, consisting of twelve unciae or ounces; it was also called libra, libella, and pondo; or the pound. Pitiscus (Lexicon Antiq. Rom.) gives its etymology from the Greek áικ, used in the Doric dialect for áx, signifying an integer or whole, one entire thing; but we can find no authority for this word áx. Others, as we learn from Budeus (De Aes et partibus ejus, lib. v. svo. Lugd. 1551. p. 146), have more correctly considered As to be equivalent to Es, a piece of copper or brass. (Varro L. v. 36. Spengel.)

As, Asia, or Assyria (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 Es grave.

[This As weighs 367½ grains.]
The figures on this coin will explain the expression used by the Roman boys in tossing up—capita aut navim, 'heads or ship.' (Macrobi. 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 Ass fell in weight, the smaller divisions were not cast, but struck.

According to Pliny, the As 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 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 diminutions 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, and it is agreed that none of the pieces which are known 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 502, or B.C. 250, supposing Pliny to be correct, would be the time of the reduction of the As to two ounces. Pliny adds, that in the second Punic war, when Q. Fabius was dictator, and the Romans were pressed by Hannibal, the As was again 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. Max 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 Pichius (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 As, 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 the time of their weight:—The As 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; As libralis, with Janus and prow, 400; the As of ten ounces, 350; the, 280; six, 240; four, 270; three, 240; two, according to Pliny, 250; 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 As libralis with the head of Janus is the most common form now found of the As, 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 As 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 As.

There were other divisions of the As by weight, which by its proper to enumerate concisely. Those were the deunx of eleven ounces, the dextans of ten, the dodrans of nine, the bus of eight, the septunx of seven, the sesuncia 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; 5 + 3 = 5; so that these nominal sums were made up of the real coins by adding them.*

The Semis, Semissis, or Semi-As, half the As, or six uncies, was of various types, but always marked with an S. The one here engraved represents a female head on one side, with a strigil 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 Akerman (Descr. Cat. of Roman Coins, vol. i. pp. 6, 7) have enumerated many different varieties. See also Rasche (Lexicon Rei Num. v. Semissis).

The Quincaur, the division of five ounces or portions of the As, is of very rare occurrence. All the other portions of the As have been copied for the present work from original coins in the British Museum; but the Quincaur, it is believed, exists in no cabinet at present in this country. Our present illustration of it is taken from a work entitled De Nummis aliquot eratius uncialibus Epistola, by the Cardinal de Velzola, 4to. Rom. 1778, a volume

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* Homann (Ars Post. L 257) says, the Roman youth learn to divide the As into a hundred parts.

Romani psect linge rassionibus Asseos dividere in partes centum differunt.

Possibly this passage has a reference to a centesimal division of the As, then in use.
The Quincunx 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 engrave may not be a genuine Roman Quincunx; other cities in Italy and Magna Grecia 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 Velitum, Tudernia, Luceria, Populonia, Panormus, Peastum, &c.

The Triens was the third of the As, or piece of four unci. The type here engraved bears a dolphin on one side with the stigil 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 Mionnet (ut supr. pp. 7, 8) and Akerman (pp. 10, 11). Eckhel says, the head of Pallas was very frequent upon the Trientes (Doctr. Vet. Num. tom. v. p. 15). Pliny says (xxxii. 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 unci. 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 stigil occur on both sides.

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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

[Weight 79 grains.]
bears on one side a caduceus and strigil, on the other a cockle shell. The value is denoted on each side by two globules. On some Sextants the value is designated on one side only.
The Uncia, twelfth of the As, or piece of one ounce, is marked by a single globe. The type we have selected

[Weight 108 grains.]
bears on one side an ear of barley, and on the other a frog. For the varieties of type, compare Mionnet (p. 13); Akerman (p. 17). Eckhel describes one with the head of Pallas on one side, and the other the prow of a ship: a globe, by the side of each.
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 Tresidius III. The Quadrans IV. There were even Decusses, or pieces of ten Asses, in copper, marked X. Olivieri mentions one in 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 Britsocum is a Decussis of forty Roman ounces, cast when the As was four ounces. The Denarius, Quinarius, and Sesterctius were silver coins. According to Pliny, when the As was reduced to one uncia in the second Punic war, the Denarius, which was originally equivalent to 10, the Quinarius to 5, and the Sesterctius 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 Cornus on Persius: that annotator lived in the reign of Domitian. The word As was also used in accounts for the whole of any heritage, &c., to late times. *Hercules ex asa* was the phrase used by the juriscoulents for an heir to a whole estate. (Fitisel, Lex. v. As.) It is thus used by Martial (vi. 62), 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.

**ASA or TAEKIA**, 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, rather 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. Assam is a valley of great extent, stretching from the meridian of 90° 30' E.

that of 90° 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 25° 18' N. lat., and on the south to the parallel of 23° 30' N. lat. On 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 lies in the direction from N. W. to S. E., or from Dikhit to E. S. E., but in other places, as at 25° N. lat. 98° 30' E. long., a change takes place. At this point of change near Tassasud, the capital of Bhootan, stands the Chamali, one of the highest pinacles of the Himalaya-range, which, being visible from a distance of 180 miles, must attain a height of at least 25,000 to 26,000 feet above the level of the sea. From the Chamali, the range extends nearly due east for about 3° of long., but near the meridian of 90° 9' it begins to the west to decline a little to the north and continues up to the source of the Brahmapootra, where one of its pinacles is called Thathuthaya. 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, between the meridians of 92° 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-region which contains the sources of the great 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 97° and 98° E. long., must 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 26,000 feet; they bound the valley of Assam 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 to the Alps of Switzerland. Further to the south-west, where it takes the name of Patoki mountains, it seems to be much lower and more accessible; and to the west of the Patoki are the Naga mountains, still lower than the former, and extending to about 95° 30', where they are succeeded by the Garroak hills, which rarely rise to more than 6000 feet, and terminate the valley of Assam on the west, opposite the mountain-ranges which surround the southern declivity of the Chamali. Between these ridges and the Garroak hills lies the wide opening by which the valley of Assam is connected with the plains extending along the Ganges.
Assam, with the bordering districts, including all the tribes from 99° to 90° 30' E. long., comprises 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 24,000 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 offsets of the Himalaya mountains, which are inhabited by independent nations, subject to the Delhi Raja, or sovereign of Bhootan; 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 west side of the Brahmapootra, between 90° 30' and 98° E. long., with an average breadth of from forty to sixty miles, forms what may be properly called the kingdom of Assam, which boundaries may comprehend an area of about 6,000 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 99° and 90° 30' 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 sacred pool called the Brahmapootra, and afterwards leaves the mountain-ranges and the plains of Assam, 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
about 30° and 31° north latitude. 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 by
rejoining, encloses a large island called "Brahmaputra", which,
westwards of twenty miles in length, with an average breadth
of from four to five. After its branches have re-united, the
river, running N. by W. for upwards of eighty miles, divides
into two branches again, where its branches enclose 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 termi-
nates at no great distance to the east of Gowahat (Gowharti,
or Goyharti). From near this point the Dihong and the Lohit
Having entered Bengal at Goyalpara, it bears the name of
Brahmaputra to its junction with the eastern branch of the
Ganges, after which the united river is called Megna.
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 Sonpura, 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 naviga-
able 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 Brahmaputra from the south have a long
course, or appear worth mentioning; but the Lohit (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 of large extent; the Teesta or Gum-copal, which
joins the Brahmaputra between 95° and 96° of
long., and is without reason supposed to be the same river
which in the table land of Tibet is called the Sampo or
Yarung-Zangbo-tausi, and not a remote branch of the
Indus, as we see it represented in some maps. See Brah-
maputra.] Farther to the west it is joined by another
large river, the Suban Shiri, whose sources, however, like
those of the Manas or Bonash, which falls into it near
Goyalpara, are in the European Himalayas.

Asam, though not situated within the tropics, partakes of
the tropical climate, the season 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 Octo-
ber 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 uncer-
tain. The heavy rains set in about the 15th of June, and
continue to the end of September and the first days of
October; but the sky, which is generally clear, is rarely 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 im-
mense in all the wide basin of the Brahmaputra, that
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 per-
haps not exceeded in fertility by that of any other country,
and would doubtless maintain twenty and perhaps a hun-
dred times the number of its present inhabitants, were it not
for the narrow bounds of the valley and its position between
two very extensive mountain ranges, inhabited by warlike
and barbarous mountaineers, expose its inhabitants to the continual incursions of their neigh-
bouring tribes; as to that of the plains are obliged to pay an annual tribute, and per-
sons are sent down every season to collect it. In other
places, especially along the upper Brahmaputra, the
mountaineers, as the Miria and the Khamits, have driven
out the Assamese, 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 1592 the English have
attempted 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 inhab-
tants from famine. The principal crop is paddy, which is
early cultivated, and chiefly used for making oil; the
quantity of sesame raised is inconsiderable. Wheat,
bale, and millet, though they succeed well in the more
elevated and drier districts, are not much used. The cyti-

c 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 choyjes, ginger, turmeric, capsicans, onions,
and garlic. Cocoa-nuts are rare, and no palm-wine is made;
but oranges abound, and are indigenous in the neigh-
bourhood of Sadiya; the fruit is acid, but not disgree-
able, and the pulp of a pale yellow, like that of the lime.
Cotton is only cultivated by the mountaineers in the south-
ern hills, but silk is produced in great quantities, and seems
to have been reared for ages. Formerly the cocoons were
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
afterwards is collected when the leaves are dry, during
the ginning 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 medunguri are reared
on the tree, the botanical character of which has not yet been
determined, but which is planted for that purpose. The
worst kind of silk, called evindus, is reared on the ricinus
in large quantities, especially about Rupnpeo.

The botanical wealth of this part of the con-
tinuous hill, has not been examined by any botanist. The
tea-tree is said to grow in the vicinity of Sadiya, and the
gum-copal tree in the Naga hills. The caschouche tree is
indigenous throughout the country. The sugar-cane suc-
ceds well, but is only cultivated for eating. Rice, be-
aer-nut, opium, and tobacco, are plentifully produced
in every district, and even in the mountains, which in some
parts are covered with timber trees.

Oxen and buffaloes are common, but only for the plough,
as the inhabitants do not eat beef. Horses are not num-
erous, and asses are not reared at all, which is also the
case in some other parts of the peninsula beyond the
Ganges. Cows and goats are rare, and covered with hair instead of
ail; goats are not numerous, but poultry abounds in every
district.

The huffalo 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 leop-
dards abound in the numerous tree jungles. In some
parts the small black long-armed apes are frequent, and in some
rivers otters and river-turtle of a very large size. Fish and
shrimp are plentiful and abundant. The mountainous wax 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-miner said to exist at the junction
of the Deyong and the Brahmaputra, at a distance of
about 80 miles in a direct line east from Gowart.
Ferrous iron is 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 Brahmaputra.

Asam is divided into three provinces, Camroop, 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 Brahmaputra with the Dihong; and Sadiya lies
to the east of it, and stretches to the base of the sacred river.
Asam Proper contains the best-cultivated districts, and the
few places which deserve to be called towns; Jorhath, the
capital of the Garo or raja, and Rungpoo, the most
industrious of the tribes, who have contributed to
the support of the army, are the only places among the
Abors which make the slightest burthen to the
inhabitants of the province. The little town of Jorhath,
in the middle of the village is the morang, a large building,
services as a hall of audience and debate, as a place of
reception for strangers, and as a dwelling for the
headmen of the village. Generally, their laws are not entitled to
the aid of the community for the construction of their
houses. Their orators seem to have studied rhetoric and to
have considered its effects on the minds of their country-
men; they speak in a remarkably emphatic style, dwell-
ful of metaphorical expressions, and fill the
ears of their listeners with the sounds of words and syllables
well chosen, and which hold the palates of their hearers,
notwithstanding the utmost patience and without any interruption, and in
this particular they are certainly much superior to many
of their neighbours is required, they send ambas-
sadors to the other republics, who are charged to make
proposals or to accept what has been proposed by another
country.

Before Asam 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 visited, it appears that they have been at least
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 jungle, and show no signs of cultivation nor any traces of
inhabitants.

The ancient history of Asam is entirely fabulous. It
seems for a long time to have been under the sway of sove-
igns of Hindu origin, and to have undergone many revolu-
tions. In the fourteenth century, a king named Bhutan
sent a numerous army to subject Asam: the
conquest succeeded almost without any resistance on the
part of the inhabitants and their sovereign, and was
accepted in the country with a degree of joy which
gave no reason to doubt that the king had the reins in
his hands as the only reason why the whole army was destroyed by
disease, and by the Abors, which returned from the mountain
fastnesses, to which, at the time of the invasion, they had
retired for security. Many of these Indian troops remained in
Bengal. In modern times the continual discord and in-
trigues in the royal family brought it under the dominion of
the Burmese, who are said to have treated the people and
their 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
sovereign under the protection of the East India
Company.

The commerce of Asam 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 inhabitants, especially the Abors,
are dressed in cloths of Tibet woollens, and possess other
articles of the manufactures of that country. It is,
however, known to the north of the Brahmapootra there is
a mountain range which separates the country of the
Mishmis 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 country of the Lamas, which is one of the
commercial tribes. They cross this range, and likewise the mountains which surround
the sources of the Brahmapootra, and bring articles of Tibet
manufacture to the Khamtis inhabiting the plains on the
other side. They may help to explain the very singular coinidence 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 democratical
monarchy, and is governed in common 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

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from the dominion of the court of Ava, all intercourse with the country seems to have ceased. Two passes across the Garrow Hills connect Camrup with Sihit, a province of Bengal, and one of these passes near the sanitarium (or invalid station) of Churra Punje. The commercial intercourse of Asam at present seems to be chiefly with Bengal, which is indeed of very little importance. Asam 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, the Assam pay for some of these imported commodities in gold. (Buchanan, Bedford, Neuffville, and Wilcox, in the Anantic Researches; Anatic Journal; Map of India East of the Ganges by Berghaus.)

The coasts in Wali and in Wali, on the western extremity of the county of Flint, on the road from Holyhead to Chester. It is twenty-eight miles and a half from Chester, and 217 from London.

St. 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 old town to the new town. The whole city, from the cathedral, which is on the summit of the hill, 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 to the sea. The whole city is 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, rebuilt by Bishop Bagot, who held the see about the close of the last century, and is at present inhabited and enlarged by the present bishop, Carey. The deanery is on the farther side of the Elwy, and nearly opposite the bridge. It is quite new, having been rebuilt by the present dean.

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 revenge for the massacre, an attempt was made to transfer the see from St. Asaph, then an open and defenceless village, to Rhyddlan or Rhuddlan, which was fortified. From some cause or other, not well ascertained, the attempt failed, and in 1284 the cathedral was rebuilt; and this may be considered to mark the time when it has remained since. In 1402 the cathedral was burnt by Owen Glyndwr, and only the walls left standing. After having lain 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 and its furniture to some injury. Further repairs were made by Bishop Gilmham and Bassow, who successively filled the see after the Restoration (especially by the latter); and also by Bishops Fleetwood (from 1759 to 1714) and Wynne (1714 to 1729). The choir was rebuilt in the time of Bishop Shipley (who was bishop from 1769 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 turret stairace at the north-eastern angle. The dimensions are as follows:

- Length of the church from R. to W. 176 ft. in.
- of the west door to the choir 84 ft.
- of the cross sides or transept N. to S. 108
- Breadth of the nave at the side walls 48
- Height of the nave from the pavement to the ceiling 10

Three dimensions differ from those given in Brown'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 by the alteration of the church. The nave was built in the spring of the year 1833; and the space taken into the choir is that between the arches that 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. There are three gives of seats of this choir, and the nave and transepts are of the age when the decorated style of English architecture prevailed, which, according to Rickman (Essay on Gothic Architecture), during the reigns of Edward II. and Edward III. Among the buildings are the few remaining parts of the old cathedral, which, for their tracery, 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 the Decorated. The nave and some of the 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, traces 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 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 mouldering. None of the monuments call for notice except one, supposed to be that of Bishop David Owen (ob. 1512), which was moved from the choir on a later occasion; another, lately erected, as an act of submission to the memory of Dean Shipley; and a third, a heavy pile, erected to the memory of Bishop Luxmore.

The see of St. Asaph is said to have been founded by King Offa, on the site of which was St. Asaph, 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, it retained the records of the see, 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 seventy committed to the Tower by James II., Bishops Beveridge, Tanner, Shipley, and Horsley.

The bishop's revenue was valued in 26 Hen. VIII. at £2, 15s. 8d. in the whole, and 187l. 11s. 4d. in clear. We have no data for that uncertain value.

The diocese comprehends Flintshire, Denbighshire, and Montgomeryshire (with the exception of a few parishes), and parts of Merionethshire and Shropshire. There were in it, at the beginning of the present century, 150 benefices, viz.
the gift of the bishop. It is divided into eight deaneries, viz., Rho, Tegenge, Bromfield and Yale, Marchia, Penlluy and Idrinno, Pool, Caedwen, and Cyfylidog and Mowdd.

The cathedral establishment includes, besides the bishop a dean, a prebendary, the 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 with the bishop since 1572, 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.

St. Asaph has a weekly market on Friday; and four fairs, in the year 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 (uncle 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 valued at five pounds and upwards yearly value, within the limits, is ninety-three.

The country around is the city is very beautiful. Within the parish is Capel Flynnon Vair (Chapel of our Lady's Well), near Denbigh, from which it takes its name, once much resorted to by devotees.

From the name of theeminence on which the city stands, Bryn Paulin, it has been conjectured that the Roman general Suetonius Paulinus encamped here on his way to from Anglesey. [See Anglesey.] (Brown-Wrisley's Survey of St. Asaph; Pennant's Tour in Wales; Bingley's Tour round North Wales; Rickman's Essay on Gothic Architecture, &c.)

SARIUM (in botany), a genus of plants, belonging to the family of the Aristolochiaceae, distinguished by having the calyx bell-shaped and three-lobed; the stamens placed upon the ovary, the anthers adnate to the middle of the filaments, the style short, stigma stellate, and six-lobed; the fruit capular, and six-celled. The A. europaeum 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 Indian rhubarb, contains a cardamine; a bitter principle, called assarin, which is combined with gallic 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 becomes very nauseous; it purges internally.

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 nostrils 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 snuff. It is used in chronical inflammations, and some other diseases of the eye, and in headache.

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 head, they be most efficacious; from the Schneidersian 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 generally vomited.

ASBESTUS must be considered, in mineralogy, rather as term implying a peculiar form sometimes assumed by several minerals, than as a name denoting a particular species. It is found in association with many 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 above conditions are fulfilled in various degrees, and there are thus formed a kind of intermediate varieties. The fibres of which are very delicate and regularly arranged, are called amianthus, a Greek term signifying untinted, unstained: 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 white enamel, it is very well in retarding the ordinary flame, so that when wove it produces a fire-proof cloth, and hence the name from the Greek diaphoros, in the sense of indestructible. The most beautiful specimens have been found in the Tarentaise in Savoy: but Corsica must be considered as its natural habitat. It is abundant. It is also found in Cornwall at St. Nevern: 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.

There are three other varieties, known by the names of mountain feather, mountain wood, and mountain cork, which differ from the common asbestos 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.

ASCALABOTIE, in zoology, a genus of reptiles. [See Gekko.]

ASCALON (אֶסְכָּלון, Eqscalon), a town of Palestine, on the shore of the Mediterranean, about twelve miles north of Tyre; it was one of the few 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.

[See Gekko.]

There was a celebrated temple of the Heavenly Venus (Phoebou seian) at Ascalon, which Herodotus (i. 165) mentions as having been plundered by the Cydnthian n.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 supposed to have been the palace of one of the Syrian emperors. There are also the remains of a Roman amphitheatre at Ascalon. Antiochus, the neademon and the master of Cicero, was a native of this place. In the early ages of Christianity, Ascalon became a provincial see; and it was then strongholds of the Crusaders during the Holy War. On the plains of Ascalon a battle was fought between the Crusaders under Godfrey de Bouillon and the Saracens under the vizier of Egypt. The cuirasses, casques, and swords of the knights are still found among the ruins.

The town stands on an extensive semicircular hill, the declivity of which is nearly insensible towards the land, but of considerable abruptness on the sea-coast. The walls of the town, with their towers and battlements, are still standing, and among the ruins are vast Gothic churches, a palace, and a chapel dedicated to the Virgin, blended with traces of more antient date. On the roof of the chapel these words still remain: "Ecce advocata navigantium, ora pro nobis;" but the place is entirely deserted by every living being, save jackals and antelopes. The Arabs call it Djourah, and believe it to be the residence of evil spirits; they assert that strange noises of bottle are nightly heard in the ruins. A church has been named by Lady Esther Stanhope, who, however, abandoned them on account of the expense.

At a short distance to the northward is a small modern village called Scalona, evidently a corruption of the antient name; and here is the port for the small vessels that trade along the coast.

Ascalon lies in 31° 35' N., lat. 34° 47' E. long. (William of Tyre: Count Fortunio's Voyage au Levant.)

ASCARVIES. [See INTUMAN.

ASCENDANT. [See ASTROLOGY.]

ASCENSION, RIGHT and OBLIQUE, and ASCEN-
SISIONAL DIFERENCE, astronomical terms, of which the latter are nearly out of use, while the term rigAs ASCENSION is preserved, in a somewhat different significance, 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 its diurnal motion were quick enough to justify the supposition, 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 circle is the position of 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 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 after sunrise, 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 pass the verticals, or the lines N A and S A. 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 ANGLES] of the star. The same turned into time [see ANGLES] 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 observer. This is the time which a star takes to complete its diurnal revolution, or the sidereal day [see DAY]; it must be recollected, 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, and 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 E Q is what 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 formulæ.

\[ \text{Sin asc. diff.} = \tan \left( \text{latitude} \times \tan \text{star's declination} \right) \]

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 Whitsunday. (See Brady's Clavis Calendarii, 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 jone haigan Jumey Bæg (or the holy Thursday).

It was on this day, or on one of the three days which immediately preceded it, and which were considered as days of preparation for it, that in ancient times the minister of every parish, accompanied by his churchwardens and parishioners, was accustomed to go round the limits of his district, to deprecate the vengeance of God, to beg a blessing on the fruits of the field, and to preserve the rights and boundaries of the parish. In the week in which Ascension Day occurs is usually held a Rogation week, from the N E S in Litanies which were used in the perambulations. The Anglo-Saxons called the days of this week Lang bæg (walking days), from the perambulations which were made. In London such parochial processions are still observed on Ascension Day itself.

Pennant, in his Tour from Chester to London, p. 30, tells us that on Ascension Day the old inhabitants of Nantwich piously sang a hymn of thanksgiving for the blessing of the Brine. A very ancient pit, called the Old Brine, was also 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 Desponsamus te, Mare, in signum perpetui dominii.—We expose 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, 590 miles to the N. It is 685 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-peakcd mountain of gritty tufaceous limestone, which rises to the height of 2816 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, strewn with ash 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, besides, coconuts, and, within the bay, palaos, a species of the albatross, several little plains divided into small spaces, and so remarkably distributed as to appear like parcels of land cleared of stones, and separated, by walls.

This island was discovered by João de Nova Galego 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 some coarse grasses, ferns, purslane, a species of cornel, and was goats, rats, 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 local inhabitants have been in the habit of meddling, and disturbed by 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—cavallies, old wives, conger-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, who used to meet the Indians 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 Dumper's Spring; and in 1841 a new one having been 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, which, on the marriage of one of the princesses of the house of Braganza, consisting of a naval lieutenant as governor, with sixty officers, seamen, and marines, who fortified the island with seventeen guns, the greater number at English Road, where they erected barracks and houses. The compactness of the soil (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, and that soon yielded an average daily supply on 140 gallons.

In 1821, the establishment was changed to a major of marines, as governor, with a staff of officers and a party of about 200 privates, most of whom were soldiers and convicts, with a number of liberated Africans. From the attention an exertion of the garrison, the island is now in a state of progressive improvement as to its resources, natural and artificial. In 1825 the inhabitants had been made for the conveyance of the water from the springs to English Road, by iron pipes laid down to convey the water from the springs (an operation that used to be performed by asses and mules) to the fort, near which a large tank has been excavated, capable of containing 1700 tons, by which it is hoped that a supply of water may be obtained for a considerable time. Per- rage is rapidly making its appearance; there is a moderate supply of cattle and sheep, which, with turkeys, guineas, 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 that 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 shore near the mouth of the stream, and try to drive away the vessels that arrive in 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 order to destroy the rats with 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 are compelled to call for their assistance a colony of bull-terriers to keep them in check. The middens of the island, the Guineas—fowl 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 sternility 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 vegetation that can be found in the present uplands of 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 successfully tried, and thus an island which was once deserted cinder, is now yielding very rich 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 and advantageous place for the establishment of settlements.

The anchorage, though 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 58° to 82°.

The fort is in 7° 56' N. lat., 14° 24' W. long. (Purdy's Atlantic Memoir, and various sources.)

ASCETICS refer to any person, and to all religious orders, who abstain from all things which are contrary to purity, for a certain period, in imitation of Jesus Christ. The Pythagorean and Stoic philosophers was called asceta, deutsch: ascetia: it consisted in chastity, poverty, watchings, fasts, and retirement. The ascetics seem to have had an Eastern origin. They were the ascetical movement in the East. Hylobib or allots, Gymnosophist in Asia, and other sects in Asia, were ascetics, who like the present Sanyaseens, Tulapains, and Bionese, in eastern Asia, exercised their ingo. In density of numbers, and to a very great extent in the Jewish ascetics, see the Antitheses of the Jews, and the sects that have been formed. According to Eusebius (Hist. Eccles. i. c. 23), James the Just, the brother of Jesus, was an ascetic at Jerusalem before the destruction of that city. The Christians in the earlier centuries were distinguished by their practices of mortification, and by ascetic austerity. 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 sanctity of their bit: of ascetic. The Christian ascetics were divided into abstinence, or those who abstained from wine, meat, and agreeable food, and continent, or those who, abstaining from meat, were considered to attain to a higher degree of sanctity. Many laymen as well as ecclesiastics were ascetics in the first centuries of our era, without retiring on that account from the business and bustle of life. Some of them were the first of those who gave themselves up to the ascetical life, and were therefore called Christian philosophers, and formed thus the transition link to the life of hermits and monks, which was regulated in the fourth century. [See HERMITS, MONKS.]

A Schaffhausen, a principality, on both sides of the Main, and in the western part of central Germany; it is bounded on the N. by the Rhine, and on the E. by the lines of the Main, and and S. by the Grand Duchy of Hesse, and on the E. by the Bavarian dominions, of which it is forms at present a portion, included in the circle of the Lower Main. It is 357 miles in superficial extent, and, before the French revolution, belonged to the elector of Bavaria; it was made over to Archbishop Charles of Dalberg, ephemeral 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 island of Salzburg, and some minor dependencies. The
noble forests of the Spessart and Odenwald occupy a considerable part of the eastern surface of this principality; the former alone is nearly seventy miles in length, and occupies an area of 672 square miles, containing alike the Spessart hills and the territory of Würzburg; the elevated ridge on which the forest stands is a subsidiary range of the Rhetic Alps, and is rich in copper, coal, arsenic, lead, and iron. The Geyersberg (or Geyersberg) and the Schafensberg (1875 feet) are the highest point in the Spessart. The district of Aschaffenburg, in the Bavarian circle of the Lower Rhine, which includes the town, contains sixty and a half square miles, extends on both sides of the Main, and has a population of about 13,000 souls.

Upon an eminence, forming the termination of a western declivity of the Spessart chain, and on the right bank of that river, in an open part of the most delightful sites which can be imagined, stands the town of Aschaffenburg, whose municipal existence dates from the eighth century at least. It is surrounded by walls on all sides but that towards the river, which is irregularly built, and the streets are mostly narrow, steep, and crooked. The pride of its inhabitants is the Johannisburg, a handsome palace, formed a large and regular square, with towers at each face; it crowned the highest ground in the town, lies close upon the river Main, and was built by the Counts of Mentz between 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. Attached to it, a picturesque picture of olden days, collection of ecclesiastical rarities brought from the old collegiate church, besides an interesting series of models in bark of ancient temples and ruins. The immediate vicinity of the palace abounds in picturesque scenery, and an orangery and botanical garden adjoin its beautiful grounds.

The old Gothic collegiate church, which contains the tombs of its princely proprietors, and particularly that of Otho, duke of Bavaria, who founded it, the massive buildings of the presbytery, the former cloister, and the clergy, and the town-hall, are all deserving of inspection. There are also a lyceum, gymnasium, ecclesiastical seminary, an institution for the education of females conducted by the English sisters, a college of design and modelling in the town. Aschaffenburg is celebrated for its manufacture of coloured papers, and carries on a considerable trade in timber, tobacco, perfumery, wine, and other articles of luxury. The asylum for the indigent is well organized, and has separate accommodation for the infirm and orphans, a hospital, house of industry, &c.

ASCHAFENBURG: ASCHAM, ROGER, was born in 1515, at Kirby Wiske, near North Allerton, in Yorkshire. His father was house-steward in the family of Sercoope, and his mother, whose maiden name is recorded, is said to have been 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, previous to this period, dispersed the Greeks into other languages 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 Universities, and more especially at Cambridge, where a taste for this study had been raised by Chafe and Smith. Immediately upon his admission into college, Ascham applied himself to the study of that language; and, when he had arrived at some proficiency, with a view to quicken his improvement, he set out to have read, while yet a boy, to other boys who were desirous of instruction.

Ascham took his bachelor's degree in the month of February, 1534, and on the 23d of March following was elected to a college; while yet a youth, 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 doctrines of the Romish church; but new learning and new tenets of religion were gaining ground; he entered into the controversies of the day, and gradually formed an academical life for himself, for he was in a sort of a solitary, and the cultivation of which, as an adjunct to his learning, had an influence upon his future fortune.

He became M.A. in 1537, in his twenty-first year; and, if not before, commenced teaching, and was appointed Ascham to read in the public schools, and paid him from the public purse an honourary 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 architecture, in which he spent or (according to some) wasted his time; and, it is thought, he thought it an amusement of bad example in a place of education. To free himself from this censure, he wrote a small treatise, in which the praise and precepts of architecture are examined, and a vindication of the Arts conducted to King Henry VIII., for which the king, at the suggestion of Sir William Paget, rewarded him with a pension of ten pounds a-year, a sum at that time of course which must have been great at present.

Ascham, with all the allowance and the enjoyment of his fellowship, must have been at least easy in his circumstances. The same year that he published his book he was chosen University Orator, in which office he wrote all the orations he delivered, composed a university service, and was said to have been associated with Henry VIII. at court. About this time too appears he who was employed in teaching many illustrious persons to write a fair hand, and, among others, Prince Edward, the Lady Elizabeth, and the two brothers, Henry and Charles, dukes of Suffolk.

In 1546, upon Grindal's death, Ascham was called to court, to instruct the Lady Elizabeth in the knowledge of the learned 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, 'it appears, from this part of his conduct, that he was not accustomed to disrespect cannot easily forgive it; he probably felt the effects of his imprudence to his death.' Chalmers says 'he took great and not unsuccessful pains to be restored to her grace.'

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 restored by King Edward VI. Other pecuniary assistance also reached him from lovers of learning, and he had a small pension from Archbishop Leo.

In the summer of 1550 he took a journey into Yorkshire to see his native place and old acquaintance, where he received a letter from the King acquainting him that he was appointed secretary to Sir Richard Morsayne, 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 Broadway in Leicestershire. Nor did his life for an academic career end in Great Britain; in an interview, the particulars of which he has affectionately detailed in his Schola-mater.

On the 20th of September following, he embarked with Sir William Paget for Italy, 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 mentioned, in his last letter to Paget from Padua, the beauty of Venice. Dr. Johnson says '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 Report and Discourse of the Affairs in Germany, in which,
There seems reason to believe that Aschem was unimpressed. One of his failings is recorded to have been a propensity to lie and cockfighting. As a scholar and a man, however, he died university lamented, and Grant, in 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 Aschem.'

The only work preserved 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 twenty leaves of Aristotle's Ethics every afternoon and moon. 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 them out with a pen together. He left some private letters—many to his college—which showed that, in spite of the advantages of novelty and station, he sighed for his return to academic retirement.

While thus 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; Moryson was recalled; and Aschem, who came back with him, once more retreated to his fellowship. He had, however, better fortune. Lord Robert Cecil, the statesman, in his letter 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 usual elegance, in three days, forty-seven letters to princes and personages of whom comments did not exist. He was patronised at this time by Cardinal Pole, who, though he wrote elegant Latin himself, sometimes made use of Mr. Aschem's pen.

On the last of June, 1554, Aschem 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, Dr. Johnson.

On the death of Queen Mary, in 1558, having previously been recalled to the Lady Elizabeth, now Queen, he was immediately distinguished by her; and from this time, until his death, he was constantly at court, 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 Wincham, in the county of Oxford; and of this, appears to have been his only preferment 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 of the death of his father. He made this book, though begun with alacrity, in hopes of a considerable reward, was interrupted by the death of the patron, in 1566, and afterwards sorrowfully and slowly finished, in the grim of disappointment, under the pressure of distress. But of the author's discomfiture 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 Aschem'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, Aschem was seized by a hectic disease, the most afflicting symptom of which was a 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 proceeding, i.e. was attacked by an aguish distemper, 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 Aschem, she lived with him all his life, and left him, at his decease, standing, as leaving, she expressed it, in the dedication of 'The Schoolmaster,' 'a widow and a great sort of orphans.'

There was no interest in his Latin works on account of the war, and his Latin works were chiefly for the use of the stayng, and the Emperor Charles his Court, 1543, 1545; repr. 4to. Lond. 1571; 4to. Lond. 1589, with a pref. by J. Walters; 12mo. Wrexham, 1798. 2. A Report and Account of the First Arrival of the English at the Algezirsh; or, the Emperor Charles his Court, 4to. Lond., J. Day. Also his death were printed, 3. The Schoolmaster, or, plain and perfect way of teaching Children, to understand, write, and speak the Latin tongue, 4to. Lond. 1571; repr. 4to. Lond. 1589; revid. by E. R. P. at Amsterdam, 1711, 1712, 1733. 4. Apologia Doct. Vr. R. A. pro Cama Dominica contra Missum et ejus præstigia; in Academia olim Cantabri- genium eruditionis eruditio inchoata, &c., 8vo. Lond. 1577. 5. Familiarum Epistolae Larbi tres; addita sunt pasca quaedam Rogeri Aschemi Poemata; omnium collecta operis et studio E. G. Adjecta in fine ejusdem E. G. Ortutus de Vita et Obitu Rogeri Aschemi, et ejus dictiorum elegantia, 12mo. Lond. 1577, 1578, 1599; Hazlitt, Brit. Crit. Soc., vol. iii, p. 204. 6. Familiarum Epistolae Larbi tres; addita sunt pasca quaedam Rogeri Aschemi Poemata; omnium collecta operis et studio E. G. Adjecta in fine ejusdem E. G. Ortutus de Vita et Obitu Rogeri Aschemi, et ejus dictiorum elegantia, 12mo. Lond. 1577, 1578, 1599; Hazlitt, Brit. Crit. Soc., vol. iii, p. 204. 8vo. Lond. 1815. A few of Aschem's original Letters are preserved among the Lansdowne Manuscripts in the British Museum. (See the Latin Life of Aschem, subjoined to the different editions of his Letters, by Edw. Grant, Master of Westminster-School, the greatest work of all the biographers of Aschem; Johnson's Life; bestrope's Cranmer; Biogr. Brit.)

ASCHE_LERBEN, a circle in the south-eastern part of the Prussian province of Magdeburg, containing 1684 square miles, and, according to the census of the year 1655, 6653 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 raises a great quantity of wheat and seed. Aschersleben was part of the bishopric of Halberstadt, which was secularized 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 10 miles south by west to the confluence of the Wipper and Eine, and on the banks of the last-mentioned river: 51° 46' N. lat., 11° 27' E. long., and 18 miles S. E. of Halberstadt. In former times it belonged to the earldom of the Ariovisthi, of which the prince, in 1165, demised the town and church to the Bishopric of Halberstadt. It was in 1319 that the town was made bishop's seat, and in 1351, 9538. It has very considerable manufactures of flannel, friers, linens, earthenware, &c. Aschersleben was formerly a Hanse-town.

The picturesque ruins of the ancient burgh of Ascani, the patrimonial seat of the house of Anhalt, are in its neighbourhood.

ASCIDIA, a genus of molluscan animals belonging to the Cuvier's order of Aschelphora without shells. Savigny has considered these animals sufficiently important to constitute a class, under the name of Ascedids (Ascidia); while Lamarrac has also formed them with others into a class, under the name of Tunicids (Tunicata). [See Mollusca, vol. ii. p. 1584.]

ASCLEPIADÆ. [See ASCULEPIUS.]

ASCLEPIAE. Among dicotylolesluns plants there is a natural order which may be known from all others by the single chief botanist will every grain of the Asclepiadæ within a sort of bag whose 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 anther and stigma adhere, firmly together, and the fruit is a very curious 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 being of the same size; the quantity of seeds, the end of which terminates in long down. To this order the name of Asclepiadæ has been given, in
consequence of the genus asclepias being the largest which the order contains. It consists of shrubs or herbaceous plants, abundant in an acid 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 stapelia, the flowers of which are among the most florid 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 seric and stimulating, and usually emetic. Their flowers have curious horned processes, added to the corolla.

ASCLEPIADACE. This name was common to a great number of persons, which has caused some confusion both in the ancient and modern accounts of Asclepiades the physician, of which only we are going to treat.

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 Prusa, 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 academian, 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, and he was probably some years older than the Roman orator. He is said to have lived to 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 Hermocles of Pontus. His corpuscular elements, which he called onkoi (γραυοι), 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 to 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 an 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 fevers 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 Ague, 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 emetics and purges, and in place of the latter he recommended elysers. Blood-letting he practised often, especially in inflammatory cases; but yet he considered that this practice was not equally useful in all climates. 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 approved of friction in many cases, the gentle motion of the sack in a kind of hanging bag, and to him we must
perhaps attribute the shower bath, *genusis balnearia musae* (see Plin. xxvi. 3), if Sprengel's interpretation is right. Asclepiades gained great favour among the Romans by his use of wine in many cures, in which, up to his time, it had not been employed; yet he prescribed it with caution. Sometimes he used it even in febrile cases to restore the drooping strength, and he prescribed it also to persons who were convalescent. Later writers, on Susanna's, are also 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 practice with more or less exactness.

Asclepiades, 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.


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 descendants the Piceni were. The name of Asculum has been conjectured to be derived from a species of oak called in Latin *acusulus*, and now by the natives *acchù*, with which the neighbouring mountains abound. Asculum was the seat of the town of the Piceni, and it was given to Rome; but having afterwards declared against the latter, was taken after a battle by the consul Publius Sempronius, a. c. 575. After a lapse of nearly two hundred years, it was passed into subject of Rome, and the people of Asculum belonged to the Marcellian confederacy, and began the social war by killing the Proconsul Servilius, and all the Romans whom they found within their territory. Cn. Pompeius Strabo marched against Asculum, but was defeated by him within the walls of Firmum; Servius Sulpicius, coming with re-enforcements, defeated the confederates, killed Aferanus their general, and liberated Pompeius. The following year Pompeius, who was then consul, marched with a fresh army to the place, and one of the chief leaders of the confederates, hastened to its assistance, but not being properly seconded by the habitants, he could only succeed in driving him into the town; the latter then being set on fire by the Romans, he then put to death those who had been the cause of his failure, and seeing no chance of deliverance, having assembled his friends, he drank poison, recommending them to follow his example rather than be made slaves to the conquerors. Their property was confiscated to the Roman treasury, and the movables given up to the plunder of the soldiers. Among the prisoners who followed the triumphal car of Pompeius was *a* citizen of Asculum, carrying a child in her arms. This child became afterwards one of the most illustrious generals of Rome, fought under Julius Cæsar in Gaul, and afterwards was Antonius's lieutenant in the wars with the Parthians, and devastated the city. The booty made by Pompeius at Asculum was very great: after his death, his son, known afterwards as the great Pompey, was charged, among other things, with having appropriated to himself some of the plunder of Asculum. (Plutarch, *Life of Pompeius*, cap. 3.) These books were afterwards taken by Cinna, in the pillage of Pompeius's house, during the factions of Marius and Sylla. Asculum was afterwards given to Egnatius, one of the chief citizens of Asculum, carrying a child in her arms. This child became afterwards one of the most illustrious generals of Rome, fought under Julius Cæsar in Gaul, and afterwards was Antonius's lieutenant in the wars with the Parthians, and devastated the city. The town was taken and devastated by Manfred, and retaken by Charles of Anjou. It was for some time under the rule of the Malatesti, the lords of Rimini. It was afterwards united to the kingdom of Naples by Ladislas. In 1413, it came under the power of the Prince of Carrara, whose authority was confirmed by Queen Joanna II. In 1426, Pope Martin V. having quarrelled with Joanna, took Asculum, and annexed it to the Papal State, to which it has remained attached ever since.

Asculum is one of the best built and most pleasant towns in the Papal State. Its buildings are constructed of travertine, with which the country abounds. There are eight parochial churches, besides the cathedral, several schools, and a seminary. The churches are rich in paintings, most of which are by native artists; for Asculum has been remarkably prolific of painters, as well as sculptors and architects. The most noted schools of painters Trent and Ascoli, and the three sculptors of the name of Giosafatti. On the square of the Duomo is the *palazzo ambanale*, a handsome structure, which contains the theatre, a library, and a museum. On the square del Popolo is the government house, where the Papal governor resides. There are many other palaces belonging to the nobility. Among the few remains of antiquity are those of a Roman temple, which has been converted into the church of S. Gregorio Magno, having several
Corinthian 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 situation. It is a bishop's see, and has a population of 12,000. Pope Nicholas IV. was a native of Ascoli. Francesco Stabili, commonly called ‘Cecio d’Ascoli,’ was also born here in 1527. He was physician, philosopher, astrologer, and wrote a book on astrology, as well as a translation of some natural philosophy and ethics, in which there are some powerful passages; but the language is much inferior to that of Dante, whose contemporary Cecio was.

ASCOLI PICENO is a town of the Marches, in the province of Ascoli Piceno, which was called Asculum, anciently a Roman city, and its inhabitants were called Asculanenses, being thus distinguished from those of Asculum Picenum, who were called Asculani. Minatius Magnus, the ancestor of Velleius Pellatius, was a native of Asculum. Asculum was in the hands of the Romans from the time of Pompey. Asculum was destroyed by Roger the Norman, but was afterwards restored. It is 66 miles N.E. of Naples.

ASCOW, Q. PEDIA'NUS, one of the earliest commentators on Cicero, who is usually considered to have been a scribe, though the opinion rests on no sure 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 life; but there is a story from a passage in his Commentaries (Ad Ort. pro Scur. p. 176, ed. Lug. Bat.) he was employed on his work about a.d. 41, in the reign of Claudius. Phalarigus, quoted by Servius (Vig. Est. iii. 100), states that he was in your time, but he must have been a mere boy when the poet died. A.D. 19, if Eusebius is correct in making him seventy-three years of age in the seventh year of Vespasian’s reign, a.d. 74. At that time he became blind, and survived the calamity twenty years. (Euseb. Chron. ad Olymp. ccxxi. 3.)

This circumstance has induced some to suppose that there were two of this name: one, the friend of Livy and Virgil; and another, Cicero’s work, a history of a later period: but such a supposition is opposed by the concurrent testimony of the ancients. These are the only facts which are known of his private history. Asconius was the author of a work which has been lost, directed against the Roman law, and called a Life of Brutus. (Aeron. ad Hor. Sat. i. 2.) but there seems no reason to suppose that he was the author of the work ‘Origo Gentis Romanae,’ usually ascribed to Aurelius Victor. The importance of his labours was his Commentary on the Orations of Cicero, which he wrote for the instruction of his sons (Ad Ort. pro Mil. 6); but under what title, none of the manuscripts enable us to decide. It seems to have extended to all the orations; but only fragments have been preserved, which, though in some of them much disfigured by the glosses of some ignorant grammarian, are still full of valuable information. We are indebted for the greater part of our possession of Asconius to Poggio, the Florentine, who, during the Council of Constance in 1418, luckily discovered an old manuscript of it at the Monastery of St. Gall, in Switzerland. This manuscript can no longer be found; but the copy of Poggio is still in the possession of the Biblioteca Riccardiana at Florence. It contained fragments of a commentary on nine orations: Divin.; In Verrem, 3; Pro Corn.; In Top. Cand.; Contra Pis.; Pro Scur.; and Pro Mil. The general character of the commentary is, that it contains historical facts, and has preserved some curious information on various points, with which we should not otherwise have been acquainted. We may more particularly notice the supplement against De Bellicis Aequitatis, a work of Lucean’s against Catiline; and of Commissius against Cornelius. The historians on whom he seems chiefly to depend for his information are Livy, Sallust, and Festus.

The commentary on the Orations against Verres is of so entirely different a character from that on the others, that it seems not an improbable conjecture that, in the work of some later writer, who admired himself partly for the labours of Asconius. The Latinity is full of barbarisms, and it is more in the style of later grammarians, who devoted their attention chiefly to observations on grammar, etymology, and the inflections of words, and to minute critical investigations of Cicero’s works, especially of the lost orations, In Clodium et Curione; De Ate silene Milonis; De Rege Alexandrino; besides on the old extant orations Pro Archia, Pro Sylla, Pro Plancio, In Vatium. The manuscripts, however, were devoted to the study of Ascanius; neither in style, nor in the kind of information they convey, do they resemble his commentary.

Another MS. of the tenth century was discovered at the same library, containing short scholia on the four orations against Catiline, on those Pro Marcello, Pro Ligurio, and Pro Deiotaro. Angelo Mai has still more lately discovered another MS. in the Vatican Library, which he published in 1826; being a collection of the inedited fragments, of a commentary on Cicero’s Orations. (Auctor. Class. et Vatic. cod. edit. Angel. Mai. Rom. 1826.) The first edition of Asconius was published, Ven. 1477; with the scholia of Manutius. Ven. 1547; by Manucio, Lug. 1608; and are still published by D. Madvig. D. Q. Asconii Pediani et alioum veter. interp. in Cicerr. Orat. Commentarius Disputat. critic. Havin. 1825; Bihur. Geschichte der Römischen Literatur, Carlzur, 1852.

ASDUBLAI. [See HUNDRUBLAi.

ASEDI. [See ASEPDI.

ASEGHUR, a strongly fortified town in the province of Caudex, and within the government of the Bombay presidency, with the extreme point of one of its coasting towns. It is situated on the north-east coast of the island of Boorhanhope, the ancient capital of the Caudex province. Assegur is said to have been founded by a wealthy Hindu Zamindar, named Asa, and to have taken its name from him. It was subdued by the king of Caudex when that province was subdued by the emperor Akbar. The fortress crowns the top of a hill 750 feet high, the base of which is for the most part precipitous to the sea; at the height of 150 feet on the part seaward, and 90 feet on the part of the garrison, was 138 killed and wounded. On this occasion an entire company of Sepahis, in the pay of the English, were destroyed by the explosion of the magazine, which contained 400 hundred barrels of gunpowder.

The people or suburb of Assegur, stands at the base of the hill whereon the fortress is erected. It is a large irregular village, with only one good street: in 1822 it contained about 2000 inhabitants.

The approach to Assegur is through a wild tract of country much infested by wolves and tigers, the latter of which are so daring, as sometimes to have entered the town and carried off some of the inhabitants. Until 1824, the fort was held in a manner chieflly by Sepahis and native guards of the Bengal Presidency, but was then transferred to the government of Bombay. (Mill’s History of British India; Hamilton’s East India Gazetteer; Major Rennell’s Mapp.

ASELLII (or, according to the custom formerly prevalent of Latinizing the name, ASELLIUS), CASPAR, a physician who was born in the sixteenth century at Ticius or Cre-
wars, 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, i.e., 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 1622, he saw these vessels, and that he described them and the glandular district met with in the thin skin of 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 caution not to have secured any considerable increase of dominion was that which resulted in the conquest of the province of Dinkira. Dupuis says that this conquest happened, according to the Muslim records, in the year of the Hijra 1135, that is, A.D. 1719; and he quotes, in support of this account, the authority of the governor of Elmina, who wrote, he remarks, in 1721, and who states that it had been three years before the Moslems appeared in the mouth of the Gambia. But Bosman, the second edition of an English translation of whose book appeared in London (1720), appears to have written the letters of which it consists in the year 1710. In the first of them, he acknowledges the receipt of a letter from his correspondent in Europe, dated 1st September, 1706. His account of Dinkira and of its conquest by the king of Ashante, or, as he writes the name, Asante, is the sixth letter. He describes Dinkira as lying so far inland that it often took five days to go to it from Elmina. He states that ten from Axim (fort near the Ashantees) to Dinkira, and that the coast of the Ashantees from the extreme south of the Gambia to the extreme north of the Sénégal, was the chief source from which the supply of gold was obtained. But a few months past, continues the writer, it was so entirely destroyed, that it lies at present desolate and waste. An army of Ashantees, under the command of the king, Dinkira, to one of the wives of Zay, the king of Asante, made him determine to march against his enemy, Bo- siante in the mean time died, but this produced no change in the resolution of the king of Ashante. About the beginning of the present year, continues Bosman, being completely ready, he came with a terrible army into the field; and engaging the Dinkirans, who expected him, he completely rout the army of Dinkira and of its king, he entirely defeated them. The negroes report, that in these two battles above a hundred thousand men were killed; of the negroes of Akim only, who came to the assistance of the Dinkirans, there were about thirty thousand killed. He estimates his being thirty thousand, which appears to be greatly exaggerated. The plunder consequent upon this victory occupied the Ashantees 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 Bosiante was disinterred by order of the avenging victor; the flesh was given to devour by serpents, the skull and thigh bones were preserved as trophies. These relics still remain at the court of the king of Ashante, and are exhibited on certain holidays for popular insult.

The conqueror of Dinkira, who is called Zay by Bosman, is named Saï Totoo by Bowdich, and Sai Tooto by Dupuis. Zay, or Sai, or Sai, appears in fact to be the general title of the Ashante kings. According to Bowdich, Sai Totoo was the founder of the present emigration of the Ashantees, and the founder of Coomansha, the capital of the empire. Dupuis denies that he built the town, but allows that he greatly increased its size, and transferred thither the seat of the government, which had previously sometimes been at Coomansha, and sometimes at Begus, to the south of it. The conquest of Dinkira gave so great an accession of territory and power to the Ashante state, and so completely altered its relations with its surrounding peoples, that Bowdich and Sai Totoo 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.
obscure. He is said to have been the first king by whom the Moslem, or Mohammedian inhabitants, were reduced to the same condition with the heathen, 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 Dinkim, 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, Quashob, and another large extent of country beyond the Tame, and attempted to wrest the government of Akim to partial subjection, and ravaged Assin. 'In short,' concludes Mr. Dupuis, he created an empire, including tribunaries and allies, which was chiefly of a feudal complexion, and comprised all those kingdoms and principalities which, 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 the right arm of Ashantee in those days, and still is. The empire of Ashantee, however, was still separated from the coast by a tract of forty or fifty miles in breadth, occupied by the perfectly independent states of Aowin, Amanaha, Aman, Wassa, Wobome, &c., which, was, however, suppressed, and Akim alone had drawn upon itself the resentment of Sai Toto by its interference on the side of the Dinkins, and had been compelled to avert the consequences by certain serious penalties, which was a smile of triumph in quelling a revolt of this power that Sai Toto was killed, along with many of his principal nobility, in the year 1751. He was succeeded by his brother Sai Apoko, in the contest, and was enthroned in 1743 and 15th of Kwaasy, 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 Quamina, had ascended the throne of his powerful ancestors. During his time, a rebellion of several of the recently subdued princes brought the empire to the brink of dissolution; but it was eventually quelled, and the influence, if not the actual dominion, of Ashantee, even extended 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 Aowin, Akim, and Ashantees, which was, however, suppressed. But after some years, the leading Ashantee chiefs combined and possessed their sovereign, who had rendered himself odious by a scarcely concealed predilection for the Moslem creed, which took advantage of his fitful expeditions against Ashantee, as the means of undermining its religion. This event took place in 1797. The brother of the deposed king was elevated to the vacant throne, under the title of Sai Apoko the Second. He reigned till the year 1800, when he was succeeded by his brother, Sai Toto Quamina, the son of a renowned chief, by whom the throne was still filled when Mr. Bowdich and Mr. Dupuis were in the country. With the exception, perhaps, of that of Sai Toto the Great, the reign of Sai Quamina has been by far the most important in the annals of Ashantee. 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 Ewe and Gama, and defeated them in a great battle, in which, it is said, they lost not less than 100,000 men in killed and prisoners. But this must surely be an exaggeration. A considerable accretion of territory, and a peace state of subjection with the heathen negroes, followed this success. The circumstances out of which new hostilities arose, eventually led also to the intercourse between Ashantee and England, which forms to us the most interesting part of the narrative. It was in 1807, that an Ashantee army first reached the coast where the European forts are. Down to this time, from the mention of the Ashantees by Bowdich early in the preceding century, they do not appear to have been visiting the coast, or even in contact with it, for 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 acquaintances of our countrymen, and corrections or explanations of some points in his narrative may be made, in the following work of Mr. Dupuis, pp. 250-264. The repose from warfare which Ashantee 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, in which 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 tendency to unite the Fantees under the Taage of the Two, and afford the relative strength and military skill of the two parties, encouraged a revolution, by which they hoped to prevent the further encroachments of the Ashantees. But the Fantees, though they had gained a numerical superiority, and were almost ready for a contest, there was no match for the Ashantees either in bravery or in the art of war. They were beaten by their enemy in every encounter, and in May 1807, the king of Ashantee had established himself and his army at Ashah, not more than fifteen or twenty miles from the sea. He soon after established, and made himself master of the Dutch stations of Cormantin 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 a 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 not from any confidence in his ability, was persuaded by the promises of assistance which his enemies had received from the English authorities, returned the braughty answer, that the governor should be told what his designs were when he could send a flag. The question was once more opened, with new 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 forces, and attempted to take this place in the night, at the beginning, but in excellent order, after a short contest. But on the following day the enemy advanced upon the town, and soon carried every thing before them. Mr. Dupuis states, on the information of the king himself, that it was not the first part of the engagement that was primarily attacked, but 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, from the west, took the part of the townsmen, not receiving 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 could 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 Ashantees, it is said, made an ope rally attack. Its renewal, according to Mr. Dupuis, was only prevented by the arrival in the Ashantee camp of a flag of truce from Governor White. This intimation of a truce was followed by the usual kind of hostilities, but the reception of the nation of hostilities was the most warmest welcome, both by the negro monarch and his soldiery. That circumstance, which is stated by Mr. Meredith as well as by Mr. Dupuis, is of considerable importance in enabling us to form a judgment as to the origin of the Ashantees of the west. These negotiations produced two amicable interviews between Sai Quamina and Colonel Terrarame, the governor of Cape Coast Castle, in which every thing was speedily arranged, and the invading army took its departure from the coast on the
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1st of July. 'The treaty of peace, Mr. Dupuis asserts, was a formal and solemn acknowledgment on the part of the governor—that, by right of conquest, Fantee, Goldi, and Cape Coast had become an integral part of British dominions.' It is further alleged, that another demand of the king's was so far acceded to, that some of the inhabitants of Amanamoe, who had availed themselves of the protection of the fort, were to be sold to be patients in the hospitals for a price of 40 negroes, or 200 dollars. The following is the account of the transaction, given by Mr. Dupuis: 'One of the two princesses, whose inscription had occasioned the war, were, the day before his first interview with the king, ordered by Colonel Torrannoe, to be seized and sent as a present to the king; and the king's instance for the friendly reception of the English, was now so anxious to secure. One of them made his escape, but the other was secured. Mr. Meredith is silent as to his fate, presuming, probably, that no reader could entertain any doubt about it. Mr. Dupuis states that he was sacrificed after having been subjected to the most cruel tortures, and that his head is at this day the decoration of the king's death-horn.

As might have been expected, the Ashantee monarch did not fail to avail himself, on subsequent occasions, of the road to the coast which he had thus opened by his sword. He repeatedly returned to inflict further chastisement on the Fantees, restless under their new masters, with a view to the payment of the tribute. Whether they were encouraged or not by the English authorities in these attempts may be matter of doubt. But in 1816 the English again drew upon themselves the resentment of the invaders, by the protection of the pirate voyageur, the Fort of Cape Coast Castle was in consequence subjected to a long and distressing blockade. The besiegers were only at last induced to withdraw their forces by liberal presents. The proceedings of the Ashantees. An embassy proceeded to Coomassie, the capital of Ashantee, under the conduct of Mr. James, the governor of the fort of Accra, assisted by Messrs. Bowdich and Hutchinson, writers, and Mr. Todlie, an ancient surgeon, in the employment of the company. It is this mission of which Mr. Bowdich has written an account. The party left Cape Coast Castle on the 22d of April, and reached Coomassie on the 19th of the following month. Their reception was in the highest degree favourable; although it was evident from the first, that they would have a very formidable opposition to encounter from the Moors who, according to the agents of the company, obviated the usual delay was to retain that monopoly of the commerce of the country which they had till now enjoyed. At one of their first interviews, however, the resentment of the king was lessened by a novelty something in this manner: He desired him to infer that his dignity and rightful claims to the sovereignty of the Fantee territory had not been sufficiently respected by the English governor-in-chief on a particular occasion. In meeting this unexpected overture, it was conceived by the other members of the mission that Mr. James did not evince the intelligence or discretion which might have been expected from him in the circumstances; and Mr. Bowdich, on the instant, resorted to the extraordinary step of subtracting his chief, and taking the conduct of the mission on himself. A speech which he made appeased the king's anger for the moment. His representations also, seconded by his two colleagues, induced the governor of the fort of Accra, Mr. Jones, and Mr. Dupuis, to leave in his hands the future management of the negotiation. On the 7th of September, accordingly, a definitive treaty was at last signed by Mr. Bowdich, 'in the name of the governor and council at Cape Coast Castle, and on behalf of the British Government' on the one part, and, according to his account, by both Sai Toto Quamina, king of Ashantee, and Boitneye Quama, king of Dwarhin and its dependencies, on the other. Mr. Dupuis states that there was no such personage as the late-mentioned Dwarhin, or more properly Juabin, being merely a town in the vicinity of Coomassie, the governor of which never enjoyed the title of king. British authorities, however, have taken occasion to mention the king of Dwarhin, the Ashantee monarch heard him with the utmost astonishment. He asserts that the governor of Juabin signed the treaty merely as an act of submission. On the other hand, in the translation of the document given by Mr. Dupuis, it is mentioned together in every paragraph. Mr. Dupuis publishes another version, made from the original in his own possession, in which the party contracting with the representative of the Company, is stated to be the king of any of the Ashantee. The principal articles of the agreement were, that there should be perpetual peace between the British and the Ashantee, and also between the latter and all African nations. The king of Ashantee was to be the protector of any British ship in the 'coast; that neither party should be considered to have any claim upon the other; that complaints of any injuries sustained should be made by the king of Ashantee, in the name of the British authorities; and that no British officer should be permitted to reside constantly at the capital of Ashantee, the king engaging to do every thing in his power to promote a commercial intercourse between his capital and the British forts, who were eager to shake off the Ashantee yoke. The inhabitants of the town of Cape Coast Castle even proceeded to fortify their settlement by the erection of a wall, certainly with the connivance of the English, if not with direct encouragement and assistance. When the king of Ashantee heard of these proceedings, he immediately gave orders that all intercourse should be suspended between his subjects and the English. Meanwhile the Moors had got wind of the design of Mr. Dupuis proceeding to Coomassie; and partly from these difficulties, and partly from repeated attacks of illness, he was detained for more than a year at Cape Coast Castle. At length, however, he succeeded in reaching the British Consulate, and on the arrival at the port of a mission from the king of Ashantee demanding explanation and satisfaction, he set out for Coomassie on the 9th of February, 1820, and reached that capital on the 28th of the same month. The next day he was admitted to an audience of the king, and met with the most gracious reception. For the history of the negotiations which followed we must refer to the account published by Mr. Dupuis. A definitive treaty was at last signed on the 23d of March, by which the king of Ashantee engaged that he would, with all his power and influence, support, aid, and protect, the British interests in that country; and would, on all occasions, march his armies to any part of the territory where the interests of Great Britain might require his assistance. He also relinquished the claims he had made upon the governor of Cape Coast Castle, for compensation on account of the alleged violation of the former treaty; and agreed to an acquisition of all territories both with the authorities there, and with all his Britannic Majesty's other subjects. The consent, on the other hand, acting in the name of the British government, acknowledged the right to the government of his highness of the territories in the said country; on the express condition, however, that the natives residing under British protection were to be amenable, for any act of aggression with which they might be charged, to the laws of the British authority. However this was, that the path or road between Cape Coast and Ashantee should be kept constantly well cleared; the one half by the
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 officers, councillors and councillors 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; nor, if so, is it possible that the arrangement had formed no part of the treaty.

When Mr. Dupuis soon after returned to Cape Coast Castle, accompanied by several Ashantee chiefs, deputied by their sovereign as his agents in England, to receive the lands sold by the late King of Ashantee, it appeared 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 of right, as this treaty implied, to the king of Ashantee. From this view they were supported by Sir George Collier, who happened to be in the Tartar man-of-war, and who refused to convey the ambassadors to England. The first result of this conduct was, the gradual withdrawal of the Ashantee merchants and traders from 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 actual hostility to the Dutch. 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 M’Carthy was sent to same denizen, the English British possessions 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 Arapah, as they were so called, firmly seated in the interior.

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 others established along the coast bordering on the western districts in the Ashantee kingdom. In the beginning of the year 1822, the forts which had belonged to the African Company were taken by the Government of the Ashantee kingdom, and the new governor landed at Cape Coast Castle, in the early part of 1822, he found the Arapah, as they were so called, firmly seated in the interior. The first operations, conducted by Captain Leaing, were crowned with success. In August, the Ashantees were completely defeated at Assecuma, in the Fantee territory, by a force composed of native troops, and partly of European, and commanded by this officer. Encouraged probably by this victory, in the beginning of the following year, Sir Charles M’Carthy had the temerity to advance into the interior at the head of his troops, and partly of European, and commanded by this officer. Encouraged probably by this victory, in the beginning of the following year, Sir Charles M’Carthy had the temerity to advance into the interior at the head of his troops, and partly of European, and commanded by this officer.

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 Acra, on the 7th of August, 1825, in which the Ashantees were completely defeated. Soon after this, the king submitted to pay 500,000 pounds 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 Assinie; but in the interior, the province of Gaman lies in great part beyond even the westernmost branch of that river, the Volta, to the north and north-east of Gaman are the Madding tribes, and the independent Moslem states of Gong and Krounas.

Both Bowdich 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 he has fallen. But in the greater part of the information collected by Dupuis himself, again, was derived merely from the reports of persons with whom he conversed, whose statements, where 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 Gaman. Some of these have been menioned 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:—Amanaho, Amba, Fantee, Inkaru, Aquapim, and Gaman. To the north of Ashantee is Total, and to the north of that Wossau. Further in the interior are, Dinkira, Akim, and Aquambu. Still beyond these are, Ashantee Proper, and Quahou; then Massy and Akeyah; then the Gaman, and the Volta. To the north of these is placed the kingdom of Banna, which is independent, although usually in close alliance with Ashantee. Beyond Banna are the Moslem states of Gom and to have long ago submitted to the native king Sai Quimina. Goboago extends a considerable distance towards the north-east. Finally, to the west of all the abovementioned provinces is the kingdom of Gaman, as already stated, which contains the provinces of Ponin, Saffoo, Showy, Sumah, and Aowin, as they succeed one another from north to south.

The general direction is from east to west, although from Cape Three Points in long. 4° 40' 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 400 miles before it reaches the sea, is almost due south; but the principal branch appears to rise from a mountainous tract considerably to the westward—the Pra, or Amanah, the branch of the Amurua or Bussana; the Pra, or Praa, by the enemy, whose numbers are said to have amounted to 20,000 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.
streets in all, as reckoned by Mr. Bowdich, was twenty-seven. The population of the town was estimated by the Ashantees at upwards of 100,000; but this is most probably an exaggeration.

Besides the eight great roads, which, according to Dupuis, lead from Coomassie, there are numerous minor roads, although most of them are merely narrow foot-paths, and the great roads which connect the principal towns of the country are the only ones which the negro population traverses 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 Ashante 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 are 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 government of the state appears to be a despotism, partially controlled by an aristocracy, and to a greater extent by the ancient customs of the country. But in whatever degree the royal power may be restrained by these oppressive forces, it is to be unimportant in regard to the right to dispose at pleasure of the property, the liberty, and the lives of all classes of the population. The king, however, is said always to consult his great council before entering upon a war or upon any other business of public importance. The character of the government has been one of the most curious is the manner in which the community has been carried on by a policy steadily pursued by the crown; and Mr. Bowdich says that the order had been at last reduced to only four individuals. There is, however, besides the hereditary nobility, a council of captains, whose advice at least is usually asked by the king on important occasions. The law of succession to the throne (and the same rule holds as to the estates of private individuals) is in some respects very singular, the nearest heir being the brother, the next the sister's son, the next the son, and the next the chief vassal or slave. In the Fantee country it is asserted that the slave comes in before the son, who only inherits such property as his father has left him independently of the state.

In Ashantee, besides the negroes, there is a large population of Moslems, that of Moors professing the Mohammedan faith, who have penetrated thither from the north of Africa. These people, possessed as they are of the art of writing and other accomplishments not paralleled by the negroes, form a very influential body wherever they are established. In former times they appear indeed, as already noticed, to have been left by the government in the enjoyment of all the powers and pretensions of the empire they still, according to Mr. Dupuis, "live in political societies, governed by their respective princes, who are vassals to the king, but who enjoy privileges exceeding those of the Moslems; and elsewhere it appears that these princes, or cabareers, are appointed by the king. At Coomassie and many of the other towns, the commerce with distant places is almost entirely in the hands of the Moslems: the provinces in which they are chiefly found are in the north of Coomassie; and it is stated that with considerable numbers the negro population is much less ferocious, and in general further advanced in civilization. The recently conquered countries of Ghofan and Ghabago were Moslem states.—it is to the government in the hands of the Moslems.

Mr. Bowdich has written a confused chapter on the Ashantee language, from which very little can be gathered. He says that from Amsunsha to the Volta there are six different languages which occur in the Ashanta, Fantee, Aboottom, Acras, and Adamee. But the vocabularies which he has printed show that these are merely so many dialects of one language. He describes the Ashante language, and the Fantee tongue, as the most superior of any language which the printed language, of which he gives some specimens, is spoken of in high terms by Mr. Bowdich for its sweetness and animation. Among their instruments are a flute made of a long hollow bamboo, three harmonics of any person, and a 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, gunggungos, flat sticks, rattles, and old brass pans.

Mr. Bowdich gives a few 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 a covering of palm-leaves, and the whole guised with leaves and trees. Many of them have arcades, and many also are highly ornamented with plaster, paint, carving, and other decorations. The doors are formed of entire pieces of cotton wood; and deals of the same wood, with an adze are sometimes, though rarely, used for flooring. There is frequently an upper-story supported on rafters. The windows are described as being of "open wood-work, carved in fanciful figures, as the Winnipeg, and the frames as 'frequently cased in gold, about as thick as cartridge paper.' While Mr. Dupuis was at Coomassie, the king commenced the erection of a fort, which, although not completed, was to be of great height and strength. It was intended for the residence of the king.

The principal manufacture of the Ashantees is that of cotton cloth, which they weave on a loom worked by strings held by the men, 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 bow's feather; and Mr. Bowdich says, that he has seen a woman 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. Their pottery is also very beautiful.

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 in the interior do. He describes, however, an ironstone of a dark red color, 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 it stated that copper is found in the country. In their religious services, the most important part is that of the fabrication of figures in gold. We must refer, however, to Mr. Bowdich's work for a description of the processes which they employ. Articles formed of gold are also found in the hands of all the different races of men in the kingdom, the most common use of which is described as being made of this precious material. Mr. Dupuis intimates, however, that the statements of Mr. Bowdich
ASH

upon this head, and also the descriptions he has given of the splendid of the Ashantees court in general, are somewhat less, what is more, it is found in this country both in mines and in particles washed down by the rains. According to Dupuis, the richest gold mines known to exist in any part of Africa are those in Gaman. Some of the richest of these mines are worked, and the gold is still in existence. The wealthier inhabitants load their persons with lumps of native gold; some which Dupuis saw, he thinks, must have weighed fully four pounds. In Ashikin, and some other parts, and the embers being burnt on the Volta, 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 about thirty miles 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 may be said to commence towards the middle of September to the end of the following month. In some months, however, there is little or no rain at all during the usual season. Mr. Bowdich has given the average of the thermometer for nearly a whole year, over which his own observations, and those of his associates, extended. In June it appears to have ranged from 73° to 94°; in July, from 71° to 81°; in August, from 70° to 82°; in September, from 70° to 83°; in October, from 70° to 83°; in November, from 89° to 83°; in December, from 63° to 85°; and in January, from 58° to 86°. In the morning, especially, it is much cooler at Cape Coast.

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, sugarcane, and a mucilage called eruma, somewhat resembling garlic. The plantations are of considerable extent, and very neatly kept. The principal domesticated animals are cows, horses of a small breed, goats, and hogs. Among the wild animals, which the region abounds in lions, leopards, hyenas, wild hogs, deer, antelopes, alligators, and a variety of snakes. Among the birds are vultures, parrots, and several small species of beautiful plumage, which sing melodiously. But all the departments of the natural history of the country are still very imperfectly known.

The town, which is thought to be a market-town, in a valley near the sea, is built upon the coast, on a rise of land, and is not far from the coast, but is about two miles distant from it.

The town is situated on 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, running off to the right, which passes across Dartmoor to Tavistock. These streets are several miles long, and are surrounded by a small spire. In the church there are several stalls, as in collegiate churches. Adjoining the church is the ancient church of St. Andrew, in the perpendicular style of Gothic architecture. The tower is about six feet high, and is surmounted by a small spire. In the church there are several stalls, as in collegiate churches. Adjoining the church is the ancient church of St. Andrew, in the perpendicular style of Gothic architecture. The tower is about six feet high, and is surmounted by a small spire. In the church there are several stalls, as in collegiate churches.

Besides the grammar-school, there are several endowments for the instruction of the children of the town, especially one given in 1754 by Lord Middleton and the Hon. John Hamersly (at that time Viz. of the borough), under which, in 1821, upwards of ninety children receive their education from two schoolmasters of Ashburton. In 1865, the late Miss Dunson founded a gift of 401. per annum, for the instruction of ten girls in reading, writing, &c.

The independent, particular, and Wesleyan methodists have meeting-houses in the town.
The chief manufacture of Ashburton is that of serge, which is made for the East India Company. The market is held on Saturday, and the fair of the four towns, in which the market formerly held on Tuesday, under letters patent, granted by Charles II., has been discontinued for many years. There are four fairs, on the first Thursdays in March and June, and the August and November. March fair is a large cattle fair, and that in November a great sheep fair. The number of houses in the parish of Ashburton was, in 1831, 552, including thirty-nine unin- habited, and the population at the same time amounted to 4165.

Ashburton was a parliamentary borough in the time of Edward I., but did not again, except once in the reign of Henry IV., return members till the last parliament of Charles II.; it was tried for the right of franchise in the house of commons, and in the ecclesiastical province of Canterbury. It includes the chapelries of Bickington and Buckland-in-the-Moor. The dean and chapter of Exeter are the patrons.

The population, near that of Exeter, is 10,000. Four of the statutory courts are held. These courts are held before the lord warden or his substitutes, for the administration of justice among the tanners of Devonshire and Cornwall, by virtue of a privilege granted to them, and used only in their own courts. Other statutory towns are Chagford, Plympton, and Tavistock.

This town was the birth-place of John Dunning, the last of the bishops of Exeter, and of John Gifford, editor of the Quarterly Review. (Lynn's Magna Britannia, Reports of Commissioners of Charities, &c.)

ASHBURY, LORD. [See DUNNING.]

ASBY-DE-LE-ZOUCH (in ancient writings called ASCHEY and ESBHY), a market-town in the hundred of West Goocey, 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 26 miles from Leicester, the county town. The signification is simply Ashby; the distinctive addition of De la Zouch, it received from the Zouchs, who were lords of it.

This town consists chiefly of one street, in which stands a new market-house, a court, and the public library of the town. The market is held on Saturday, and in the month of August.

Ashby-de-la-Zouch was near one of the 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 Animatis (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, provided with a new, paved pavement, and covered with rich hangings, 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, at whose feet lie his wife and children. In August and September, in the sixteenth century, in which there was, in 1804, when Mr. Nicholls's History of Leicester was published, a singular instrument of punishment called the finger pillory. It consisted of a horizontal bar, divided lengthways into two parts, which was turned in a hinge at one end, and fastened by a lock at the other end, after the manner of stocks. In this machine are different-sized holes for containing the fingers of the disorderly. The beam is supported by two uprights, which were turned in a turn. In an open pasture on the south side of the town, on a

* So Lynn's Magna Britannia; the 17th Aug. and 11th Nov. according to others.

gentle eminences, stand the ruins of the castle of Ashby. This castle seems to have been of vast extent and very lofty, as the house can trace its walls as far as twelve miles. It was destroyed 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' hatches, 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 Esk valley rain water. There are a small theatre, a handsome hotel, and lodging-houses.

There is in Ashby a free school, founded in 1567 by Henry, Earl of Huntingdon; also a school for educating and clothing twenty-six boys, founded in 1669 by Mr. Isaac Dawsen, 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 Saturday, and well supplied. There are four fairs in the year, and the harvest fair is a very important one.

Coal and ironstone are worked in the neighbourhood of the town, and there is a canal from the Coventry canal north to the Trent, which is a branch of the river and port of Ashby (see Bradshaw's Map of Canada), and a railroad from this canal to the town. The elevation of the town is 315 feet 3 inches above the base assumed as the mean level of the English Channel, and for 18 miles direct distance from Bedworth without any lock.

The living is a discharged vicarage with the chapel of Blackfordby, in which the vicar performs service once a fortnight. It is in the deanery of A. G., archdeaconry of Leicester, and diocese of Lincoln. There are places of worship for Presbyterians, Wesleyans and Calvinistic Methodists, and, according to some late accounts, for Independents.

The parish is extensive, and includes the hamlets of Blackfordby and Bouthorpe. Kilwardby, and the Caith, which now form parts of the town, were once distinct hamlets. The population was, in 1831, 4727, of whom 292 were in the chapelry of Blackfordby.

Ashby was the native town of the eminent Bishop Hall. In the civil war, in the time of Charles I., Ashby was garri-soned for the king, but evacuated and dismantled by capitulation. (Nichols's Hist. of Leicester.)

ASHBURY, LORD. [See DUNNING.]

In the sixteenth century, in which there was, in 1804, when Mr. Nicholls's History of Leicester was published, a singular instrument of punishment called the finger pillory. It consisted of a horizontal plant, divided lengthways into two parts, which was turned in a hinge at one end, and 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 two uprights, which were turned in a turn.

In an open pasture on the south side of the town, on a...
ASH, one of the twelve tribes of Israel. [See Pales-

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 —

Wood ash burnt without the chemical process of

combining 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 com-

pounds; these products it would be foreign to our present

purpose minutely to notice, but it may be observed that

they consist chiefly of water and carbonic acid gas. The carbon

of which the last 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 the 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, are more frequently the result of 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 of the manure used

upon it. But even, if any, of the constituents of the ashes

occurs in them in the state of the same substance 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 as 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, combined 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

age, size, 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

of many trees to six per cent.; the quantity of 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 numerous experiments on the ashes of different

kinds of trees, and there are almost extreme cases of the quantity of ashes obtained from various woods:

<table>
<thead>
<tr>
<th>Per Cent.</th>
<th>Per Cent.</th>
<th>Per Cent.</th>
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</thead>
<tbody>
<tr>
<td>Elder</td>
<td>Oak</td>
<td>bark, birch</td>
</tr>
<tr>
<td>Carbonic acid</td>
<td>30.8</td>
<td>35.6</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>2.8</td>
<td>3</td>
</tr>
<tr>
<td>Lime</td>
<td>51.8</td>
<td>54.8</td>
</tr>
<tr>
<td>Magnesia</td>
<td>2.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Oxyde of iron</td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Charcoal, &amp;c.</td>
<td>2.1</td>
<td>2.1</td>
</tr>
</tbody>
</table>

In considering the constituents of the soluble part of wood-ashes, it will be evident that 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 arsonic acid; and if burnt in a small oven, it is readily noticed because it is in the state of phosphates; while the manganous 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 action of muriatic acid.

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 the carbonate called, chalk, impure and valueless for the manufacture of glass. [See PROSPECT IV and its salts!] Though wood-ashes thus yield carbontate 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 Vauc-quelin, the alkali is there combined with arsenic acid; and it is well known that acetate of potash is, by heat and the decomposition of its acid, converted into carbonate. The sap of plants contains also other vegetable acids, as the ox-

aline, tartric, citric, &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 acquired from the soil, in the same way as lime and metallic iron. It exists in small disseminated rocks, which contain soda, and granite rocks potash; and it has been found that fir trees growing in a soil derived from the disintegration of basalt, contain much more soda and less potash than those which grow in diagenetic ground.

The ashes of land plants yield principally the salts of potash; those of marine plants afford a large quantity of soda salts, and especially the carbonate. There are several varieties of salina and cultivated on the coasts of Spain, which, when full grown, are cut, dried, and burnt in trenches; the resulting ashes are called barilla, and are imported in the state of hard, grey, porous masses. The richest barilla contains about 49 per cent. of carbonate of soda, mixed with various silica and earth 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.

Kolp is the ash of some varieties of sea-weed, especially of the fuces succinarius and fucus tenuissimus. It is

prepared in the islands of Scotland, and contains scarcely one-

thirtieth part of soda, mixed with various silica and earth impurities. It is used in the manufacture of green glass, as well as in that of soap.

It is easy to show that a portion at least of the carbonate of soda found in the ashes of marine plants results from the double decomposition of common salt by the
Coals 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 cin- der. The quantity of the ashes of the coal, with some carbaceous matter requiring a high temperature to burn it, on account of its being enveloped by incombustible matter. The coal of Somsersetshire 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 seventy-five to ninety-three per cent of its weight, little variation occurring in the different kinds of coal; but the percentage of oxygen and hydrogen varies considerably; according to Kirwan, Wigan coal contains 157 per cent of ashes; Whitby coal 17; and Swansea coal 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 burning coal are nearly useless, that form 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.

The ashes have been examined by Kissporoth; the peat of Mansfield yielded 20.5 per cent of incombustible matter, consisting of silica, alumina, lime, sulphate of lime, and peroxide of iron. MM. Oberlin and Bucner have lately analyzed the ashes of the turf occurring near Strasbourg; 91.5 per cent of the turf yield 18.9 per cent of ashes, of a dingy grey colour, mixed with white and reddish gritty particles of an earthy, saline taste, and insubstantial by the blow-pipe. One hundred parts of these ashes yielded 91 parts of lime, with a little sulphate of lime, 19 parts of carbonate of lime and magnesia, 81 parts of sulphate of lime and oxide of iron, 100 parts of alumina and silica.

The ashes contained neither free nor carbonated alkali, nor tin oxide, nor any sulphuret. (Journal de Pharmacie, Avril, 1810.)

With respect to animal ashes, we are not aware that the different forms of animal matter have been subjected to incineration. From the following results obtained by Berzelius, in his experiments on the ashes of bones, it is not difficult to conceive that phosphates of lime could constitute the larger part of the ashes of the animal solids, excepting the fat; he found that ox bones, after the dissipation of the carbonaceous animal matter which they contained, yielded 66.7 per cent of ashes, composed of phosphoric acid, with a little fluorspar of calcim 57.35 parts of carbonate of lime 3.85 parts of sulphate of magnesia 2.05 parts of soda, with a very little chloride of sodium 3.45 parts.

The ashes of human bones contain about four per cent. of phosphate of lime, and almost 74 per cent. more of carbonate than ox bones. With the exception perhaps of the phosphate of magnesia, all the above compounds exist as stated in the table previously to incineration; 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 the base of many of the essays of the cure of scrofula, and in the preparation of phosphoric acid.

Volcanic ashes only remain to be noticed. Vaquelin examined some ashes from Vesuvius which fell at Naples in 1822; the colour was greyish or greasy, they were tastless, and found to consist of alumina, oxide of iron, muriate of ammonia, sulphate of lime, potash, copper, manganese, lime, and charcoal; the proportions of these, however, were not determined. (Annales de Chimie et de Physique, tome xxxv. p. 72.) Vaquelin also analyzed the ashes ejected in the same year from Mount Etna; they were of a grey colour, and in fine powder; when heated to redness in contact with the air they exhaled sulphurous acid, and in a close vessel they yielded sulphur. The following statement shows that the composition of these ashes was very different from those of

Veasvius ejected in the same year. One hundred parts consisted nearly of—

| Silica | 29.10 |
| Sulphate of lime | 18 |
| Sulphuret of iron | 20.88 |
| Alumina | 8.5 |
| Lime | 2.63 |
| Charcoal | 1 |
| Sulphate of copper and of alumina | 21.42 |

Traces of sulphur, a moraine and moisture 100.60

(Annales de Chimie et de Physique, tome xxxvii. 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- ston) to Folkestone (53 miles), at the confluence of the Stour and the Thames. It is called in Doomsday-book both Esteford and Eseteford, and in other antiquan records Eseteford, taking its name from the Esbe or Eseth, 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 Folkstone road passes) 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 Saturday. There is a monthly market 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 gentry families reside in the town. The population of the parish in 1831 was 2,809.

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 been roofed up. Many of the most 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 Bogge, who also much repaired, if he did not rebuild, the church; and founded a college or choir (consisting of the vicar as master or prebendary, 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 place is a vicarage 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 (6d. 13s. 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 six inches to six inches thick. Ashler is of several kinds. The plane 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 plane ashler. When the stone shows on its surface a series of narrow parallel flutings, the work is called tooled ashler. This is principally to be met with in the basement of buildings where the stone is set with flutings running perpendicular. There is also an ornamental kind of ashler, called build- ing ashler, produced by slightly cutting into the surface, so as to make a depression, along one, two, or more of the sides of the joint. This kind of ashler is called rusticated ashler. (For a more particular account of rusticated work, see MASONRY.) The Banqueting-Hall at Whitehall, Somerset's house, the Bank of England, and St. Paul's Cathedral, may
be taken as examples of rusticated ashler in London: an example of rusticated ashler on the north side of the western entrance of St. Paul's Cathedral is given in the cut.

ASHLERING, a term in masonry signifying the act of bedding in mortar the ashler 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 Boyer 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 1645 he became one of the gentlemen of the ordnance 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 at 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 abstruse 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 husband, Mr. Humphrey Stafford, made great opposition to the match. The fortune which he obtained with this lady (she was her fourth husband) enabled him to open his house to the most learned and scientific persons of the time.

He was in 1650 published in his treatise, An Account of Dr. Arthur Dee upon the philosopher's stone, under the title of Pisciculus Chemicus; or, Chemical Collections expressing the Ingress, Progress, and Egress of the secret Hermetic Science, as well as of the choicest portions of the Chymical Art. Whereunto is added, the Arcanum, or grand secret of Hermetic Philosophy. Both made English by James Hold, Esq., in which name, the letters of his own will be found transposed. He, at the same time, addressed himself to an undertaking of greater complexity; namely the collection of the works of such English chemists as had till then remained in manuscript; to which, as well as to an ardent passion for the study of chemistry, he had been excited by one Buckhouse, who was reputed 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 30, 1651, he says, 'Mr. William Buckhouse, 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 engraving seals, casting in sand, and the mystery of a working goldsmith. In 1652, believing that a competent knowledge of Hebrew was necessary for standing 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 towards the close of 1652 his Theatrum Chymicum 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 connection, involved him in several law-suits, and at last in a dispute in Chancery with the lady herself. October 6th, 1652, he says, 'The case between the mortises and my wife was heard, where Mr. Serjeant Maynard observed to the court that there were 800 sheets of depositions on my wife's part, and not one word proved against me, of using her ill, nor ever giving her a bad 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 Chymicum to several volumes. In 1658, however, he published a treatise on the philosopher's stone, entitled The Way to Bliss; in three books: the first, a work in which he friends the alchemists 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 Phoenix, the compilation of which he did not notice heretofore. 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 long accumulating.

Upon 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 detection of the secret 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 and honours bestowed upon him. In another month, on February 9, 1661, the secretariness of Surinam. On the 17th of February, 1665, Sir Edward Byse sealed his deputation for visiting Berkshire, which visitation he began on the 11th of March following. June 9, 1668, he was appointed assistant-generall and country accountant in the
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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. Duckinfield, which forms a suburb of Ashton across the river, and is united with it by a bridge, is in the latter county. Ashton is 6 miles east of Manchester, and 1864 miles N.W. by N. of London.

Ashton is a thriving place; and on the whole well laid out and well built. The streets are paved, and the town lighted by the church and public buildings, and the church is adorned with a fine peal of ten bells. The architecture has been much altered by subsequent repairs; and the edifice sustained considerable injury from an accidental fire in 1821. The church is an addition to an earlier and smaller church called the "Old Hall," supposed to have been built in the fifteenth century; and adjacent to it are the remains of a prison, whose appearance indicates still greater antiquity. This prison is known by the name of "The Dungeons," and was used as a place of confinement till a comparatively recent period. A new church, the cost of which was defrayed by a grant from the commissioners for building new churches, has also been erected. It is of Gothic architecture, and has a square embattled tower surmounted by pinnacles. The court-house for the transaction of public affairs is a handsome building, with a theatre and a concert-room over it.

The chief business of Ashton is the cotton manufacture; there may be judged of by the fact, that in ten years preceding 1831 the mills increased from thirty to seventy. The goods produced are chiefly gingham, muslin, and calicoes. The Manchester and Ashton, Peak Forest, and Macclesfield canals join Ashton with the various manufacturing districts of the north and middle of England, much promote the trade of the town. Hats, woollens, and silks are manufactured here or in the neighbourhood, and coal is dug in the adjacent districts, and carried to Ashton in carts, and from thence to Manchester by a considerable quantity. There are more than twenty collieries in the district, which employ upwards of 1000 men.

Ashton was once a borough, but had been disfranchised; and was indicated by the name of a manor once held by patent; granted by Henry VI. The ancient cross is still standing in the market-place. The reviving prosperity of the town has led to an application to parliament for re-establishing a market; and within a few years an act for this purpose has been obtained, as well as one for regulating the police of the town, and for lighting, cleansing, and watching it. Under the Market Act, a site has been provided, and building commenced, at an expense of about 10,000l.

The market-day is now not fixed. The main pipes laid down by the gas company exceed eight miles in length. There are four fairs in the year.

There is an ancient foundation-school; also a national school.

The town of Ashton (including, as it appears, the suburbs or quarters of Boston, Charlestown, Hurst, and some others) had a population in 1831 of 14,673, having increased by more than 3000 persons in the previous ten years.

The chief part of the town and of the parish is on the estate of the Earl of Stamford and Warrington. As lord of the manor he holds a court, at which constables are appointed, and in which questions of disputes, breaches of trust, and rights of tenants, as well as actions of debt under forty shillings, are cognizable. By the late Reform Bill Ashton was made a parliamentary borough, the boundary of which coincides with that laid down in the Local Police Act. It returneth one member to parliament, and contains an hundred 100. houses. There is a court of requests for the recovery of debts under 5l.

The living of Ashton is a valuable rectory, wholly or in part in the gift of the Earl of Stamford and T. Hunt, Esq. The parish is very extensive, comprehending about ten square miles. It is about six miles from N. to S., and four from E. to W. In it are several large manufacturing villages; but excepting the town itself, it is not populous. The parish is divided into four arbitrary divisions, for the purpose of collecting rates, viz. Harthead, Knottnalea, Audenlaw, and Ashton town; but it is under one municipal government. The population of the whole amounted in 1841 to 14,673. The spiritual houses of these estates were provided for by five places of worship of the establishment, (viz. the parish church, three parochial chapels, and one chapel of ease), and twenty-four other places of worship of

* We presume this must be the building mentioned above as a new church,

which, nineteen were Methodist, three Baptist, one Independent, and one Johnnise. (See Parliamentary Returns for 1830.)

The principal villages in the parish are as follows:—

Stalybridge, on the Tames, 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 parish. For the purpose of improving the trade 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 since, cotton manufacture, and woollen-cloth manufacture, and consisted of weaving, dyeing, pressing, &c. The population is not ascertained.

Mossley 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 Mossley there are several good ones, and a parochial church in the gift of the rector of Ashton. The population in 1831 was about 1500.

Lee's is N. by W. of Mossley, 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. Population 3531 about.

Hodley 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 connects Manchester with Ashton, is a settlement of the Moravians. It has a chapel, and several good houses.

Near Mossley is Hart'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 structure is of stone, and 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 shaking 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. For trees, fresh and full of turpentine, 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 juris, 'the head of the fast;' the other was Ash-Wednesday, so called from the antient ceremony of blessing ashes on that day, with which the Lenten season opened; the ashes being thrown on the head in the form of a cross, adding this admonition, Memento, homo, quod cines es, et in cinerem revoceris: ' Remember, man, that thou art ashes, and shalt return to ashes.' (See Festus de Anglico-Romanico, p. 19; Moretini Patatus, p. 37; Festivall, fol. 1511, p. 12.) 'Manly to take their ashes devoutly,' 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 coming in the Palm-Sunday before. In Bishop Bonner's Injunctions, a.d. 1555, we read that ' the liwelled ashes given by the priest to the people on Ash-Wednesday are to put the people in remembrance of the mortal part of their lives, as well as of the sweet savour which they carry to heaven in their dust, earth, and ashes. The antient discipline of sack-cloth and ashes on Ash-Wednesday, is at present supplied, in the English established church, by reading publicly on this day the curses denounced against inconstant sinners, when the people are directed to repeat an 'Amen' at the end of each meditation. Compare Western on the Common Prayer, 8vo. 1722, p. 227; Brand's Popular Antiquities, vol. i. p. 184; or in his translation, in his History of England; Martindale, in his History of Cheshire; and Scott's Hist. of Lancashire, in which the custom is said to have been kept by the ancient Christians of the north-country, and by those of the north-west. The ancient practice is not to wear our old clothes, but to put on new ones, and to wear them only on Ash-Wednesday, and then to throw them away the same evening; and to be washed in the cool of the evening, and have a fresh change of clothes on Ash-Thursday. The antient practice of wearing sack-cloth and ashes on Ash-Wednesday is thus described by Scott: ' On that day every one shall wear sack-cloth or a coarse cloth and ashes; the women shall wear a coarse cap and stay; and this will be done as a sign of mourning, and with this apparel shall they appear at church. And when they shall have eaten, they shall wash their hands and faces in the evening of that day, and be washed in the house of their master, and shall be dressed in new apparel the next day. And this was done in the time of Jesus Christ. And in memory of this custom, the English people both in the north and in the south, shall be dressed in sack-cloth and ashes on that day.' This custom is said to have been observed in all ages until the Reformation. But there is no evidence that the custom was ever observed in this country. It is said by Scott that the custom of marking the forehead with ashes on Ash-Wednesday, is of more ancient date; and by Brand that it was observed in the times of the Popes.'
lished in England at the Reformation, and a commination service, as above alluded to, substituted in its stead.

ASIA, under which name we at present comprehend all countries lying between the seas of east, west, and north Africa, was also applied by the Greeks to the countries bordering on the eastern shores of the Mediterranean Sea, and extending thence eastward. Herodotus confesses that he in this view, if we may so say, be original. (ii. 461) mentions an Asia plain lying near the shores of the Aegean Sea between Ephesus and Sardis; and the traditions of the Lydians speak of a king of Asia. Hence it is probable that this name was originally applied to a small district on the western coast of Asia, and that the geographical knowledge of the Greeks, at the progress of time, as the countries east of it became known to the Greeks, the name of Asia became co-extensive with their discoveries, till at length it was customary to designate by it the countries of Europe and Asia. But as far as we can infer from our authorities, it was more of a hostile than a pacific nature. Commercial exchange seems to have been nearly confined to a few Phoenician vessels which visited the Asiatic ports of Greece; and even with them piracy appears to have been as important an object as commerce. Though the Phoenicians visited the ports of Greece, the inhabitants of that country went only to a few places on the western coast of Asia, and even those had only a very indistinct idea of the geographical knowledge of Asia was consequently circumscribed within very narrow limits. But confined as their navigation was for a long time, it at last contributed to bring about the settlement of the Greek colonies in Ionia; and this event was followed by another of greater importance in a geographical point of view, namely, the extension of the navigation of these colonies to the countries round the Black Sea, and the exclusion of the Phoenicians from the navigation of the world. The subject of the Greek colonies in Asia Minor to the kings of Lydia seems not to have injured their commerce, and it doubtless extended their knowledge at least as far as the Hali, the boundary of the kingdom of Creesus, and perhaps somewhat beyond it.

The progress of geographical knowledge, which hitherto had been very slow, was accelerated by the establishment of the Persian monarchy, n.c. 550. The different states into which till then western Asia had been divided, and which had much impeded the commercial intercourse of its inhabitants, were incorporated into the extensive Persian empire, which comprehended nearly all the countries between the Mediterranean and the Caspian, and the northern boundaries of the Persian empire, and the mountains which border the valley of the Indus on the west: these countries were inhabited by twenty-nine different nations. The Greek colonies on the coast of Asia Minor, on the other side, were in no manner subject to the Persian monarch, which circumstance soon led to their intimate acquaintance with Asia beyond the limits of Anatolia. We may judge of the rapid progress made by the Ionian Greeks in their knowledge of Asia, when we find that hardly fifty years after the foundation of the Persian monarchy, Aristagoras, the governor of Miletus, the most commercial and powerful of these colonies, was able to produce at Sparta a copper tablet or map (Herod. v. 49)—the first of which we have any distinct record—on which the countries and military stations between Ionia and Susa were exhibited. About the same time the Persian dominion over all the above-mentioned countries being firmly established, a regular plan of administration was formed by Darius the son of Hystaspes; this king probably caused a geographical and statistical account of the whole empire to be composed, a custom common in Asia at more recent periods, as the dynast Abbott of the Mogul emperors shows, and one still in use in the Chinese empire. Some such work as this must have existed in Persia, for otherwise we can hardly account for the geographical knowledge incorporated to Asia in the products of the works of the Greek historian enables us to form a pretty exact idea of all the countries subject to the Persian monarchs, and even of those which he had not an opportunity of exa-

mining personally. His information about the countries of Asia beyond the boundaries of the Persian empire is scanty, and much less exact: as it was acquired by oral communication, it is not surprising that it is often incorrect and mixed with fables, though even the latter in many instances are founded on facts.

Before the time when Herodotus wrote, the Persian empire had become considerable. Accordingly we find that the geographical knowledge of the Greeks, at this period, did not advance beyond the antient boundaries of that empire. But as the intercourse, both hostile and pacific, between the Greeks and Persians had during that period considerably increased, the knowledge of the different provinces composing the Persian empire was also enlarged. The most valuable information of this kind we find embodied in Xenophon's Anabasis, or the Expedition of the Ten Thousand. [See Xenophon.]

The foundation in later times of the Persian kings to have Greek physicians about their persons, as we see in the instance of Democedes (Herod. iii. 129, &c.), Ctesias, and others. Such men had of course considerable opportunities for acquiring exact information. If the work of Ctesias had come down to us entire, we might have formed a better estimate of the value of his history of Persia, now known to us solely by the extracts of Photius and a few other writers. [See Ctesias.]

The foundation of the Persian empire had proved advantageous to geography: its destruction also was favourable to its progress. By the conquests of Alexander, the remoter provinces of the Persian monarchy, of which a great part comprised in modern Asia, was made known to Europeans, and those given by Herodotus, and by the vague information of individuals, were at once opened to the Greeks, who had been prepared for increasing their geographical information by their education and previous habits. The operations of military expeditions and the observations of military men have always rendered signal services to geography. Alexander attempted to cross the boundaries of the Persian empire on the north and on the south; and though his success was only limited in the former, he is said to have thought it worth his while to have some notion of the nomadic tribes beyond the Iaxartes (Sir-Sthon), who, then, as at present, wandered about in those extensive deserts. But his attempts on the south and east were crowned with success. He crossed the Indus and four of the rivers which traverse the Pentjub, and had advanced to no great distance from the banks of the Jumna and the valley of the Ganges, when he was obliged to abandon his design of conquering India, owing to the state of his army. On his return to Persia, he made an important addition to the geographical knowledge of the Greeks by exploring with his army and navy the course and valley of the Indus, and he also sailed as far as the mouth of the Styx. [See Alexander.] Besides the geographical knowledge acquired by these military operations, and the successful execution of the orders which the monarch gave by his military commanders: the foundation first gave the Greeks a more exact notion of the great extent of India, of its riches, and the peculiarities of the nations which inhabit this great peninsula. The geographical information acquired during the expeditions of Alexander was incorporated in a map by one of his companions in arms, Dicemarchus, a pupil of Aristotle.

Less satisfactory, though not less important, was the information which reached us remotely from the conquerors of Alexander. The Macedonian king destroyed Tyre, and transferred its commerce to Alexandria, which he founded near the western mouth of the Nile. As the Phoenicians, for perhaps a thousand years and upwards, had carried on a lucrative commerce with the countries to the east and south of the Persian empire, especially with India, by way of the Persian Gulf and the Red Sea, their merchants had frequent opportunities of collecting such information as tended to increase their commercial advantages. Accordingly the Phoenicians had more natural and geographical knowledge than any other nation of the antient world, and they had embodied it in writings. These were likewise imparted to the Greeks, who on his expedition to India, Alexander founded Alexandria, the capital of the founder of Alexandria, Egyptian vessels from the
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 though the geographical information acquired by commerce is often of the most valuable kind, its progress is extremely slow even in our time, and must have been still more among the ancients on account of the numerous defects of their shipbuilding and state of navigation. 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 with 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 that reached Alexandra, 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 Seleucus 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 invaded Sogdiana and Samarkand, and Lydus, of the Pratii, to whom a considerable part of Hindustan was subject, and to this individual we owe some further particulars respecting India and its inhabitants. (Strabo, 702, 274, etc.) The Greek empire of Bactria, though its kings retained the name of kings and the title of emperors, was occasioned by the death 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 they did not extend beyond the borders of these provinces which once belonged to the Persian monarchy. The extreme eastern boundary of the Roman empire was formed by the Tigris, the Euphrates, and the Caspian Sea. Though these boundaries 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 Caspian Sea, for to their wars with Media, and with Parthia, 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 valleys which lie in its bosom. In consequence of the death of Alexander, the Parthian dynasty was established in the Caspian Sea, which then, possessing no information of a commercial road through Bactria, by which the countries on the south of the Caspian Sea carried on an active commerce with India; and soon after another route was opened for the carriage of the goods of Asia to the Seres or Chinese, probably the road which still passes through the town of Kashgahr. Nothing further was added to our geographical knowledge of Asia by the military expeditions of the Romans; but the immense riches which many Roman families had accumulated during the commonwealth, and which still continued to increase under the emperors, created a taste and demand for the exquisite productions of India and eastern Asia, and accordingly we find that not only the lately discovered roads to China and India were much frequented by merchants, but also that the commercial enterprise of Alexandria was so increased, that in the time of Strabo a hundred and twenty vessels were annually sent to the coast of Malabar.

This intercourse was considerably facilitated by the discovery of the monsoons in the Indian Sea by Hippalus (Hudson's Minor Geogr. vol. i. Periplus of the Erythraean Sea): this passage has been sometimes interpreted as if the discovery of the monsoons was made about the time this Periplus was written, but there can be no doubt that navigators had availed themselves of the periodical winds long before.

The maritime intercourse of the later Greeks with the countries of the Indian Ocean was connected with the antiq

their knowledge was limited to a few places traversed by commercial roads, and to the harbours. Ptolemy was acquainted with the roads leading overland by commercial routes of Asia to 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 Imoas or Himoas) and even of China and Cathay.

The coast of Arabia and Persia, and of those with 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 the Greeks, though less dimly so than the countries to the east, and this was especially the case with Asia Minor, 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 Imoas or Himoas) and even of China and Cathay.

Besides this, the Periplus of Nearchus, and another probably written in the second century, and attributed to Arrian, give a more particular description of the coast of East Africa and the Red Sea, as well as the Periplus, 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 and Strabo. But we have since found in Chinese records a retrograde movement, as the father of history knew the Caspian to be a lake, which Strabo believed to be a sea. He also placed the length from east to west instead of from north to south, as Herodotus had done. (See Argo-

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 Persians under the Sasanian dynasty of which the empire of India, under the new-founded governments, progressed the progress of the Roman arms on that side. Consequently, the succession of geographical knowledge concerning Upper Asia was ex-

The channels of geographical information were soon closed. The requirement of the state, and the policy of Mohammed bore down all resistance, and in a short time Egypt and the Asiatic provinces of the Byzantine empire, except Asia Minor, were subject to the Arabs and their Califhs; the kingdom of the Sassanides also was incorpo-

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 desert on the west and south of the Altai Mountains and about the lake of Saisian, or Zaizang, with the view of inducing them to attack their common enemy, the Persians, without foreboding that the deserts were deserted by the very people who had for a lapse of nearly nine hundred years would destroy his own empire and choose Constantinople for their metropolis. Nearly about the same time, an Egyptian merchant, Cosmas, surnamed Indicopleustes, who for a long time had car-

The improving of the antiq
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 intercourse was maintained between Europe and the East.

Circumstances, however, arose which led the Mohammedans of the Caliphate to abate their intolerance and to adopt a more enlightened policy. Science began to be cultivated in the Mohammedan countries, and the former prohibition against study was removed. 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 the Arabs than it ever had been by 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 still unknown, others are still inaccessible to European readers, but some have been translated. The most important are the Oriental Geography, translated by W. Ouseley, London, 1800, which was written in Arabic by the Greek geographer Haukul the Arabian, written about fifty years later; the Geography of Edrisi (1153), arranged, like that of Ptolemy of Alexandria, according to climates; the Geography of Aboul-foz (1236), which contains the fullest and most inaccuracy geographical information about the eastern countries of Asia in the middle ages, before the establishment of the Mongol empire, is contained in the Travels of Ibn Batuta (1324-1354), translated by Professor Lee of Cambridge, London, 1829. Ibn Batuta was doubtless the greatest traveller that ever lived. He visited the historical and geographical site of Phoenicia, Egypt, Cana- lon, the eastern coast of China, and Tanger in Africa (which was his birth-place), and traversed all the countries between these extreme points.

The Arabs seem also at an early period to 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 prompt to despise the dangers of a perilous voyage, and to propagate their creed as by the love of gain, and they succeeded in converting the inhabitants of the Peninsula of Malacca and some of the islands of the Indian Archipelago. There exist 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 Arab navigators, and so much of these navigators reached Canfu (Canton), they collected very interesting information on the southern provinces of China, its productions, and manufactures; some historical facts which they mention. Some valuable productions of the Arabs in China are confirmed by the annals of the Chinese Empire, a coincidence which shows the authenticity of these works.

But the Arabs did still more for geography by establishing it as a science on mathematical and astronomical principles, and thus following up the work of Ptolemy. The Calif Al Mamun (813-833) ordered a degree of the meridian to be measured, and this task was executed by the three brothers Ben Shaker in the great plain to the north-east of damascus, between Palmyra and Rasca on the banks of the Euphrates. In subsequent attempts at the projection of maps, the Arabs soon became sensible of the want of actual astronomical observation. This led them to the erection of observatories, and to a compilation of astronomical tables. Two works of this kind still exist: one composed about A.D. 1345, in the observatory built at Marshaga, near the lake of Urma; and the other in 1449 at Samarcand; the data contained in the earlier work of these observatories, which were formed till lately the principal basis on which our maps of the countries to the south of the Caspian Sea, and to the north of the mountains of Cabul and of the Hindu-kush range, were constructed.

Among the nations of Asia none perhaps has done more to increase the stock of geographical knowledge concerning this great division of the globe than the Chinese. The high estimate of their empire prove clearly, that two centuries before the Christian era, they undertook to collect geographical information concerning the extensive provinces and tributary kingdoms of their dominions; and they have continued this work to the present day. Neither opportunities nor inducements were wanting for that purpose. An empire of such magnitude as the Chinese always has been, which frequently comprehended half the surface of Asia, renders the exact knowledge of the condition of its provinces, and of their inhabitants, a matter of necessity to the government. Besides the information thus collected by means of the administration of the foreign and domestic provinces was transmitted to the several, ambassadors to the tributary princes and nations, and to those who, from time to time, sent presents to the court of the Celestial Empire. These ambassadors were instructed to gather information of monuments, which they were sent to, and to include it in their reports of the embassies: the reports were afterwards deposited in the archives of government. From such materials the geographies of the Chinese empire were composed and published in this century, and the art of foreign commerce having come into general use among the Chinese in the tenth century. These works contain very abundant information concerning Tartary, Corees, Tibet, Turkistan, and Bournia, and even valuable censuses on Siberia, Persia, and India, as well as on Siam, Tonkin, Java, Formosa, and Japan. But till very lately this information could not be used by the geographer, the study of the Chinese language not having been attended by a number of learned men. The most important work on this language is daily increasing, and we may soon hope to get access to these writings, which is the more desirable as most of the countries described in the Chinese works are still inaccessible to travellers. The most singular and 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 Travels of Marco Polo and his two companions, in which his life written "Venetian-thangh-kho" (Exact Researches of old Monuments), consisting of a hundred volumes, in 348 books, has given an epitome of Chinese literature to A.D. 1207. This great work is characterized by its inaccuracy and repetition, but it is still the best and most complete collection of Pliny 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 the remaining countries of the East.

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 (1096-1279), undertaken to recover the Holy Sepulchre from the Infidels. The navies of the Italian republics accompanied these expeditions, and the citizens of Pisa, Florence, Genoa, and Venice had thus the earliest opportunity of exploring the coast of Africa, 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 precious products of the East. The Crusaders and the Black Sea Sea, extended their commercial speculations to India through the East Indies, Caffa, La Terra (Asaf on the Don), Astrachan, Urgen (Khiwa), and Tashkend, of which route the interesting work of Balducchi Pegolotti, entitled Libro di Divisamento dei Paesi e Misure, written in 1333, 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, were desirous of establishing a political connexion with those who inhabited the northern and inland parts of this continent. This was brought about by the conquests of Tschengis-khan and his successors. Soon after the death of Tschengis-khan, the Mongols had assumed his dominion in little more than twenty years (1206-1227) over all the inland countries of Asia from the boundary of Siberia to that of India and Tibet, the Mongols entered Europe across the Volga, subjected Russia, laid prairie, and made the power of Russia a sort of base of the foot of the Riesengebirge, at Liesnitz in Silesia (1243).

All Europe trembled; but the baronians, having got...
information 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 politics of Pope Innocent IV, and of King Louis IX. of France, suggested the plan of giving more to the 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 previously convert that portion of the Christian faith among the Chinese. For that purpose some friars were sent to the court of the great Khan; John di Plano Carpini in 1246, Father Ascelin, a dominican, in 1248, and William Rubruquis, or Ruysbroeck, in 1254; and though they did not succeed in converting the court or the Christian nation in China, in which Peking had become the residence of the Mongol emperors, and of Japan, called by him Zippangu, which name is evidently formed of the Japanese Dshi-pen, 'great country,' the result of the Riga parties, which he had not visited; but as his protector, the great Kubilai Khan, sent, in 1280 and 1281, some naval expeditions from Kuan-fu and Zaitun, in the Chinese provinces of Chekiang and Fokian, to attempt the conquest of the Japanese islands, and the meeting of the Pole Polo with some European missionaries 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, t.e. Pago, and Bangals, Berd, in Hindostan, a name never before known in Europe. Kubilai Khan had sent, in 1272, an army to conquer these countries. Marco Polo is the first European, as far as we know, who navigated the seas to the east and south of Europe beyond the Ganges; and here he mentions the Spice Islands, 7,448 in 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 no commercial intercourse with foreign nations, except the traders of Malacca, who, however, can only 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 navigators, consisted of islands, inhabited, and partly uninhabited. 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, the information he gives is less interesting, and has proved very useful. He treats of Ceylon, Malabar, and Ormuz, which he himself had visited; and of Aden, Socotra, Abasica (t. e. Abyssinia), Zangucar, and Madagascar, which names were for the first time introduced into geographical literature by him. The eastern part of the empire—Scythia, the countries situated between the Volga and the sea, and east of the Caspian Sea, the great empire of the Mongols, was divided into provinces, each successively under the dominion of some of the Khans. Marco Polo gives a description of the provinces of the empire, and of the manner of life of the nations who inhabited them, and of the various nations of the Mongol nations, and of the Mahometans, who practised the profession of the religion of Mahomet, and were of very different races. The Mongol empire extended over more than half of Asia, and nearly all the countries of Asia, with the exception of Persia, were under the dominion of the Mongol Khan, and had the form of a great republic—each province, with a capital, under the dominion of its particular Khan. But this subject will not be discussed here.

I. 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 never have been confused with some other region. 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 Tsagh, and the river Indus, the most important clue of the description of the

In 1517 the Portuguese erected the fort of Colombo, in Ceylon, and began to exercise a dominion over its petty sovereigns. It only appeared to them that it was expedient to

that the colonists, by their landings, had avenged the shores and adjacent islands of southern China. For this valuable assistance they obtained the desert island of Macao, where they soon made a settlement; and as on the change of dynasty in the seventeenth century they were fortunate to cooperate in favor of the party which, in the end, proved victorious against the then established government, the possession of Macao was confirmed to them.

While the Portuguese were still carrying on their coasting trade with China, one of their navigators, Ant. de Mota, was cast by a storm in 1542 on the coast of Nipon, one of the islands which compose Japan, the Zipangu of Marco Polo. The Portuguese were treated with great hospitality, and for some time carried on a very lucrative commerce with that country, 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 conducted their enterprises among the Dutch, Persians, and Chinese, they might have anticipated with much success; but, indeed, with rich countries would probably have induced them to conceal their discoveries from the commercial nations of Europe; but they entered the Indian seas as conquerors (Baron, Cuba, and their hangers), and as the companions of Magalhaes, Faria y Sousa, &c. found in their heroines a subject for national exultation.

The Portuguese had exhausted their strength in forming settlements both in the Old and New World. The spirit of the first conquerors no longer animated the nation, and their tyranny and intolerance made them hated in their colonies. At the close of the sixteenth century Portugal fell under the yoke of Spain; and one result of the struggle of the Netherlands against the power of Philip II, was the gradual transfer of the Portuguese possessions in the East to the hands of the Hollanders, their successful rivals on the sea. The Portuguese were expelled from Japan (1640) and the Moluccas, and their settlements on the Coromandel and Malabar coasts; and they remained, at the conclusion of peace (1669), only in the possession of Goa and Diu, which they have kept to the present day. Though they had 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 in which they settled, they published, indeed, a few descriptions of some of their colonies, and their natural productions, especially of the plants and shells (Rumphius, Ambonamboeae Bataviamam; Reede, Hortus Malabaricus; Fr. Valentin's Beschreibung der Inseln, &c.; but they included little geographical information. The most important communications belonging to this period was furnished by the German

bours of Coromandel, Orissa, and Bengal. John de Silveira in 1518 visited the town of Chittagong, from which the finest cotton manufactures, silk, ginger, indigo, and dyes were exported to Europe. The eastern coasts of Java were visited by vessels from Malabar, Bengal, Siam, China, the Philippine Islands, the Moluccas, and the Sunda Islands. Angola took it in 1511, and the discoveries and the navigation of the coasts were continued in every direction. Now, for the first time, they entered the Gulf of Bengal, and became acquainted with the coasts and harbours of Coromandel, Orissa, and Bengal.
naturalist, R. Kämpfer, who, in the capacity of Dutch physician, resided in Japan from 1684-1692, and has given a full account 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 moderns, suddenly emerged from the obscurity in which it had lain for so many centuries. The knowledge of Asia, who for more than two centuries had been dependent on the Tartar princes of the family of Tenghis-Khan, obtained the full sovereignty of their country in 1451, and in the following century they extended their dominion, and with all our 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 1578 the Czar of the Osmanli Empire, in Asia, died, and was succeeded by a man 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, was pursued with such vigour, that in 1644 the mouth of the Anour was reached, and in 1648 the bold hotam Deshof, favoured by a mild season, circumnavigated the most north-east corner of Asia, from the mouth of the Kowyna round the north-east cape to the mouth of the Amour, 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 (1778), were the first to show that the most conspicuous and least conspicuous points on the coasts of Asia, were connected by water, and in the year 1750 to 1754, the Dutch navigation, in the person of Captain Amouret, went by the Cape of Mount St. Japhet, to China, the Chinese, who then had the port of Loosak, got an account of the countries from India through Kashghar, Yarkand, and the desert of Gobi, to the great wall of China, and ascertained that Katal was northern China, and Khambula 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 travels, or were sent on certain missions. By these means they supplied a considerate knowledge of China and the countries dependent on it, as Manthuria, 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 Felix d'Arocro, Espinosa, Hallerstein, and Gaubil, was published at Peking, by the authority of the emperor Kienlong in 1760, in 104 sheets. The most important geographical information and thing-yang-toung-tchi, 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 was corrected by the emperor Anour, and we might be indebted for our knowledge of it to the industry of some Chinese scholars, especially Sir George Staunton, Davis, Morrison, Abel Rémusat, the Archimandrite Haysch, and Klesprob. Modern travellers, especially the Dutch navigators Neef, Van Thoenvo, and Van Beuningen (Lord Macartney, with Sir George Staunton and J. C. Hüttner, 1792, and Lord Amherst, with Ellis, Abel, Maxwell, Basil Hall, 1816), have added something to the knowledge of the interior of China, and the geographical knowledge of the southern and western parts of the country is comparatively slow. A great variety of the Turks, who, at the end of the fifteenth and the beginning of the sixteenth century, had got possession of that part of the world, were connected by 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 Sodides (from 1591-1722), was much more favourable to the travel of the missionaries, and everybody now and then visited 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 inhabitants of the countries, which the missionaries visited in the travels of Pietro della Valle (1614-1656), Adam Olearius and Albrecht von Mandelsloh (1633-1639), John Thevenot (1659), John Baptist Tavernier (1664), and especially in the travels of J. Antonio de Ilarion (1699), and Robert King of Persia and of Charles II. of England, who discovered the ruins of Persepolis; and of Francis Bernier, the physician of the emperor Aurung-Zeb, who first gave some information on the valley of Cashmere. Gasparo Contarini, a Venetian Jesuit, made a journey to Persia (1579-1588), by the route of Aleppo, Bir, the Euphrates as far as Fehurja, and Bagdad. Rauwolf, in 1574, also descended the Euphrates from Bir.

The sixteenth 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 Hallifax in 1691, and the travels of another Englishman, Henry Maundrell, to Jerusalem in 1697. They were soon followed by the naturalist J. Pito de Tournefort, who explored Asia Minor, Armenia, and Persia (1701), L. Lucas the antiquarian, and the Dutch painter Corn. van der Veen, a Venetian Jesuit, made a journey to Persia; and later, by the antiquarian Richard Pococke (1772), and C. Niebuhr (1766). In our times, these countries have been visited by Volney (1796), Seetzen (1802-1817), Clarke, Anbinder, Bernier, Bourbon, and travellers from other countries, who had not attracted the attention of Europeans, and was only known from the description of Abulfed, 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 Burkhardt.

The geography of India, that country which, since it first became known, had always most excited the curiosity of the learned, and attracted the speculations of the mercantile interest, 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 itself. A few travellers, as Thevenot, 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 middle of the century, with the Indian Company 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 soon explored, and the account of the geography of that country, of the western districts of Hindostan, was obtained by the translation of the Ayn-i-Akbah, an historical and statistical account of the Mogul empire, composed by Abu Fazl, under the orders of the emperor Akbar. Although the Mogul empire was conquered by the forces of Ali and his son Tippoo Salt, rajas of Mysore, gave that exact information of the southern parts of Deccan which is always
the effect of such operations. In the wars with the Pindarries and with the Mahbarras (1801-1818), the northern districts of Deccan and the central region of Hindostan were explored in a similar manner; and in the wars with the then French government, the colonies of the French and Dutch (Pondicherry, 1753, 1760, 1761), and Java, 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 operations of the survey, the success and magnitude induced many scientific men and exact observers of nature to explore these countries, and to them we are indebted for a number of valuable works. The most important are, Forbes's Monograph on Malabar; Sir Francis Hamilton's (Buchanan's) Travels through Myore; B. Heyne's and W. Wilkes's Researches on Deccan; Lechenuith's Botanical Excursions through Deccan (1818); Lord Valentia's Travels (1802-1806); Bishop Heber's Travels (1824-1826); Malcolm's Researches on Malabar (1820); Tod's Rajastan; A. Burnes's Topographical Researches on Cutch, &c.; and his Examination of the Indus and the Penj-af. An account of the island of Ceylon is found in the works of Percival (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 Deccan, which is of a very composite and 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 since that time been more explored by the indians, that our 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 in a war with the tribes of mountaineers inhabiting the Himalaya range, especially with the Ghorkas in Nepal; and this led to the conquest, in 1816, of some of the elevated valleys of these gigantic mountains, which had hitherto eluded the researches of many of the most scientific men and exact observers of nature. Their exploration soon became the object of the concentrated zeal of some of our most scientific countrymen. The great height of their pinnacles was determined, and their character explored by Raper, Webb, Hodgson, Crawford, &c. Penetrating through these valleys, Moorecroft (1812) succeeded in entering the high table-land of Tibet, where his progress was impeded by the jealous policy of the Chinese; he afterwards reached Lhasa (1818), and then continued to the valley of Cashmeres, 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 out by the British embassy, and, as ambassador, and on his way traversed the valleys of Bhutan.

The political relations, which the East India Company were obliged to enter into with the countries living on both banks of the Indus, gave rise to the embassy of Mountstuart Elphinstone to the court of Cabul (1859), by whom the whole region known by the name of Afghanistan, which till then had remained almost entirely unexplored, was at once opened to us. A similar effect was produced by Grant's embassy to the court of Sind (1869). After that time, Christie and Pottinger travelled Beluchistan, and those regions which antiquity were known by the name of Ghuzistan, five years later, was opened to an European since the expedition of Alexander the Great: in these journeys they discovered the table-land of Kolk (1810), and the roads which lead thence to Kerman and Herat. The result of these discoveries was that the rivers into the countries on the Oxus river will make some important additions to our knowledge of these hitherto almost unknown regions.

The 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 induced upon to place the organization of the Persian army in their hands, and to permit them to examine the Persian provinces with references to their capabilities for defence. The result of these geographical researches was an improved map of Persia, and a list of routes through its provinces, published by Macaulay Kinneir in his Geographical Memoir (1813), who, in his travels (1813-18), examined also the roads leading through Kurdistan, Armenia, and Asia Minor. (1818-21), and the country between the confine of Persia, the Medeans, the labours of Ouseley in oriental geography and literature, by K. Porter's and Rich's researches on Persian antiquities and architecture, and B. Fraser's travels, who in 1833 advanced to Khurasan, where he first determined the height of the table-land of Iran, and reported, 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 the Oxus and the Jumna, and many interesting facts as to its flooding, navigation, and the inhabitants on its banks, are contained in this unpublished document.

Of 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 Bengal, and the appointment of an embassy to the court of Amarapura, accompanied by the naturalist Sir Francis Hamilton (Buchanan), from whom we have the first authentic account of that country. The war with the Burman (1824-25), made us acquainted with the valley of the Iravani, and in 1825, the capital of the Burman empire; and the ceded provinces (Aranac, Martaban, &c.), as well as the countries which were declared independent by the peace (Asam, Cashmir, Mysore, &c.), were now opened to be the scene of further negociations for peace, Crawford was sent to Amarapura, and published an account of the Burman empire, by which he cleared up the geography of the peninsula beyond the boundaries previously known by his account of Simn 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-ura on the Aurum, and in the Altai mountains between the Irish and Oelof, gave rise to the travels of many scientific men, and the publication of several interesting narratives and treatises. The most valuable works on the geography of Siberia are by Masterschmidt (1720), Dr. Müller, De Lisle de la Croyere, Gmelin, father and son, Falk, Dumas (1790), Georgi, Sir Strickland, Sir Bleanour (1786), Dr. Meyer, Von Bunge, Hess, A. Erman, and Alexander von Humboldt (1829). The periodical missions to the court of Peking have added some information concerning the table-land which extends between Siberia and China, especially the travels of Timkowski (1819-21) and those of Von Bunge (1839), 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 Simorov, and thus the true extent and form of that immense lake were first known. In the year 1772 against Persia (1771-73), the northern edge of Mount Caucasus and the countries watered by the Kur and Ara were explored; and discoveries were pushed farther south, when (1809) the province of Grausia fell under the sway of the Russians. After that time, the valleys of the Caucasus were explored and explored by Golstein, Rein ogóy, Von Biberstein, Klaproth (1807), Parrot, and M. von Engelhardt (1815), 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, passing over the deserts inhabited by the Kirghiz Karaks. This was especially facilitated by the discoveries of the basins of Nazarof to Khokhand (1813), of Muraview to Kiwa (1819), of Meyendorf and Eversmann to Bokhara (1820), and of Von Berg, Levchini, &c., to the Lake of Aral, since 1823.
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 divisions of the globe 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 extend along the chief course of the rivers, 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 steps, in which the town of Yarkand in northern Media is higher than the level of the Atlantic 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 has greatly influenced the condition of the human race in the adjacent districts.

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 Urtzenian mountains and the Caspian Sea, to 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 a great mass of body. It is true, the continent, which may be considered as an appendage or continuation of Asia, exhibits a preponderance in its numerous limbs over the mass of the body.

The area 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 Shalatskoi in Siberia, and on the peninsula adjacent to the island of Carn, east of Mombasa. Zacambus 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 the shortest, extending only about 2700 miles, or 8° of latitude; the southern, the longest, measures upward of 5000 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 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. These peninsulas are that of Ceylon, that of the Malay Peninsula, and that of the southern coast of India.

The greatest contrasts on the surface of the globe. Its interior presents to our view the most extensive, uninterrupted continental formation; and its surface is divided into separate members, and varies more in rapid succession of land and sea, than any other part of the globe of equal extent.

Asia, exhibiting such characteristics in its outline, is no less remarkable for the formation of its surface, on which the climate, and consequently the vegetation and animal kingdom, of its different parts must chiefly depend. In examining the various divisions of the globe, we find that it is split into forty and over a hundred countries, and that it is without any extensive high mountain-range, as far as we yet know. Africa is divided into two nearly equal parts, the southern of which forms an almost uniform table-land, and the northern, with these two exceptions, may be considered as a lowland. Europe contains in all parts plains of small extent lying between dispersed mountain-groups and ridges. In America all the highest lands lie on one side, occupying its western coast from the extreme north to the south; it forms the most extensive system of mountain-chains on the globe, which inclose within their arms elevated plateaus, but of comparatively small extent. Asia exhibits different features. The whole mass of the interior continent rises to a considerable elevation above the sea, and this elevated mass, of which the high table-lands occupy by far the greatest extent, is not placed at one of the extremities of the whole mass, but occupies its core.

From these table-lands, which occupy the centre, the surface descends in gradual and diversified terraces and slopes to the level lowlands which surround them. The table-lands themselves are divided into different mountain-chains, and are everywhere enclosed by high ranges; but though these mountains are among the highest and most extensive on the globe, they occupy, when compared with the table-lands, a comparatively small surface. Their influence on climate and organic nature cannot therefore be equal to that which the table-lands themselves exercise, and consequently their relation to these latter is only subordinate. This observation is still more forcibly presented by the Himalayas, which forms the southern boundary of the extensive systems of table-lands occupying central Asia.

The table-lands, in the interior of the continent, form two separate systems different both in extent and in elevation; they are, as it were, two terraces, a higher and a lower one. The eastern system of these table-lands comprehends the plateau of Tibet and that of the great desert called Gobi, and the country lying between them, three thousand miles wide, and to 10,000 feet, and in some parts still more, above the sea: the western, containing the plateau of Iran (Persia), does not generally attain the height of 4000 feet. The former may be considered as the eastern, and the latter may be considered as the western margin of Asia. The extent of the eastern table-land, measured from the Caspian to the Indian Ocean, is upwards of 5500 miles. Its breadth from south to north varies considerably: it occupies in its greatest extent on the east, between its southern boundary in the Chinese province of Kansu, and the Caspian Sea; from north to south in the country of the Mantsush Tunguses, from 1800 to 2000 miles; but on the west, between the coasts of Carmania and Gedrosia in Beluchistan, and the steep slopes to the lowlands of Bukhara, less than 700 miles.

The boundary of these plateau-regions is marked by Taurus and Caucasus at the north-western extremity, and by Mount Elburs at its slope towards the deep depression between the Caspian Sea and the Black Sea. The Caspian forms the south boundary of Asia, the Caspian Sea, the ocean of the black desert, and the southern boundary of Iran (Persia) of Asia, is a large lake, measuring upwards of 4000 miles in length, and 1000 miles in breadth; its southern boundary is formed by the Himalaya range and
its branches, extending eastward and westward, the latter of which are known by the names of Hindu-Cooch or Hindu-Kuh. Further 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 Zagus), which extends along the coast of the gulf, and bounds the Tigris valley on the east; it afterwards joins the chains of Taurus and Sivas, and, together with the table-lands enclosed between its nears, 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 proribundacies 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, Taurus, and Belur, meet one another; thus 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 of the southern, to the point of junction of their innermost portions, there is a considerable distance, and it is divided by several separate mountain-chains, not connected with one another, but which form, more or less, a part of the table-lands themselves. By this peculiarity the highland of the southern region and more especially its eastern part, appears not less indented and cut into several divisions and members than the whole continent of Asia on its shores and its exterior figure; the valleys, which by this indentation are produced on the borders of the table-lands, afford peculiar advantages for the early settlement of man. With these indications we have already observed, the highland of Asia does not sink on one side only, but on all sides and towards every point of the compass; towards different oceans also, which are separated from the seas and bays of the island of S. Africa, the two principal divisions, have risen to produce the most extensive and most remarkable forms, with the rising 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 outer world.

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 meridians of Balikh and Cabul, by a part of the Caspian Sea, the lowlands, between the basins of the Caspian and the Aral, in extent and of 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 a milder character.

The mountain-range, formed at the junction of the several mountain-ranges, which the companions of Alexander called the Indian Caucasus, and which now bears the name of Hindu-Cooch, is an extensive alpine region, or rather a mountain-plain, extending between the lowlands of Buhara 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 to that of the continent of 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 south-eastern bounds of India, and with the parallelism of the Caspian Sea, in which there is a comparable phenomenon.

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 Tonkin to Cabulistan, a distance of nearly 2500 miles, is parallel with the courses of the Indus; the mountain-range of Iran on the south, extends from the mouths of the Indus to the western extremity of the Taurus in Asia Minor, and is nearly of equal length.

The necessity of climate has found its way to the Caspian, 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-Cooch, is traced to the Euphrates and Tigris near the southern shores of the Caspian Sea, and thence through Azerbaijan and Armenia, though its surface exhibits great variety in the part till it terminates with Olympus and the heights of Mount Ida, 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 2500 miles. The Caucasus itself, which extends about 850 miles on the isthmus which separates the Caspian from the Black Sea, though it is a distance farther to the north, has nearly the same general direction. This mountain-region, separating the western highland, is not observed in the eastern. 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 with the principal range, which, between 50° and 60° N. lat., the Thian-shan (42° N. lat.), and the Altai mountain range, run to the north. In these mountain-ranges a decided divergence 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, terminate on the peninsula of Malacca, opposite the Sunda islands; and the most northern, the Baikal and Duurian range, traversing the countries on the Gulf of Bokhato and the peninsula of Tibet, 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 rivulets and rivers. The two groups of mountain-ranges in the eastern regions placed the nations inhabiting them at greater distances, whilst the convergency in the centre and in the western region produced a nearer approxi- nation of the various forms, with the consequent production of the great features of its formation, which determine its capabilities of influencing organic nature and the history of men, exhibit a marked direction east and west.

To form a complete picture of the varieties in the formation of the surface of Asia, we must add a consideration to these mountain-ranges extending in a diagonal direction others which meet them nearly at right angles. Such are the Belur Tagh, or Belo, which is ascended in passing from the deep steppes of the high table-lands of Tibet, the mountains and the towns of Kishgar and Yarkand; and the Soliman range, on the eastern border of Iran, which must be traversed in passing from the lowlands of India to the table-land of Persia.

It is by these principal characteristics that the features in the formation of Asia are completed.

We have remarked that the two great systems of high table-land are connected by an Alpine region extending between the for ascending and descending the cold table-lands of Tibet, of Khorasan, and of Cazghar, up to the anticlinal Sere and Parnamisade; the most elevated snow-topped summits on the globe, the richest and most diversified Alpine region, with nations of mixed nationalities, and, in a historical point of view, of the most remarkable rivers of central Asia, the P锻炼 of the Indians on the south, the famous Mayrar-al-airf on the north, and the slope of Cazghar on the west. India on the east, Buhara, Turkistan, and Tibet, on the north. It is the centre of Asia fixed by nature; one of the most perfect objects the influence which has most man to progress and to civilization in the early ages of his history. The Caspian Sea, an immense lake, is divided by a change in a country where the climates of the polar region come nearly in contact with those of tropical countries intermingled with the temperate zone; and where this diversity of climates, with the effect of the Caspian, is 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
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 on the southern side, than in any other department of the world, and the portion which we shall describe is that part which has been most carefully and accurately measured. We have limited ourselves to the measurement of the two principal branches of the Kahi Gogra, covered with a mass of mountains, many of which rise above the line of eternal snow; twelve of their peaks, measured by Webb, attain the height of from 18,000 to 24,000 feet: these are happily very small portion. If we limit the application of this name to the mountains which lie between India and Tibet (though indeed it might with good reason be extended northward to the Sweta-ghar of Tibet, and eastward to the Indus valley), then the only part of the Himalaya which has been measured is still much smaller, though perhaps it is the highest part of the whole system. It comprehends the Alpine country about the sources of the Ganges; the Jumna and Gogra, the Ganges valley, the valley of the Indus.

This Indian Alpine region exhibits a greater variety of elevated scenery, natural productions, tribes of men, and difference of political constitutions, than any other mountain-country on the globe. Besides rising in colossal forms to a great height, it covers a great surface of country. In length it is about 1300 miles, and would cover in Europe all the countries between the Pyrenees and the sea of Azof. Its breadth is from 250 to 350 miles. Compared with the Alps, the Himalaya mountains exceed them twice in breadth and thrice in length; the Alps occupy an area of about 130,000 square miles, but the Himalaya from 500,000 to 600,000 square miles. It consists of three principal branches, the first of which, the Himalaya range, runs parallel to the direction of the whole range from south-east to north-west, which, however, in many places, are connected with one another by transverse ridges, and in others separated by depressions. This range is divided into three branches and tributary rivers of the Indus and Ganges run. The main chain, beginning from the high summits of the Hindu Coosh, near Kabul, and terminating in the most eastern valley of Aasm, is the source of the Brahmapootra, is overtopped everywhere by the most elevated ranges, which are always covered with snow—a circumstance which has given rise to the Indian name Himalaya, signifying the dwelling of snows. This range is divided into three sections. The most eastern, or that of Aasm and Bhotan, is less known than the remainder. Though it exhibits many high summits, only the peak of Chamalari, near the boundary of Tibet and the road leading to Tasho Loomboo, has been seen at a small distance by Turner, who estimated its height at about 25,000 feet above the level of the sea. The central region of the Himalaya range comprehends the mountains of Nepal, which have been examined with some care by the English residents at Kathmandu, the capital of Nepal, which town, situated in a valley of the range, is, according to Colebrooke, 4740 feet above the sea. Three groups of high peaks, covering the eastern extension of the range, between the valleys of the Upper Trisul and the Upper Gandaki Gunga, have been measured. The groups of the Salpu mountains and that of the Dhyabung mountains are nearest to Kathmandu, on the north of the town; each of these groups contains about 13,000 to 16,000 to 24,000 feet above the sea. Some days' journey to the north-west lies a still higher group, containing five peaks, not one of which is less than 22,000 feet, but the Swetn-gbar (or the White Tower) attains 25,251 feet, and the Dhawalagitti (or the White Mountain), 28° 30' N. lat., 83° 30' E. long., 25,000 feet. The latter is the highest known pinnacle on the globe. Except their heights, very little is known of these gigantic mountains.

On the eastern side of the Himalaya, on the other side of the Indus, on the range known as the ridges traversing the Alpine countries of Kannah, Gherwall, Bisahor and Sirmore; and as these countries are dependent on the East India Company, the mountains have been explored with great care, and everywhere geographically measured. Here we find the very high group of the peaks of the Iwaiwhar (39° 22' 19' N. lat., and 79° 57' 29' E. long.), between the upper courses of the Gossa and Daul Gunga, and the continuation of the range. He describes them as the "Seven summits of the South of the Niti Chant (15,859 feet) and the north of the town of Almora (3337 feet above the level of the sea), which, rising to the height of 25,749 feet, was considered by Hodgson, at the first measurement, the highest mountain in the world, exceeding Everest by 12,060 feet; the distance between the two from a distance, and the mountains are not yet explored; but their elevation has been determined by the measurement of Hodgson, as well as that of Webb. To the east of this extensive group, the country between the upper courses of the Goss and of the Kahi, the two principal branches of the Kahi Gogra, is covered with a mass of mountains, many of which rise above the line of eternal snow; twelve of their peaks, measured by Webb, attain the height of from 18,000 to 24,000 feet: these are happily the most important part of the range, as they are the most highly striking and well known portion of the range, and the most interesting for their geological formation. They have been explored in some degree by Mr. Hodgson, and his measurements are nearly correct. Many of these mountains are connected with the snow-covered summits of the Kaschk and the Pin. These two mountain-passes, and connected with the Railling Chailasa mountains, on the banks of the Sotledge. Even on the north-west banks of this river we find the snow-covered summits of the Kotgerh and the Pin, which are connected with the Sotledge. These alpine regions have been explored by Hodgson, and others have continued his surveys. Hodgson, at his first survey, upwards of fifty summits, rising with craggy vertical peaks above the line of eternal snow, which twenty-three attained upwards of 20,000 feet, and seventeen exceeded in height Mount Chomborzo. The number of the snow-covered mountains which extend farther to the north-west through the alpine region of the Kulu Cash-ma, where there are many mountains, are not yet measured. On the north of the Sotledge, and near Cabul, are much innumerable, but none of them have been measured or otherwise explored. The Himal-Coosh itself, to judge from the great masses of snow upon which it is covered, seems to rise to nearly an equal height. Along the lowest southern slopes of the Himalaya mountains extends a flat country, hardly a thousand feet above the sea, covered with luxuriant forests, exposed to a severe heat, and dreaded by travellers on account of the prevalence of fevers. It is called Tariyan; its inhabitants are distinguished by poljits. The adjacent ridges, and the Hissar (called Daha) of the Alpine region, which rise to the height of five thousand feet, are to be considered as the capitals of the Alpine states, as Kampur on the Sotledge (3375 feet above the sea), Sirmagar on the Sakhananda Gunga (3100 feet), Khasima on the Kasima (3257 feet), Kathmandu, &c., are among the best watered, most luxuriant, fertile, and picturesque Alpine countries in the world. To the north-east of these places the mountains rise, but only at a considerable distance attain the line of eternal snow. They are arranged in numerous ridges, commonly running parallel to one another and in the direction of the whole mountain-region, but connected by transverse ridges and groups, and separated by frightfully precipitous gashes, and steep and rugged valleys, which seem to evolve their altitudes, in others transversely. The most northern of these chains rises above the level of the high table-land of Tibet, and forms the boundary of the highland of eastern Asia. On the side of the table-land they descend with a gentle slope, and continue in a horizontal direction. The intercource between India and Tibet is carried on over these high ridges by means of the mountain passes, the lowest of which are probably not much below the height of Mount Blanc, being nowhere less than 14,000 feet above the level of the sea; and some rise even to 15,000 feet.

Nothing renders the Himalaya mountains more remarkable than the different level to which the lines of vegetation ascend on the higher ridges, the branches, and smaller ranges, and again on the boundary ridges of the table-land. This level, as well as the line of eternal snow, rises higher as the ridges approach the table-land, and thus the higher regions are cultivable and inhabited at an elevation where there is no habitation and no agriculture are found. A. Gerard has carefully examined this remarkable phenomenon, and has stated the following facts, observed in ascending the valleys of the greater and smaller mountain-regions. Region A, lying along the southern slopes of the Himalaya range, displays cultivated fields to the height of 16,000 feet, but the corn must often be cut green; the highest inhabited place is 9000 feet; the upper boundary of vegetation may be seen in some well-sheltered places, deer and litters are found at 13,000 feet. Region B comprehends the higher ridges of the mountains, and here, in the valley of the Baspa, the highest human dwelling is 11,400 feet above
the level of the sea, and this is likewise the highest point which agriculture attains; trees are found at 13,000 feet and upwards. Region C extends over the table-land itself, where about 16,000,000 acres are cultivated at 13,000 feet; very good birch forests grow at 14,000 feet, and some shrubs, especially tama, used as fire-wood, attain to 17,000 feet above the sea.

The highland of eastern Asia is divided into a multitude of terraces, through which the greatest 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 Irritua from the foothills of Sutlej and Ambul; the Yenesei unites, with the Angara, which issues from the lake of Baikal, and with the two Tunguskas; the Lena, with its great tributary the Witim; the fourth is the Amur. They run south, by means of the elevation, and after they have descended along the course of the rivers. The Irritua, with its tributaries, drains upwards of 1,300,000 square miles, the Yenesei about 1,000,000, the Lena nearly 800,000, and the Amur about 850,000, — 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 one low plain 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 masses of rocks and earth carried down, and transported many leagues along the valley of the river, to the sea. The navigation on the principal water-courses from south to north is, for this reason, very inconvenient; but it is much more important in their tributaries running east and west, along which a communication is established through the greatest part of the countries lying between the Ural Mountains and the Altai.

From the mountain-region, bordering on the highland of eastern Asia, two extensive terraces descend gradually towards the Pacific Ocean, besides a great number of smaller ones. The latter are watered by smaller rivers, but the former give rise to the two great river-systems of the Huang-Ho and the Yang-Tsé. The first, or the Yellow River, of which the former runs upwards of 2,000 miles, and the latter more than 2,900; if their great bends are taken into account. Each of them carries off the waters of a surface of above 700,000 square miles. The Chinese call them the sons of the ocean, 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 over other nations of Asia, is owing to their elevated 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 the Huang-Ho is separated from the Yang-Tsé by 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 the most 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, — the first, which issues from the range of 15 degrees South, 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 north and south 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 the Himalaya, and widens towards the Sunda Archipelago, in the lagoon of the lagoon of 15 degrees South, 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, excepting the Irritua. The Pegu of the Irritua, which, after a late war with the Burmanese, was navigated by armed vessels, and ascended by the steam-boat Diana, up to the town of Ava, 446 miles from its mouth. It is said to be navigable for boats three hundred miles higher, to Bhamo. Its upper course was visited in 1827 by Wilcox and Burton, but the setting of the Irritua in Assam, traversed the Leng-tam mountains, and had a view of the river in 27° 30' N., lat, only about fifty miles from its sources, which lie in the snow-covered mountains farther north. At this place, the river forms a terrace about thirty English feet above D'Anville, this river seems to be identical with the Zangbo-tsu, or the great river of Tibet, which flows to the south of H'Lassa; and some passages, quoted by Klaproth from these accounts, confirm the opinion of a geographer. If this is true, the Irritua has a course of nearly 2,000 miles, and its sources lie at no great distance from those of the Ganges. But the information collected by Crawford in Ava, and by Wilcox in Assam, is not in accordance with the hypothesis of the Brahmapootra, Assam; and Asiatic Researches, xvii. p. 457, &c.

The rivers of India, within the Ganges, run in a direction quite different from that of the rivers beyond the Ganges, which are parallel to one another. The Ganges and the Indus take a diverging course and enter different parts of the sea; but their tributaries, especially the Jumna and the Satudopkhe approach another, and facilitate the commercial intercourse between the banks of the principal streams. The advantages which result from these rivers flowing into different gulfs are still greater. The Gulf of Bengal brings the inhabitants of the peninsula of India, and the great tribes of the middle of Asia, into communication with the Chinese, whilst the Gulf of Malabar opens to them the coasts of Persia and Arabia. It is principally through this direction of its rivers that India within the Ganges has enjoyed such opportunities of civilization over India beyond the Ganges.

The river-system of the Ganges and Brahmapootra extends about 1,800 miles in length, and drains a surface of nearly 650,000 square miles. The Ganges rises in the Himalaya mountains, and descending the mountainous region of the globe, covered with extensive masses of snow, from which abundance of water continually descends, and is carried off by a dozen great rivers, many of which exceed the Rhine in volume, and descend from the upper regions of the Himalaya, which is twice as large as that of the Nile, and presents a most extensive and intricate system of rivers and canals, for irrigation as well as for navigation. By its junction with the Brahmapootra, which descends through the valley of Asam, the river-system of the Ganges becomes double and does not differ from the Ganges of the great Chinese rivers. The Ganges and the Brahmapootra descend from regions different in natural advantages, of which only one, adjacent to the Ganges has attained a high degree of civilization.

The river-system of the Indus has the highest historical interest, partly from containing the Penj-ab, the country of the conquerors of the world, and partly from being the part of the Caspian Sea, which descends from a lake of equal extent as the Caspian Sea, which descends from the mountains of the Kafiristan and the Caspian Sea. It is the most important part of the river. It is the most important part of the Ganges, the Brahmapootra, and the Indus, which descend from the Table-lands of India, into the sea. India, that country which more than any other has attracted the admiration of the philosopher, the cupidity of the conqueror, and the speculation of the merchant, is accessible from the west only by two roads, of which leading along the valley of the Caspian Sea, passes through Attock on the Indus to the Penj-ab; the other, which has been less used, leads from Herat through Candahar to Shikarpoor near the Indus. The river of India, and the river of the Caspian Sea, are formed by the confluence of the Constance and the Indus, which lies on the level of the Caspian Sea, and which lies on the level of the Caspian Sea. It is the most important part of the river. It is the most important part of the Ganges, the Brahmapootra, and the Indus, which descend from the Table-lands of India, into the sea. India, that country which more than any other has attracted the admiration of the philosopher, the cupidity of the conqueror, and the speculation of the merchant, is accessible from the west only by two roads, of which leading along the valley of the Caspian Sea, passes through Attock on the Indus to the Penj-ab; the other, which has been less used, leads from Herat through Candahar to Shikarpoor near the Indus. The river of India, and the river of the Caspian Sea, are formed by the confluence of the Constance and the Indus, which lies on the level of the Caspian Sea, and which lies on the level of the Caspian Sea.
mountain-mass, before they arrive at the low plains of Hindustan. Below the Punjund (or Panche-nada, i.e., the five), which, differing in its forms and geographical 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 natives of this tract as compared with the rest of India. This tract is divided into two main divisions, one another and partly surrounded by the lowlands. But these latter are not flat level 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, which constitutes the mountain-region of Yuen-nan, Su-chuan, and Kiang-si; in India beyond the Ganges, where it occupies Laos; 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 sea level, a very great extent of the southern part of the Arabian peninsula between the Arabian sea and the Bay of Bengal. The mountain-range, known by the name of the Ghaats, forms the western edge of the table-land, and descends to the Arabian sea. Southward, the Daurian, Huong-si, and Pathar Shan, or the Malabar, which 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 Madhya Pradesh, Chingle, and Beluchistan, and forms the elevated plains of Khorasan, the ancient kingdom of Bactria, towards the south in Karmania and Persia, and even in the western districts, as in Kurdistan, which formed a part of ancient Media. This plateau is divided into five-fold parts, by the mouths of the Indus, which, after passing down the south-eastern corner of the Highland, comprehending the ancient provinces of Georgia and Arabia, at present forms a part of Belutschistan and attains its greatest elevation in the table-land of Kelt, which rises, according to one 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 only inhabited by savage tribes of Afghan origin who have no historical records. The road alluded to is that from Candahar, through Pishchen, Quetta, and Bhaug, to Shiek-poor. (See Corolly'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 Bactria, is historically famous for containing the Bactrian, Susianian, Persian, and Parthian provinces, which have been the apple of war between the central and eastern tracts of Asia, and contained in the continent of Asia, which comprises the central plains, the Persian Gulf, and the half of the Black Sea. But though these plains are crowded and inhabited, they are not the subject of our present notice. We are to consider as the great object of the present chapter the southern plains, or the so-called table-land of India, which, as we shall see, is distinct from the plains of Persia, a country which we have mentioned above but which we shall now notice more particularly under the names of eastern, middle, and western mountain-road.

The southern border of the table-land of India is still more distinctly marked by natural boundaries, than any other part of the low and narrow coast and the wide plains watered by the Tigri and Euphrates, by a broad mountain tract, which beginning at the mouth of the Indus extends to the place where the rivers of Musuln run, being then broken by the rocky masses of the high table-land, enter the low plains. This mountain tract consists of three to seven ridges, running parallel to one another and separated by many narrow longitudinal valleys, which sometimes extend many days' journey in length. These ridges 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 towns near one of these passes, which lead from the narrow 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, which reach from the coast of the Gurnam (warm region) through the great staircase of mountain terraces to the cool table-land in the interior called Sirlud, three roads have acquired some celebrity in modern times, though they shall not now be specially noticed. The eastern mountain-road begins at the harbour of Ben-der Abas or Gombroro, near the entrance of the Gulf of Persia and leads directly forward to Elefsina, 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 Gambone a road also leads past Lar to Shiraz. (See Herbert's Travels, p. 124, etc.) The middle mountain road begins at the town of Abu-Sabur, on the shores of the Persian Gulf, and leads first over a ridge to Kaznim, near Shahpoor, the residence of the Sassanides (of king Sapor I., A.D. 240), which is situated in the first valley; from this point it passes through the mountainous region of the eastern Alps, 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 Persepolis still exist. From these roads, 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 table-land on which Isphahan, the residence of the Sult dynasty, is built. The residence-towns of these different dynasties have been built on the fields of battle where signal victories were obtained, and are placed at the openings of the most difficult mountain passes, full of narrow defiles. The Arabs were obliged to pass through this difficult road on their way to Persepolis, and this has likewise been the route of modern travellers who have entered the inland provinces of Persia from the Gulf of Persia. The Macedonians, under Alexander, entered, and after them Timur, made their way from the banks of the Karoon to Persepolis up the valley of the Jerahli and by the pass of Kalat-e-Sefid.

The western mountain road which lies to the north-west of the former, may be called the Median, in opposition to the Persian, which passes through Persepolis. Beginning at or near the modern Bagdad, it passes through the Median Pyle of the mountain range called Zagros, runs by Kerman, Shushtar, and the remains of the temple of Kungur, and terminates at Hamadan, the ancient Ecbatana in Media. This road, like the preceding, presents many historical monuments, and it crosses the upper course of the Euphrates. The road through the plain of Isfahan is much more instructive.

Thus a series of towns, the seats of ancient kings, and now the sites of historical monuments, beginning with Kerman and comprehending Persepolis, Parsagad, Shiraz, Isphahan, 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 girdle of the mountain range. By these towns the boundary is marked which separates the region of the natural fastnesses, of the mountain passes, of the battlefields, of the pastures, and of the country adapted to the chase, which is formed by the mountain terraces, from the interior, which is more of an arable region. 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 broken by the few valleys, or small depressions of 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 Abushehr 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. A bushel is built on the shore of the sea in the sultry Gurmsir, and has a current which is equal to the great length of the Persian Gulf. Lying on the first mountain terrace, it is 2772 feet above the level of the sea. The highest point of the pass Deshti-Arjuni, above Shiraz, rises to 7920 feet. The town of Shiraz itself, which is in the second mountain terrace, is 4230 feet above the sea; its site is favorable to the vine; 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 Persepolis rises to 6656 feet. Irwind is the highest point in the interior of the Tabreez plain 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 table-land; the surface sinks to 2450 feet. It rises again in the plain on which Teheran is built, which is 3750 feet above the sea. The mountain pass which leads to the Caspian sea past Kishlaq, rises to 4572 feet, and the entrance of the Hyrcanian pass at Shahrood to 3414. The Demavend, the biggest mountain peak in this country, attains indeed an elevation of 10,000 feet; but most of the adjacent summits do not rise above 7000. The northern slope of this range towards the Caspian sea is extremely steep and rugged. The southern slope, on the contrary, is 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 water, nor from a great deficiency of rain, as it is the same almost everywhere, and renders this country cultivatable 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 continued 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 coast and the main chain of the mountains, about 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, in which the mountain masses rise higher and higher. Here begins the more elevated region of the Alpine range, here are the lakes of Urmia and Van, and the sources of the rivers Zab, Tigris, Aras, and Euphrates. The table-land is replaced by mountains, which rise to an enormous height, and by elevated valleys between them. Such is Azerbaijan, the first 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 Aboian forms only a low 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 conspicuous mountain 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 Alexandria. Its plains, on which the town of Koom is situated, have a length of 1000 miles, and a width of about 200 miles, and extend, according to the measurement of W. G. Browne, to the highest summits of the Ararat, which overlook the plains, attain the height of 17,260 English feet, according to the statement of Parrot.

The second division is formed by the Caucasus, which is united to Armenia by ridges of moderate height, in part covering the Caucasian isthmus. This high mountain region is characterized by its isolated position and its entire independence of the table-lands of Asia, as well as by its double descent to the north and south, which renders it much more like the mountain regions of Europe than those of Upper Asia. It may be compared with the alpine region of Switzerland, and is distinguished by that country's nature, of the severity of its climate, and of its inhabitants, though the rivers which rise in its mountains (Kur, Phas, Kuban, Tevok) cannot be compared with those of Europe in length or in importance.

The third separate mass, which lies on the western border of the Highland of Asia; is the peninsula of Anatolia, which on three sides is surrounded by seas, and on the east is joined to Persia by the mountain system of the Taurus. Its interior is the highest plain in all Asia, which, at an elevation of 3750 feet, rises again in the plain on which Teheran is built, which is 3750 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 table-land; the surface sinks to 2450 feet. It rises again in the plain on which Teheran is built, which is 3750 feet above the sea.
may be compared with the Pyrenean peninsula in many respects. [See Anatolia.]

It may be seen that a line connecting the Highland of Western Asia, is formed by the Syriam 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 where high lands terminate the ranges of Asia, like the Europe, it presents forms of less dimensions and more adapted to the dominion of man. Only one extensive river system exists in this country, and this consists of two large rivers; a feature which is peculiarly characteristic of Asia. This is the Tigris and Euphrates, which originate near Urzeram and Shatt-el-Arab; the north branch of the Euphrates comes from near Erzeram, 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, in its chief divisions of the ancient rivers, runs for 800 miles, meandering along its whole line. When these rivers have forced their way through the Taurus, the Euphrates north of Rumkala, where they begin to converge, and to surround Mesopotamia, which they approach, do not do so from the high valley of the adjacent Babylonia. Their waters converge the same delta, and enter the Persian Gulf by one channel.

We cannot refrain from making an observation on the highland effect of these systems of double rivers in Asia. We find that in the valley of the Nile civilization descended along its banks from one royal residence to another, from Meroe to Thebes, and thence to Memphis and Sais. But in the valleys of the double rivers of Asia we meet with double royal residences, double civilization, and double political systems, as Babylon and Ninivio respectively on the Euphrates and Tigris; Delhi and H Lassa, with Brahmanism and Buddhism, on the river-system of the Ganges; and on the double rivers-system of China, the southern and the northern empire, Mä-chin and Khatai. When in the progress of time civilization descended these streams, and met at their confluence, or where they approach near one another, 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 Nile, the Ganges, 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, 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 lowland 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 trapoxium, 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 by a steep declivity towards the southern part of the Persian gulf. 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 declivity towards the south of China and Hindustan, 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 Bahrain, noted for their fertility and extent, is the native country of the Arabian horse and the Arabian camel. On the territories bordering it on the west the mild climate allows plantations of coffee, and the low and open coasts and its sultry air, produces, like the climate of the Gulf of Persia, the date palm, which grows 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 its geographical position is such that it is the dividing line between Asia and Africa, and participates 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, speak the same language and are 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, are the same in respect of the 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, born only for the service of the God of their country, declare war to every country in which all the advantages with which Asia is gifted by nature are concentrated, early acquired a high degree of civilization; but lie 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 deserts, have acquired the world, both, 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 is their original country, but 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 Catalonia, and the cold mountains of the 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 the lowlands of the East Indies exhibits, the valleys of the great river-systems, which are separated from the three already described, by the mountain ranges of the Himalaya. These lowlands lie spread around the more elevated parts of the interior, and occupy countries of great extent along the sea, so that the lowlands of the great river-systems traverse 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 the globe is distinguished, were most powerful, and, in the highest degree, the country 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-Hay, southward past Nanking to the province of Kiang-si, lying south of the 4th 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 Tonkin and that of Siam, extends from the tenth degree of north-latitude to the tropic, and comprehends the kingdoms of Cochin-China and the northern boundary, however, is not yet ascertained. It enjoys 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 the coast is covered with salt water and salt lakes.

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 Bengal and that of Chalcedon. It is the cold and monotonous lowland of the Ganges and Indus, and overtopped 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. Notwithstanding the extent of this tract and variety of the natural scenes which surround it.
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, Mur-\(\text{a}n,\) Almer, &c.) 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 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 by the desert of Hejaz. A southern part of the western 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 mentioned, the Indo-Chinese, and 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 land 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 follows that a greater or less influence of the air prevails, as moisture in the former, and that they must be distinguished by all the consequent variations of vegetation and animal life. In China and the peninsula beyond, the inhabitants appear to be more civilized, and the centers and customs of the inhabitants of islands; but in India and Babylonia they are like the inhabitants of inland coun-tries. The southern half of the lowland of Syria and Ara-\(\text{b}i\)a, and of Africa, 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 which characterize Africa and Europe, and it extends to the same parallel.

The fifth is the northern or Siberian Lowland, which is by far the most extensive of all, occupying more than half the area of all the lowlands of Asia taken together, and extend-ing along the northern edge of the continent from the Ural Mountains to the Pacific Ocean. Though traversed by extensive river-systems, it derives little advantage from this circumstance, as it contains only in the southern third of its surface (between 50° and 60° N.) last habitable and cultivable land; this part has been colonized in all its extent by European settlements, the most nu-
erous in Siberia. The northern and most extensive district, lying on the southern end of the great circle of the world, is beyond the boundary 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 forms of the land, and the soil is one of the poorest, has a great influence on 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 Bucharia, 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. Its greatest extent is 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 Aral great depression is the highest surface of the globe, extends, to the north-west, over the countries adjacent to both banks of the Volga, up to the river Don and the boundary of Europe, between the mountain-ranges of the Ural and of the Caucasus. Thus it may be considered as an extension of the lowlands of the central portion of 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 watered by the rivers which have their source either from the rivers of the mountainous central empire of Central Asia, or from the river Ilí; niter in Hindustan; borax, or tinquial, in Tibet; petroleum, near Baku, on the shores of the Caspian Sea, on the Euphrates at Hilli, and other places, and salt which is obtained by artificial irrigation and immense labour, and rather cha- racterized by a total want of natural capabilities, this lowland

is very remarkable in an important point of view. Being placed in the centre of very extensive countries, and sur-
rounded by different nations, it has been involved in all the great historical events: it was there the conqueror, 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 step to their further progress.

The natural poverty of this country, and the compara-
tive richness of those surrounding it, together with the want of fixed abodes, and the various political changes of the different peoples which have inhabited it, have produced impediments to pass its natural boundaries. Whilst their neighbours, the Chinese and Hindoos, never left their coun-
try, but took root there like plants, and became stationary inhabitants, their climate and 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 below and around two highlands occupying an immense space, which themselves are surrounded by seven or eight less extensive and entirely separated mountain or table-land regions; that of southern China, the peninsula without the Ganges, Deccan, Arabia, Syria, Armenia, and the ishums of the desert, and the countries surrounding them are characterized, in the same manner as the great highlands characterize the whole continent. If we add to their number ten or twelve inter-
mediate formations, constituting the terrace-regions, we have nearly a score and a half of great natural divisions on the surface of Asia, of which every one is subject to its peculiar natural laws, presents its peculiar natural appear-
ances, and maintains a distinct character. Considerations on their mutual connexion and reciprocal influence alone can afford us a true view of the infinite variety and com-
bination in the natural phenomena and the historical events of Asia, and the records of history and the laws of nature have induced us to assign the common name of Asia.

Minerals.—Precious Stones.—Rock-crystal in the greatest variety, amethysts in the Altai, Himalaya, and Ural mountains, and in the central parts of Siberia, on the Golddesert; cashelons and onyxes, in Mongolia; cyan-, or oriental jade, in Turkistan; different kinds of Jasper, in the Altai mountains; pearl-stone, marcasit, on the shores of the Gulf of Khotok; beryl, in the mountains near the lake of Bajilik; 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; chrysoberyl; sapphire, on the island of Ceylon; rubies, in Ceylon and in Bialaksian; turquoises, in Khorasan; diamonds, in Deccan, Borneo, and the Ural mountains.

Volcanic products are met with on the Sunda Islands, in Java, and Kuchhataki, in the neighbourhood of Taurus, and mountainous districts of the southern and western Anatolian.

Stellite, earth-flax, asbestos, and coal, or the finest porcelain-clay, are found in China and Japan; tale in Siberia; copper in northern China, and in the mountains of Japan; rock-salt in the Ural mountains, northern China, the Penj-
ab, Ajmeer, Yemen, Anatolia; salt in the salt-seas of the steppes, and sometimes on the surface of the ground; salt-
glaze in the steppes of Central Asia, from the river Ili; niter in Hindustan; borax, or tinquial, in Tibet; petroleum, near Baku, on the shores of the Caspian Sea, on the Euphrates at Hilli, and other places, and salt which is obtained by artificial irrigation and immense labour, and rather cha- racterized by a total want of natural capabilities, this lowland

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upper branches of the Ganges, and in the N.W. of Ana-
tolia.

Metals.—Gold in Japan, Tibet, Yun-nan, Cochín China, Tonkin, Siam, Malacca, Borneo, Assam, Ava, and in the Ural mountains; many rivers bring down gold in their sands; silver in China, Da-uria, Japan, Armenia, Anatolia, and the Ural mountains; tin in Malacca, Anam, the Sunda Islands, and the empire of the Burmans; mercury in China, Japan, and the inhabitants of Borneo in Timbuctoo. In Tibet, Japan, China, Nepal, Aserhjan, Armenia, and Mount Taurus; malachite in China and Siberia; iron from the Ural mountains, through central Asia as far as the Penn
sula of Japan, as the dark-coloured, and white, lead in Da-uria, China, Siam, Japan, Georgia, 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, and the chief tertiary formation in Siberia, is full of animal remains of the old world, as the elep
phant, 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 raised respecting the population of the different regions of the globe, whether it increased or 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 despotism exercised by the Turks and Persians 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 Bae-
trians, the Mæs, the Sogdians? More than forty nations were described by Ptolemy, which exist below the ridges of the mountains, 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 island 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 Ossetians 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
alogical investigations of the ancient records, but direct our attention to the national races, according to their physical character, but rather follow that which 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 before further investigation.

Still we think that the division which rests 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 remoter kindred of the different nations is more clearly indicated by the languages, that can be sur
rely 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 Chaldaens, or the ancient Arameans; the Phoenicians—though the number of the pure and unmixed families belonging to this family is small—probably the descendants of their antient country, especially near the Libanous; 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 are the descendants of the desert nations, and less 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 very 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 gramma
tical 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 Sanscrit, more or less mixed.

We must enumerate the Ossetes (or Iron, the des
cendants of the Alans) in Mount Caucasus, and some nations of Slavish origin inhabiting Asia, as well as the greatest number of the inhabitants of the mountainous, and less inhabited parts of 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 passed, but the former are found in Europe even as far as the middle course of the Danube river, but everywhere only as pacific settlers.
The Georgians form a separate group, inhabiting the Caucasian isthmus, between Mount Caucasus and the river Kura; besides the proper Georgians in Imerethi, three branches of them, the Mingrelians, the Lazis, and the Ossetians, inhabit the coast of the Black Sea, and are the descendants of the ancient Colchis.

Differing from them are the nations which inhabit the Caucasians, properly and the neighbourhoods, like the Samoiedes, inhabiting the mountains of Sayans and of the Altai-range, but like them were obliged to emigrate towards the north, when other nations which lived in their neighbourhood began to press on them from the south. The Samoiedes 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, where they are dispersed from the western derelict of the Urals mountains through the valleys of the Upper Volga, as far as Lapland. Two tribes of this origin are found in Asia, the Vogules and the Ostiakas of the Oy river, who may be comprehended under the general name of the Eastern Lazes, for they inhabit the eastern Urals 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 Mongol stock of nations branches out into three great divisions—the proper Mongols, the Buridates, and the Olot or Kalmucks. The proper Mongols are settled on the southern side of the desert of Gobi as tribes charged with the defence of the frontier of Mongolic or Barabian origin, and are manifoldly intermixed and mixed with them; and although the physical structure of their body sometimes may display the most remarkable differences, there are many tribes among the Tartars, speak dialects (called by us the Turk-Tartarian dialects) which are understood by all of them. The Turkmen or Turkmennes, a pastoral nation, divided into innumerable tribes, form the principal stock of the inhabited of northern Persia, on the west and north, and of Christian Russia, in Shirwan, Asia Minor, Khiwa, and Buchara, where a tribe of the eastern Turks, who are the original inhabitants of the centre of the table-land of eastern Asia (in Khotan, Xarand, Turkian, Kashgar, and the southern part of the Uzbek), have obtained the dominion of Turkestan and Buchara. The Kirghises were formerly under the name of eastern Kerkis (Kazak or Hakас), the neighbours of the Mongols, and inhabited the upper course of the Yenesei 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 Bashkirs are settled in the southern branches of the Ural mountains. Besides these, many other nations and tribes, commonly called Turkish Tartarian, or Tartarian Siberian, or only Tartarian tribes speak Turkish dialects, those divisions of the Mongolic tribes. Among these may be enumerated the Nogai on the banks of the Kuban and Kuma near Mount Caucasus, who partly occupy also the Crimea in Europe; the Kumaks in the river of the name Kuma; the Kama of Archangel; another southern part of Asia; many tribes commonly called Tartars settled in Siberia, between Tobolsk and Yensosk; the Barabizes wandering about on the steppe of Baraba, the Kuznes on the river Tom; the Khakines, Belyres and Biruses in the mountains of Sayans and the banks of the Upper Yenesei; the Telenes, about the lake of Teletzkoi, and lastly the Yakoutes, who form the extreme link of the Turkish nations towards the north-east, and occupy the banks of the middle course of the river name about Yakoutk, and even extend to the mouth of that river.

The nations of Samoiedic origin occupy two different countries distant from one another. The southern division inhabits the banks of the Upper Yenesei and the mountains of Sayans, where the remanents of the formerly very numerous Samoiedic nations have remained in that country, of which they were the aborigines; they are divided into four tribes, the Urankhais (or Soyat of the Chinese), the Biruses and the Khabars; and the Khasakes.

The northern division is settled along the Polar Sea to the north of the Lower Tunguska, and extends from the mouth of the river Yenesei to that of the Oby, and farther west to the northern end of the Urals, and beyond, on the Ural and the Lena, as far as the White Sea; so that these tribes, which properly are called Samoiedes, are separated from the other above-named branches of their family by Turkish tribes and the Yenesei, who inhabit the country lying between them.

The Yeneseis are an isolated and small tribe, whose abode is confined to the valley of the river Yenesei in its middle course between Abakansk and Turkansk, and who were, it is supposed, originally like the Samoiedes, inhabiting the mountains of Sayans and of the Altai-range, but like them were obliged to emigrate towards the north, when other nations which lived in their neighbourhood began to press on them from the south. The Samoiedes have been extremely common in the countries in the north and north-west of Asia.

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The Tungusos form one of the most extensive families of nations in the north-eastern countries of Asia, occupying that part which lies towards the north of the Samoiedes on the Polar Sea, of the Yeneseis, of the Uralhais 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 Tungusss, they extend to the Polar Sea and the river Okotsk, and thence over the middle course of the river Lensa, and from the eastern extremity of the lake of Baikal over the river Wittam as far as the shores of the Gulf of Okotsk, which they are obliged to the advantage of the south; towards the south-east they occupy the countries lying on the middle course of the Amur or Bargaien Oda and the banks of the Sumber Oda to the boundary of the peninsula of Korea. For neither at the mouth of the Amur nor farther to the south, do the Tungusos 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 Tungusos are very numerous, but their modern times none of them has rendered itself conspicuous except that tribe which occupies the south-
eastern corner of the country inhabited by them, and is called Manchchoo, which conquered China in the middle of the seventeenth century, and still governs that country.

These Manchchoo Tunggooses are divided 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 mouth of the Indus, between China and America is inhabited 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 Yoogkhiros, who live on both banks of the Indig, from the Kungsha to the Amur river, and round the Gulf of Pensinsk, and the Tchuktches, inhabiting the most north-eastern extremity of Asia. Between the latter and the Eskimaux tribes in North America such an affinity exists, as to justly lead some to conjecture that the American Indians are the remains of that continent.

Those who, on the other hand, have given to receive 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 Kamtchatka. Though these islands are inhabited, they are in 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 our own, as regards of art and science, men are said to be divided 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 exception of the islands of Liuw-kiew, 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, constituting a very numerous people, are a branch of the Chinese; quite different from the Coreans of Corea, who inhabited the mountain-range which forms the northern boundary of the peninsula, and then were called Siumpi; at present they are confined to the peninsula itself by their neighbours, the Manchchoo, who occupy the country farther north, and are quite different from them.

The Chinese constitute the most numerous and most civilized nation of eastern Asia, forming by far the greatest part of the population of China itself, and possessing a very rich and populous empire. They disperse over the countries subject to the court 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 islands of the Pacific ocean, as well as on the Sunda islands, in Siam, Malacca, and in Ceylon.

The Tibutans, or inhabitants of Tibet, who call themselves Bhot or Bhote, 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.

The different nations which occupy the peninsula without the Ganges, as the inhabitants of Anam, i.e. of Tonkin and Cochin China, those of Siam, Pegu, and Ava, or the Birman, are still very imperfectly known; their languages, languages, however, do not differ essentially from those of the Chinese; they have obtained a vast extent of land, and their late years have become objects of inquiry. The Malays are better known; they perhaps once occupied the mountain region of the peninsula of Malacca, but at present are only seen to the islands of Nillinsa and part of that of Java. They speak a distinct and cultivated idiom, which is far diffused, on the west as far as Madangsear, and on the east over the islands of Sunda and the Philippines, and extend to the most eastern island groups of the Pacific ocean.

These are the principal groups of nations inhabiting Asia; but in the island countries of that continent there still exist some important remains of ancient nations which have not yet been subjected to the influence of the Chinese, as the Miao-wau in southern China, the Goands in Deccan, the Loolo and Carany on the peninsula beyond the Ganges, the Sipas in the Hindoo-Coast mountains, and some others.

VII. Political condition.—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 states which occupy this continent, and the extent of their importance which possess among them the whole continent. The others, of less extent and importance, are either dependent on these six, or at least subordinate, and rendered of less political weight, from being separated from the mainland by the seas; they are occupied by the Chinese empire, the north by Russia, and the south by the British dominions; the other states lying between them, as the empire of the Birman, and the kingdoms of Siam and Cochin China, are of the third rank. The west of Asia, however, comprehends Persia, which is now divided into two states, Afghan-tan (eastern Persia), and Persia Proper (western Persia), Turkey and Arabia; and if we except the small states of Khiva and Bussorah in the low lands round the lake of Aral, there hardly exists an independent nation or sovereign of any weight in political matters. The area, as well as the population and the physical resources of Asia, are very equally divided amongst those great monarchies.

Asia, according to an approximate estimate, contains from nineteen to twenty millions of square miles, including those countries which occupy nearly one half of a hundred and a square half of miles, or more, as the third of the surface of the Earth. If we subtract the extensive lakes, the Caspian Sea and the lakes of Aral, Baikal, and Balkash, which together occupy a surface of nearly 300,000 square miles, the extent of continental Asia is reduced to about seventeen millions and a half, which may be supposed to be inhabited by 500 to 500 millions of souls. Europe, which, according to a very accurate estimate, contains a surface of 22 millions of square miles, is inhabited by about 150 millions of souls; therefore, though Europe contains only about one-sixth of the surface of Asia, its population is equal to more than one third of that of the latter.

But Europe depends entirely on wealth and population, and not on the great extent of countries. Very extensive tracts, which are possessed by the two largest monarchies of Asia, are very thinly inhabited, whilst other parts of that continent have an excessively dense population, which has given 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 60 millions; more than two-thirds of its surface, namely, 5,600,000 square miles, and only one-fifth of its population, by its present constitution. In this account are included the ancient Tartarian kingdoms of Kasaan and Astrakhan, which are called geographers are assigned to Europe, and the wandering tribes of the Kirges, which are estimated at 300,000, and the mountain tribes of the Caucasus, at about half a million. Besides the two great Tartarian kingdoms of Kasaan (the ancient Bulgar), and Astrakhan (the ancient Kiptshaks), the Russian empire in Asia contains Siberia, the eastern 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 Kirges, a protected country; and the Siberian islands and peninsulas in the Polar ocean, to the north of Cochin China, as far as the 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 governorships, the Western Siberia, which comprehends the governments of Tobolsk, Omsk, and Tomsk; and Eastern Siberia, to which belong the governments of Irkutzk, Yenesesck, and Yakutsk, with the Russian maritime colonies on the Pacific Ocean, and Kamtchatka; and it is observed that, since this change has taken place, the settlement of European colonies through the far eastern 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 233 millions; but if we may rely on the population list published by the court of Pekking in the great imperial geography, the whole population of the empire in 1813 amounted to 361,763,110 individuals, consequently upwards of a hundred millions more than we have supposed. Its extent is greater than that of all Europe by nearly twice the number of people, and the double 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 mapography. The eastern 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 of its people. Though therefore, both these empires are nearly equal in the number of their population, yet their populations are widely different, and the Russian empire occupies a very subordinate political position. China occupies the first place among the political bodies of Asia, and in this position it has maintained itself for two thousand years, while 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 territory, 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 importance of the body. Nearly the whole of the rest of China 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 undulating lowland of China, or in that part which is properly called China (Chin). But the Russian empire extends over the other provinces to the north of the Great Wall and to the west of its extreme western extent, must be considered as an appendage, which is of comparatively very little political importance, but contributing to the amount, if this event this union might be dissolved, and the exterior limits separated, which has actually taken place more than once on the change of the reigning dynasties; but such events have not injured the power of the empire, which has rather attained a greater concentration of its internal forces by this separation. These external provinces or intermediate countries are only of importance to the government by imposing foreign tribute, (e. g. barbarian called fan), entering into immediate intercourse with the natives of the Celestial Empire, and as a barrier against the more western empires and nations (Si-yu, Si-fan). As provinces of the political importance, but forming an impenetrable barrier to intercourse with the rest of the empire. In the middle of the table-lands of the Gobi and of Tibet, the Chinese and Russians must consider all the countries extending over the Chinese table-lands, the boundaries of which are nearly coincident with those of the highlands of eastern Asia. The Chinese empire comprehends a considerable number of countries, besides some of less extent; and with respect to their political relation 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-k'ing), or in the northern (Pe-k'ing), as at present. The second class is composed of three great kingdoms, subject to the court of Pekking,—Manchuria on the north-east, the native country of the present dynasty, which is of Tungsee origin; Mongolia on the north and northwest, or the native country of all Mongol tribes; and Habu, Si-uran, Yarkend, Kiang-hi, and the mountainous Bucharah, or rather Chines Tunjistan, which are properly the native countries of the eastern Turkish Tartar tribes. The third class is composed of the protected countries, which have only in part received Chinese institutions, such as Tibet, Bokhara, Undes, 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 Liqueos or Liew-k'iao islands. The British dominions in the East Indies are, for the most part, in India, or the peninsula within the Ganges, a country which is little less than half the surface of Europe, and which contains not less than forty-six millions, by only about fifty millions, that is, though only half as large as Europe, India has nearly three-fourths of its inhabitants. Were the whole population of the Russian empire in Asia uniformly and equally distributed over the country, every square mile would be inhabited only by two individuals; the same calculation, applied to the Chinese empire, would assign to every square mile somewhat more than forty-six persons; but in India, more than double that number. This circumstance is of great moment in the political balance in favour of the British dominion, especially in the case of their population is distributed more widely, which are the most densely peopled, and in which agriculture and civilization have made most progress; whilst the dominion of the Chinese extends over many countries, inhabited by various tribes, still victorious over barbarism. If we consider only the immediate possessions of the British in India, excluding even the island of Ceylon, we find that they have a population of from seventy to eighty millions, and the whole extent of the British empire square miles; but their political importance cannot be duly estimated, if we consider how this population is concentrated, and how easily accessible these countries are by sea and the great navigable rivers. To this we may add, the security which the peninsula derives from being in the hands of a nation possessing the most powerful navy in the world. But the British influence is not limited to the immediate possessions of the three presidencies of Calcutta, Madras, and Bombay; it extends over a great number of dependent and protected sovereignties, who possess a territory as large as that of the East India Company, and, taken together, probably not less than forty millions of subjects, who, for the most part, are of the same order of numbers, and forty, and some of them possess countries of considerable extent, as the monarchs of Oude, of Nagpore, Mysore, Satarah, Travancore, and the Nizam of Golconda. To these we must add the island of Ceylon, which belongs to the crown, a country of 30,000 square miles, and more than 200,000 inhabitants, which is the port of call for the European mail, and the most important station for the navy. The countries which are still entirely independent of British influence are situated on the extreme boundary of India, as the庆州 and the two grand alpine states of Nepal, both on the northern limits of the British possessions. The territories of Runjet Singhe extend from the Setledge to the Indus, and from Cashmere to Mooltan, comprising the whole of the country in the empire, which has changed from a republic to an absolute monarchy. One sovereign only at present exists within the boundary of these territories, who may still lay claim to independence, the Maharaja Signeh, a king of Nevada, whose possessions, everywhere surrounded by the British dominions, extend to the north of the table-land of Deccan. But all these independent states are subordinate as to power and influence; they comprehend less than 200,000 square miles, and about 200,000 souls, and some of the southern maritime provinces of Ye, Tao-y, and Mergui, with a surface of more than 30,000 square miles, but a very scanty population, not exceeding 35,000 persons. But nevertheless the possessions of the latter country is important, by securing to the British nation the possession over the guln of Bengal and the straits of the Sunda islands. The Portuguese, whose settlements were formerly so numerous on the coasts and in the islands of the Indian Sea, have preserved Goa, with a few adjacent places, Damman, and a small portion of the peninsula of Guzerat, with the fortress of Dhu, a place important for the construction of vessels. These possessions, together with the islands of Macao, in the bay of Canton in China, and some small districts of the island of Timor, are supposed to contain about 30,000 square miles, and half a million of inhabitants. The French settlements in Asia are confined to India, and comprehend the government of Pondicherry, with the towns of Pondicherry and Carical, on the coast of Coromandel, and which is the chief of the other possessions of the French in Bengal, and Mahé, on the coast of Malabar, are the most important. The whole area possessed by the French does not exceed 450 square miles, with a population of from 30,000 to 40,000. The Danish colonies consist only of the town of Tranquebar, and its territory, on the coast of Coromandel, a place remarkable for the influence which the missionary establish-
ment of the Protestant creed, which was erected here more early than in other places, exercised on the neighbourhood. These places have also a small settlement at Scarampo, on the Ganges.

The settlements of the Dutch were formerly dispersed over the coasts of both peninsulas of India, as well as over the adjacent islands, but have since been reduced to about five

The country of the Arabs, of very little weight in the political affairs of Asia, and has always been remarkable for its complete independence. Its inhabitants 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 not always in amicable connexion, and have very frequent feuds. 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 sovereignties. As they are mostly subject to the Turks, who claim them as their subjects.

At present it may be said that the power of the

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 surface, the nations of the whole, have 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

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perish beneath this dreadful temperature, their very blood being frozen in their veins.

In a country where this degree of cold exists, vegetation must, of necessity, be confined to the coast, or to the fringes of the regions near the coast. In some places, and particularly in the central portion of the country, the surface of the ground is covered with snow during the greater part of the winter, and the temperature there is often below zero. In the southern part of the country, the winter is milder, and the vegetation is more luxuriant. The north is a region of perpetual snow, and the vegetation is confined to the coast. In the central part of the country, the vegetation is more luxuriant, and the temperature is warmer than in the north. The south is a region of perpetual snow, and the vegetation is confined to the coast.

Among the most valuable trees of the country are the following: the birch, which is the principal tree of the country; the spruce, which is the most important tree of the country; the pine, which is the principal tree of the country; the fir, which is the most important tree of the country; and the hemlock, which is the principal tree of the country. The birch is the principal tree of the country, and is the principal source of fuel. The spruce is the most important tree of the country, and is the principal source of timber. The pine is the principal tree of the country, and is the principal source of lumber. The fir is the most important tree of the country, and is the principal source of lumber. The hemlock is the principal tree of the country, and is the principal source of lumber.

The vegetation of the country is also very rich, and is the principal source of wealth. The country is the principal source of lumber, and the timber is the principal source of wealth. The country is the principal source of fuel, and the wood is the principal source of wealth. The country is the principal source of timber, and the timber is the principal source of wealth. The country is the principal source of lumber, and the timber is the principal source of wealth.
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 described in a separate chapter. It is in the midst of India, may not be so immediately 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 Turanian region, for its peculiar appearance is caused by aridity and barrenness, begotten on the most unfertile soil 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 typical of the east, which are seldom, if ever, more Indian in their character; for instance, it appears from Mr. Royle’s list, that near Delhi such plants as species of Securina, eytraria, coccus, and lepidogalathis, which consist principally of Indian species, are intermixed with fagonias, gregas, capers, camel’s thorn (Alhagi), versus and scrubby heliotropes, which are truly Syrian.

Desolation is the characteristic of a very large part of this region; destitute of water, and searched for, 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 sparsely from want of power to develop the soft greenness so common in any but an unfertile part of the world, and they are shaggy with long hairs, which nature gives them as a feasible means of sucking up the scanty moisture of the atmosphere. If among this barren region cases are found such as the high mountain, very scarce shrubs and flowers, which only form a sad contrast with the dreariness of the scene beyond them, and by no means diminish the truth of the picture we have drawn. Since may be considered the most south-eastern point of the Syrian region; here the vegetation of uncultivated tracts is described as of a miserable description. Great quantities of a sort of tamarisk, intermixed with thorny acacias, a defored caphonia, the flowers of which are still more uninviting than its pods, are found here.

Ficus religiosa, which is the solitary species of Ficus that is able to follow patches of snow, with the Himalayan bamboo (a very curious circumstance), levelled with the ground. To these succeed forests of Quercus semecarpifolia; and finally the limits of vegetation are marked by a few stunted yews and junipers, with forked branches and withered tops (Pinus religiosa), constitute the principal features of the scenery.

V. From countries like these we turn to the rich and varied sides of that stupendous mountain-ridge 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 Himalayan, 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 elevation, it is characterized by an intermixing of plants even in a much smaller extent than in the Alps, which ascend the sides of the hills till they lose themselves among the latter, which in their turn give way, as the snow is approached, to truly Alpine vegetation. In the Himalayan region, as well as in the central districts of China and Japan and the higher ranges of the Netherlerry, 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 pineapple is found no longer to flourish; mangoes and custard-apples suffer from cold; the plantain is only able to exist in consequence of the numerous coverings formed by the sheathing of its leaves. The trees are nearly the same as those of the plains of Upper India, consisting almost entirely of dicotyletonuous species, which lose their leaves in the cold weather as completely as trees in more northern climates. Two species of phorbus, or date, form the only palms that are rare, and are found at all periods of the year. But within the Himalayas, at elevations of 2000 feet and more, are valleys which, being within the influence of the tropical rains, have a peculiarity of atmospheric phenomena which is frequently mentioned in the works of Mr. Royle of China, of being in a climate in which the mean temperature is so low. Here accordingly are found oranges in a wild, arborescent plants related to the cashew-nut, cassia, balsam, larchum, orange, apple, coca, teasable trees (Shorea robusta), and shrubby euphorbias; and which are found abundance of seitanaceous plants and many epiphytic orchidaceae. Cane-palms (calamus) reach these valleys, but ascend no higher; and are met by a pine (Pinus longifolia) which descends to the mountains till it loses itself amidst tropical forms and a few straggling elms, 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 Himalayas, between 5000 and 9000 feet of elevation, that its 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 heaths, honesuckles, and honeysuckles, among quantities of balsams; while the trees are oaks, sycamores, elms, hornbeam, and pine-trees, and the shrubs berries, roses, and honeysuckles, all of Indian species but Eu-
burgh and Wallich 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 there more than a few days at a time; fever 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 island are to be found. The Nipa, which it is said that the Malays found in the sapan, so important for their extreme hardness, tech, and many of the finest of the Indian timber trees; and amidst the vapours arising from the beds of the mountain torrents which often cover the forest floor, grow in countless numbers of ferns, together with those singular plants called by botanists Orchideae ephytes, which cling by their aerial roots to the branches of trees, and astonish the traveler by their brilliant colours and grotesque 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. Mangroves are plentiful round the villages, Palmyra trees (Bo-

rassus fiddleformis) are in many places extremely common; cocoa-nuts and Comoto palms (Arenga saccharifera) 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 ephiphyll orchidea the branches of trees are occupied with parasitical lichens, which, absorbing the moisture from the air, are able to 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 rival that of Sh infra, and to render the natives capable of cultivating it without the aid of an export article. To add to these arenas, palms, plantains, and bananas, jack (Artocarpus integrifolia), guavas, and jamroodene trees, and a tolerable notion will be had of the奇葩 of the trees of this country.

The forests of this country, 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 Bayan tree (Arfidi Indos), the branches of which emit roots which descend to the earth, where they fix themselves, and become in time large trunks. When a banan tree becomes old, and acquires a great number of such trunks, one individual will have the appearance of a great tree. Many cases are cited of trees of tree sort arriving at a prodigious size; the following, mentioned in the Journal of the Asiatic Society as growing in the territory of Mysore, will give a good notion of the surprising magnitude they sometimes assume. The central trunk is from three to four hundred 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 by, the branches, are between a 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 disunited 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 forefathers have been in the habit of disuniting these trees by severing the intermediate parts for the construction of solid 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 way;—this single tree thus affording a circle of foliage and shade to 3050 English square yards of ground. It is on the basis of its' size, and life and variety of its' fruit, and on the singular manner in which it is propagated, that the banan of Mysore is considered as one of the most remarkable trees of the world.

Ceylon may be referred to the Indian region, notwithstanding its insular position. It produces cinnamon forests, nutmegs, and coffee; satindow and ebony trees are found in the forest. All the regions of Ceylon abound in evergreen forests, which are found at great elevations, and although of no considerable height, afford the best timber for naval and other purposes. A kind called Wallapara is spoken of by Mr. Brooke as birthing for use in those more hot under the great heat of the sun, and from the vaste 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 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 sapan which are seen growing in the interstices of the leaved vaques trees. These woods are so dense that the sun never penetrates them; so entangled with climbers, coarse grasses, bamboo, and cane-palms, that no human being can penetrate them with ease, or even with fear 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 (Pipiper cupressus), and tree-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 are found crown-fowl, valerians, filberts, berberries, brambles, honeysuckles, gentians, and other well-known European forms.

The cleared ground of these countries is occupied with a great variety of fruit trees and ornamental plants. The country along with the mountains, durian, and rambutan, many-headed pines, jacks, and shaddocks, which attain their highest perfection here only. Even in the smaller islands some of the fruit and vegetables of the trees and bushes found in this country are of a rich and varied nature, and in many 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 Malayan islands would be habitable without it, from their want of water; the inhabitants derive its timber for their cattle, and never use any other beverage themselves.

[See Journal of the Royal Geographical Society of London; Journal of the Asiatic Society of Bengal; Boyle's productions of Zonner. Malte Brunn's Geography; Melina's Flora Sibiriaca; Wallich's Pacifica Asiatia Rurcireis; 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. This, indeed, might reasonably be expected, 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 preeminent, but in the 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 the number and kind of the domestic animals most civilised 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 enabled him, more than all his predecessors, to lift 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, and all have played so important a part in the history of mankind, that we must 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 domestic animals originated; whether the forests of the island abound generally in other kinds of timber valuable for naval and other purposes. A kind called Wallapara is spoken of by Mr. Brooke as birthing for use in those more hot under the great heat of the sun, and from the vaste ocean—the features of this Flora are essentially different from those of the continent of India. The atmosphere
Thus it will be observed, that of 1345 known quadrupeds, 482, 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 continents 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; nor is Asia, in particular, from its relative position, so much better off as a bearing witness: and other parts take equally the productions of both; and it is probably to this circumstance, more than any other, that we ought to ascribe the comparatively small number of its entire animals for the sake of their being confined, when compared with those peculiar to Africa or America. 

Africa, for instance, contains 390 quadrupeds; yet out of these 50 only are found beyond the boundaries of that continent: America, again, out of no fewer than 557 species, the only inhabitants of which are peculiar to this continent, when compared with those peculiar to Africa or America. 

Species is this, for instance, contains 390 quadrupeds; yet out of these 50 only are found beyond the boundaries of that continent: America, again, out of no fewer than 557 species, the only inhabitants of which are peculiar to this continent, when compared with those peculiar to Africa or America. 

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 preserved, when Alexander's army entered the country, the very animals to which the present time is reduced, 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 public monuments. Alexander the Great, 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 elephants are still found in the northern parts of India, in the Malayan peninsula, in Ceylon, and probably in all the large islands of the Indian Archipelago. Those which are employed in the East India Company's service, and which rarely exceed seven feet and a half average height, are obtained in the upper provinces, principally from the vicinity of the great salt forest, which skirts the lower ridges of the Himalayan chain for some hundred miles, and in which the people are absolutely barren.

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 animals, are originally natives of the central plains of this extensive continent, and, though no longer 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 search of pasture, is a scanty supply of dried dates, temperate and enduring to a degree scarcely exceeded even by the camel and dromedary, lodged in the same hut, and cared for with the fondness of a child, the Arabian horse is never subjected to the performance of any mean drudgery or servile labour, and the rust and pedigree and kindred is preserved with the greatest care. This mode of treatment has a corresponding effect on the habits and character of the animal. In no other part of the world does the horse display so much intelligence, and spirit, and 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 gratitude 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 horse-back, and indeed it would be impossible for the to transport on the pedinary 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 for the sake of his flesh, but for the sake of his milk and milk products, as the most nourishing and appetizing food, and the source of many of those delicacies which are the objects of the most lively desire, and are the particular besoins of Tartar hospitality.

Hence, as the wild ass and the wild horse are, in the present instance, at the same time, as probable to have been the progenitors of those species of the horse and ass which inhabit the same region, and has always retained its original freedom.

The asses, like the horses, of Asia are of larger proportions and more constant 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 in the earliest periods of which we have any record, but also because the Asiatics are, and, as far as we know, always have been, equestrian nations, whilst, in the neighbouring continent of Africa, the species was probably introduced from Asia, though at what period is uncertain. The wild ass in Africa, indeed, will be found roaming over the deserts, or in the hilly country, exactly as the horse in Asia, often 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 regarded as the results of the same species, though differing in form, which inhabits the same regions, and has always retained its original freedom.

Both asses and horses of Asia are presented with in many respects to animals which have been domesticated in other countries. The same is the case of the camel and the dromedary.
China. These animals are mentioned among the earliest lists of the flocks and herds of the patriarchs; and it is not a little curious that, as the domestication of many of the most do-
nomestic 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 wild camels in the neighbourhood of lake Aral, but he
himself does not believe in his own report, though he frequently
heard of them; and Baron Cuvier conjectures, with much
similarity seeming, that the reports refer to some of the
wild animals to which the inhabitants of these regions, from
rural to urban, restore 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 world. The common Indian ox (Bos indicus), though
usually confounded with the common ox of western Europe,
is in reality a very distinct species; differing not only by
his longer legs, and the large hump which marks his shoul-
ders, 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 pro-
hortions, perhaps the most symmetrical and graceful of all
the different species of the ox genus, has been from the ear-
time of the world a great source of wealth by the natives
of India; 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
animal of a sacred character. The black-brown, or the
brown, are the two colours in which the domestic 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 pro-
scribe from it all individual mixed with a common
Indian cattle, however, are not regarded with the same reli-
gious sentiments. They are the usual beasts of draught and
burthen in the country; and, from their great speed, are
frequently used for the saddle, and even by the Europeans,
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 moro distant regions; and
we are not altogether untruthful in the breath in which our
peculiar kind of cattle is alluded to by the Egyptians,
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 de-
scribed by Asian under the name of Poephagus. It is this
animal which furnishes the tails of long silky white hair, of
which the Turks and Persians so much use for carpets and
blankets, and which are employed all over the East, under the name of chowries, for the purpose of driving away the flies and creating a
refreshing current of air about the luxurious inhabitants of India. These favours are frequently sold 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 chowries is of very great anti-
quity throughout all eastern countries.

The Buffalo (Bos bubalus) is a third species of ox, long
domesticated in the southern and eastern parts of Asia.
India and China appear to be the original centres of its
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 closely ascer-
tained the original source. The wild buffalo, called awn
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 awn and the tiger were
formerly a favourite amusement with the Indians; but it is said by eyewitnesses that the tiger was in no
instance a match for his powerful antagonist. Large herds of
the domestic buffalo are kept throughout every part of the
peninsula, and many sons of these animals, with
docility and attachment to the gullible or herdsman
who attend them, and of the courage with which they defend
their keepers from the formidable attacks of the tigers and
panthers which inhabit the forest where they are usually
pastured. The buffalo in India is not habitually used as
a beast of draught or burdens, but supplies the place of the
common ox, in furnishing the inhabitants with milk and
butter, and as a beast of board. It is much esteemed for the
use applied to these latter purposes, assumes the place of the
horse, and is used for the saddle, the plough and the hack-
ery, or carriage. Though long domesticated in India and
China, the use of the latter nation of the animal has
become confined to Persia, is comparatively a recent occurrence, and dates only from the conquests of the Mohammedans.

The fourth and last known species of domestic ox which
the Asiatic nations possess, is the Gayal (Bos gulihs). This
animal is common along the Burmese, and in all the
mountainous districts on the north-east boundaries of British
India; it is also found wild, under the name of Gaur, in
many parts of India, principally among the hills, and is as
much the terror of the wilderness as the tiger is the
arni or tiger. The gayal is a very large animal, with
a heavy carcass and short legs, which are commonly white
from the knee downwards, whilst the body is of a uniform
brown or black. It turns the most advantageous en-
course or ridge which easily distinguishes the gayal from all
other species of the ox kind; and the horns are round, and
twisted into a kind of irregular spiral, with the points turned
inward and downward.

Of sheep kind, the many different varieties are found in
Asia. The broad-tailed sheep of Arabia was known to
the antients, and is mentioned by Herodotus (iii. 113) and
Aristotle; this variety has now spread throughout all
Europe and Asia, and is found in the cold regions of the whole
of Europe, and in the low parts of the high mountains of
Africa, and the higher parts of the middle mountains of
Europe, and the lower plains of India. The Angora
is a small variety of very ordinary form and appearance; it is
a breed of the independent type, and is found in the
northern face of the Himalaya, but does not thrive
when brought across the mountains, not even in the upper
regions of Nepal, where it might have been expected that
it would have found a natural home. We are
the article of commerce between Tibet and the lower plains
of India. The Angora goat is an inferior variety of the
shawl-goat, with drooping ears and long wool of tolerably
fine texture, but not adapted to the same purposes as the
richer wool of the Tibet animal. The common variety of
goat in Asia, which appears to extend over every part of
the continent, is a tall long-legged animal, with very short
hair, large drooping ears, and small spiral horns. Its fleece
is in many parts of India preferred to mutton; and the animal
is valued in all places for the richness and abundance of
its milk.

The Hog, though found wild in most parts of Asia, is a
domestic only among the Chinese, who use its flesh in proportion to the detestation with which it is re-
garded by the followers of Geoffrey and Bhudda. In
India, herds of semi-domestic hogs are frequently found
about the native villages; but as the religion of Brahma
epitomizes the idea of detestation with respect to 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 the flesh of other animals. But 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 bestow upon 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 Inhabitants of the various islands, though closely allied to it in form and appearance. The Chiroptera and the larger mammals of the division of the world, is subject to an almost infinite number of varieties. Troops of this animal, called in India paliria dogs, inhabit every village, and without acknowledging any particular master, know their inhabitants, and 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 the reception of the aged and the dying. But these public stubble, and the food which is 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 mastiff 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 a sufficient access to the large cities in the interior of the empire, to witness the antipathy with which these sagacious animals pursue their enemies the butchers, when they appear in the public streets. The Barbary Ape of Africa, one of the most favourite domestic among the Asiatists; and the Mohammedans, in particular, who consider the dog as unclean, lavish all their attention and care upon this far less gentle and sagacious animal. In the central plains and table-lands of Asia, in Khurasan Country, as well as in Angola 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. They are, however, raised in every country, 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 (genus *Pongus*) are, with a single exception, that of the Chimpanzees (*P. troglodytes*) of Africa, peculiar to this continent; as are likewise the *Simmnopithecus*, an extensive tribe which differs from them only by the possession of a very long slender tail. Among these the *Rheinisch* and the *Kahau*, (5) are remarkable for the length and beauty of their hair, and the intelligence of their looks. The *Chabua* (Macacus) of Malayan peninsula, nearly attains to the dimensions of man, and is remarkable for a large prominent nose, which assimilates it in general appearance more nearly to the human than any other of the apes; mere of grey colour, large ears, and large body. The *Macacus* (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, mysticus and *taricus*, inhabit Asia; all the rest of this numerous family, as we have observed in the article on the zoology of Africa, are found in the island of Madagascar, and along the eastern coast of the neighbouring continent. Among the Chiroptera, or Bat kind, the *pteropis*, or large frugivorous species, are almost exclusively Asiatic; as are likewise the *melo<user;> or, as they are commonly called by travellers, flying foxes. Both these genera inhabit the woods and forests of the intertropical parts of Asia, principally 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 chiroptera swarm in every part of Asia; such as the *chiro<user;> males* by an opposable thumb on the hind hand, inhabits the Malayan peninsula. Among the Carnivorous animals of Asia are three or four different species of Bears; one of these (*Ursus Syruga*) is the same as the *Ursus arctos* of Europe, and 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 (*Rhinocerus Diceroceras*), which exists in the island of Java (R. Javanicus), have but one horn; the Sumatran rhinoceros (R. Sumatrensis) resembles the African species by having two of these excrescences, for they cannot be properly called horns. Of the genus Equus, the common horse is said to have descended from horses of the Syrian, Arabian, and Indian breeds, as in all probability originally indigenous to the central plains of Asia. One other species, the Dziggetai (*E. h. 3 Q 4
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monus), still retains its native freedom in the same locality. It is a beautiful animal, in point of size intermediate between the two other, with much of the symmetrical figure and graceful carriage of the horse, and of the same dun colour as the ass, marked along the back with a broad, unbroken, reddish-brown stripe, and with a white bolder which distinguishes that animal. The Dziggetai, probably also the Koulan of the modern Persians, was well known to the ancients, and is mentioned by Aristotle and Xenophon by the name of the wild ass. Aristotle (v. i., in his History of Thai, mentions an animal called the Syrian mule, from its resemblance to a mule. The latter author mentions that, during the expedition of the Ten Thousand under the younger Cyrus, these animals were observed in the plains bordering the Euphrates, where the ostrich also lived; and though these gigantic birds no longer inhabit the Asiatic deserts, the same phenomenon is daily observed in South Africa, where the ostrich and the quagga are invariably found to associate together. Of the logus (Sus), two species at least are found in Asia: one of them, the common wild boar of Europe (S. scrofa), appears to extend over every part of the Old World; the other, the Sus babyrychus of naturalists, is peculiar to the great Indian Isles, and is remarkable for the singular manner in which the tusks of the upper jaw pierce through the lip on each side, and curl round and over the eyes like a pair of circular horns. The only other psychodermata now well known to us, and of the Malayan tapir (T. Indicus), a species the existence of which in this part of the world is the more remarkable, since its congeners are confined to the forests of South America.

Of the ruminating animals of Asia, the camel, the dromedary, and the four species of the ox kind which have been domesticated by the natives, have been already mentioned. In our respects the principal feature in this department of Asiatic zoology is the great abundance of the deer tribe, and the comparative scarcity of antelopes. Out of thirty-seven known species of deer (Cervus), twenty-five are found in Asia, and of these twenty are peculiar to it; whilst not one of the species which inhabit the temperate zone of the globe is found upon the same continent. These different species will be found described under the articles Antelope and Deer respectively. But there is one small genus of Asiatic ruminants too remarkable to be passed over unnoticed,—the musk, so called from the Tibet species, which produces the perfume so well known by this name. The Tibet musk (Moschus moschiferus) is about the size of a small cat, and not produced by the male only, and is contained in a bag which grows upon the prepuce. This perfume has always been held in high esteem throughout the East, and when genuine and pure, is said to be so valuable for its weight in gold that its great value holds out strong temptation to adulterate it with foreign substances, and the hunters are accustomed to mix the blood of the animal with it in order to increase the quantity, so that it can seldom be procured without adulteration. The Tibet musk inhabits the highest parts of the Himalayan and Tibetan mountains, seldom descending below the snow line, and leaping among the rocks and precipices with the security of the chamois or the ibex. Four or five smaller species of the genus Moschus, probably the smallest of all hoofed animals, being seldom larger than a good-sized hare, inhabit the forests of lower Asia and the islands.

The Cetacea are principally found along the northern coasts, and are the same species which frequent the Frozen Ocean generally. Various species of dolphins (Delphinus) inhabit the tropical seas, and the dugong (Halicore) is found among the great Indian islands; but in no other respects does this part of Asiatic zoology demand particular notice.

The principal circumstance worthy of notice in the birds of India, is the great abundance and varied and brilliant colours of the Pheasants, which fill the forests of the whole world. Indeed the most valuable of our domestic fowls, the common cock and hen, as well as our domestic quadrupeds, originally came from this continent, and are still found in the wilds of India; as are likewise the peacock, the pheasant, and the Impayan pheasant, for the brilliant mottled lustre of its plumage. The gold and silver pheasants (Pheasanta picta et myrhemerus), so common in the avaries of Europe, are indigenous in China, as are likewise the collared pheasant (Ph. torquatus), and a new species (Ph. Reeenest) lately discovered, remarkable for the great length of the lower tail-feathers, which are sometimes exceeding three feet; the fire-pheasant (Ph. ignitus) and argus-pheasant (Ph. argus) inhabit the mountains of Sumatra and Borneo.

It has already been observed that the ostrich, though formerly abundant in the deserts of Mesopotamia, is no longer found on the continent of Asia, unless we take the testimony of Herbert (p. 132), who says that he saw ostriches as the plains between Lar and Shiraz (a.d. 1807). The ostrich is now only found from the coast of South Africa along the interior of the deserts of that continent. The ostrich both in size and internal structure, inhabits the islands of the Indian Archipelago. In other respects the ornithology of Asia is by no means peculiar; at least the generic forms are not so remarkable as those of either Africa or America. All the common European species are found even in the most distant parts of the continent, apparently so identical, that specimens from the two localities cannot be distinguished even by the difference of a feather. The common house sparrow, for instance, is found in the Himalayan mountains, and is as abundant about the villages of Upper Nepaul as in any part of England.

The reptiles, fishes, and insects of Asia are likewise too nearly similar to the species of Europe to require a detailed enumeration of their different forms and genera. Like birds, these different classes of animals possess powers of locomotion which are denied to mammals; and it is consequently that the latter class of animals is something very peculiar in the zoology of a continent like Asia or America. It is on this account that we have been more particular in the enumeration of the quadrupeds than of any other class.

ASIA MINOR. [See Anatolia.]

ASIATIC SOCIETIES are learned bodies formed for the especial purpose of instituting and encouraging inquiries into the geography, history, religions, languages, literature, arts, and sciences, of the East, of which the Asiatic Society of Bengal, founded at Calcutta by Sir William Jones, in January, 1784. Its transactions and the dissertations or essays read at its meetings, 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 society, the principal object of which is to add to the knowledge of the zooology, meteorology, minerals, 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 (part 1., Calcutta, 1829: part 2., London, 1835, 4to.). Both the transactions of the 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 well 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 1822, by the well known French orientalists, Silvestre de Sacy, Abel Rémuat, St-Martin, Chây, &c., under the patronage of the Duke of Orleans (now King of the French). The transactions of this society were, from July, 1822, published in a monthly periodical, the Journal Asiatique, which has run up to his present volumes, besides a separate volume containing an alphabetic index. &c. Since January 1828 the publication has appeared under the title of Nouveau Journal Asiatique. This journal is sent to all the members of the society, and has a regular annual subscription of thirty francs (about 2s.). Through the careful management of its limited funds, the Asiatic Society of Paris has been enabled to encourage, by liberal subscriptions, the publication of works of research in oriental literature, and has besides printed some most valuable books at its own exclusive expense. Among the latter we shall here only mention the elegant edition and French translation of the Sanscrit play Secantala by the M. Châys.
quarterly is dated August 11th, 1824. 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. iii., 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 about five thousand books, which are constantly made 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 in Rajag-uh, and presented by him to the society, is of its greatest value. In its connexion 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. (Regul-1ations, &c., 1832.)

The literary societies of Madras and of Bombay, though originally instituted for more general purposes, desire to be notified here, as their labours have in a great degree been directed towards the same objects as the Asiatic S.ocieties of Calcutta, Paris, and London. The Madras Literary Society was instituted in 1819. Its objects, as stated in its charter, are promotion of literature in every form, the improvement of language, and the advancement of the arts and sciences. It is, in some respects, better fitted for the objects proposed than the Asiatic Society of Bengal. Its Transactions have been published in Dutch under the title Verhandelingen van het Batavenstich Genootschap van Kunsten en Wet-enschappen. The first volume was published in 1789, and the latest that we have is the eighteenth, published in 1832.

ASKOE, ANE, a lady of an honourable family in Lincolnshire, whose name is otherwise spelt Asauah or Aseue, 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 sex in those days, and by her influence was converted to the opinions of the reformers, at which her husband, one Kyme, a violent papist, was so much displeased that he turned her out of doors. She came up to London to sue for her divorce, and by her perswasion obtained the necessary notice of the queen, or at least of some ladies high at court. She was soon accused of holding heretical doctrines concerning the sacrament, and denying the corporal presence of Christ's body in the elements after consecration; and on this charge she was committed to prison. Being examined before the chancellor, the bishop of London, and others, she is said to have replied boldly to the lord mayor's question as to whether the priests cannot make the body of Christ, 'I can make a goose, but God never taught me how to make God, I never yet read.' (Stype. Memorials, p. 357.) Yet it is said by Burnet, that 'after much pains, she set her hand to a recantation, by which she acknowledg-ed that the natural body of Christ was present in the sacrament after the consecration, whether the priest were a good man or an ill man: and that, whether it was presently consumed or reserved in the p. it was the true body of Christ,' and did give a wider circulation to that profession. However, she was unsatisfied, or at least not effectual, for she was soon apprehended again, examined closely as to her belief and doctrines, and committed to Newgate, where she was confined, and did not escape to show her favour and encouragement. Not being able to extract any information on this point, she was placed on the rack and cruelly tortured in the sight, and as Fox says, by the hand of the Lord Chancellor Writheley, whose egera were instructed to employ the most tortuous measures in the ground of offences against the Duchess of Suffolk, the Coun-

tess of Hertford, or some other ladies. But her patience and fortitude could not be shaken, nor does it appear that she had any disclosures to make. She was burnt with four others at the stake in Smithfield, July 16, 1646. (Fox's Martyr's Monument, Bk. 3, p. 314.)

ASKEYTON or ASKATON, a small town in Ireland, in the Connel lower barony, in the county of Limerick, about twenty miles S.W. by W. of the city of that name. It was once a walled town of some importance; and still retains vestiges of its ancient fortifications. It lies at the conflux of the river Deel with the Shannon. The population in 1821 was 1293, and that of the whole parish 3423. The chief claim of Asketon to notice is its connection with the ancient castle of the Earl of Desmond; and the fine ruins of an abbey adjacent to the castle, first occupied by the conventual Franciscans, and then by the Observantines. There are two fair in the year. Asketon is a vicarage in the diocese of Limerick. (Archdeacon's Monument Hibernicum; Seward's Top-ographia Hibernica.)

ASKRIGG, a small market-town in the county of York. [See Yorkshire.]

ASKOR, one of the numberless bays in the Buckler-ford, or bight of Buckler, which lies within the north-western limits of the basin of Stavanger and province of Christiansland in Norway. It is one of the principal bays of the coast of St. Agatha, which is very cold in summer, and has never been known to freeze in winter: 60° 37' N. lat. There is a Danish island likewise of this name, which lies south of Fano, near the coast of Zealand, and is inhabited by only 130 individuals. 54° 54' N. lat. 11° 48' E. long.

ASMONAEANS (Gens Asamonaeas, Hellen. ΑΣΜΟΝΑΙΑΙ ής ΑΣΜΟΝΕΩΝ ής ΑΣΜΟΝΕΩΝ ΡΗΜΑΣ ής ΑΣΜΟΝΑΙΑΙ ΣΟΡΟΣ ής ΑΣΜΟΝΑΙΑΙ ΟΙΚΟΜΟΝ) is the name of this people, according to Josephus (Antity. xxi. cap. 6), from Asamonas (Asmonas) (Asmoneo). The son of Asamoneus was Symeon or Simon, whose son Johannes was the father of Matthias, the founder of the apostolic church of the name Asmonaeans or Asmoneseans, had probably, like other Hebrew names, a significant meaning; the word ΑΣΜΟΝΕΟΣ (Chasmonai, Chasmonaim) occurs only once in the Old Testament, in Psalm lxxxvii. 32. It there means fat ones; that is, rich noblemen, princes—grandees who keep many servants. Hence the designation Asmonaeans implies nobles or princes-wealthy or richly endowed, according to the case of the word. (The word ΑΣΜΟΝΕΤΟΣ, fatness, occurs as the name of a town in the tribe of Judah (Jos. xvi. 27). Chasmonai regularly means fatness, was one of the stations of the Israelites in the Wilderness. (Num. xxxix. 29.)

The state of the Jews, while subjected to the Seleucids, or Greek kings of Syria, was like 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, after the death of Judas the Maccabaeus, and the ascension of King John Hyrcanus, and his five brothers, Jonathan, John, Simon, Judas, Eleazar, and Jonathan, commenced their victorious resistance to the attempt of Antiochus Epiphanes to compel the Jews to exchange their ancestral monstrosity for the idolatry of their Syro-Macedonian oppressors. This struggle is de-scribed 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. 6, to the end of Book xvi. [See Maccabees.]

The power of the Asmonaean dynasty lasted from the year B.C. 166 to B.C. 37; but the family survived the dynasty. It arose from the pious heroism of the Maccabees. Their rapid rise to power and success is connected with the religious and political events connected with the ascension of John Hyrcanus to the throne. It was now the turn of the Maccabees to make a stand against the power of Antiochus, and their first effort was the extinction of the temple sacrifices. The later Hebrew monarchs adopted the title of king, but they lost, with the pious virtue
of their ancestors, the love of the nation, and subsequently, by family discord, the kingdom itself.

The genealogy of the Hasmonean Family is as follows:

Simon.

John.

Judas.

Marchanne, married to Aristobulus III.

Aristobulus, son of Hyrcanus, was made high-priest by Simeon.

After the death of Mattathias, Judas, at the head of those Jews who had fled into the wilderness, made war (b.c. 166) against Antiochus Epiphanes, overcame and killed Apollonius in battle, and thus became chief of his people. The next year he vanquished Lysias and Gergias, two other generals of Antiochus; he then purified the temple and restored the former worship. Antiochus, having heard 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. Anti-chus Eupator, his son, made peace with the Jews, but the war was soon 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 Poliorcetes, having put to death Antiochus, usurped his kingdom, b.c. 162, and conferred the high-priesthood on Akinern. In a battle against Hascides, one of the generals of Demetrius, Judas was killed. [See JUDAS MACCABEUS.] Jonathan succeeded his brother, and after some years of communion, was made high-priest b.c. 153.

Jonathan entered into an alliance, b.c. 150, with the usurper Alexander Balas, who pretended to be the son of Antiochus 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. 149; and, wishing to give himself the title of king, he deposed 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 JUDAS MACCABEUS.]

Simon, b.c. 150, abdicated the right of kingship, the sons of Hyrcanus, the third son of Simon, not being with him when he was murdered. Ptolemy sent to Gazara, in which place he was, to kill him. John, aware of his design, seized his emissaries and put them to death. Ptolemy now called Antiochus Sidetes to his assistance. They besieged Jerusalem, which being reduced to a state of famine, John was obliged to capitulate. John went afterwards with Antiochus in an expedition against the Parthians; and for his exploits against the Hyrcanians was surnamed Hyrcanus. [See JOHN HYR CANUS.]

Aristobulus, the son of Hyrcanus, became high-priest after the death of his father. Hyrcanus bequeathed the sovereign authority to his wife, but Aristobulus caused her to be shut up; and, contrary to former custom, assumed both the diadem and regal titles, b.c. 160. He afterwards undertook an expedition against the Itureans, whom he in a great measure subdued, and introduced among them the practice of the Jewish religion. Being attacked by Scythians, he returned to Jerusalem, in which city brother Antigonus to finish the war. The wife of Aristobulus 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. Antigonus, hearing the war to be a successful close, returned to celebrate the feast of tabernacles, when Aristobulus summoned Antigonus to his presence. The approach to the palace was by a considerable passage. In this Aristo-bulus gave orders to despatch Antigonus if he should present himself armed, but to let him pass if unarmed. The wife of Aristo-bulus, who desired the ruin of Antigonus, privately informed him that the king wished to see him in his armour. Antigonus, entertaining no such suspicions on his wife’s part, thought those who were on the spot. The remorse of Aristobulus 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 Jannaeus, succeeded him in the royal title and office, b.c. 105. [See ALEXANDER JANNAEUS.] Alexander Jannaeus reigned twenty-seven years, and was succeeded by his wife Alexander, b.c. 79. His son Hyr-canus became high-priest. Alexander reigned nine years. Upon her death, b.c. 70, the government devolved upon Hyrcanus II., a prince of a weak character and inactive disposition. His brother Aristobulus, dreading lest the influence which the Jews were assuming over the mind of Hyrcanus should impair the royal authority, gained to his interest the commanders of the fortress, and having caused himself to be proclaimed king, marched to Jerusalem. Hyrcanus II., having been vanquished in the midst of the ensuing battle, being abandoned by his soldiers, threw himself upon the mercy of his brother, who granted him permission to retain the office of high-priest, and allotted him an ample revenue to consent to resign the royal dignity, but after some time, being assisted by Aretas, king of Arabia, he attempted to resume his former rank. Aretas besieged Jerusalem, and Aristobulus was reduced to great straits; but being gainer by his father’s sacrifices, and the intercession 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 Aristobulus had not yet been sanctioned by the Romans; and on the appeal of Hyrcanus, Pompey, having heard the arguments of both parties, decided in favour of Hyrcanus, whom he reinstated in the government under Roman protection. Aristobulus, b.c. 40, was killed by the Romans, Pompey besieged the city during three months; and took it at last by fixing his engines on the Sabbath. The Jews would not violate the sanctity of that day by offensive warfare, although they were ready to receive the Romans, but Pompey, considering that nothing happened with due method, a semblance of attack should be suffered to occur, in order that the Jews might have no pretext for disturbing his preparations. Pompey carried Aristobulus to Rome, and made him appear in the triumphal procession which celebrated, among other victories, the Jewish conquest. Aristobulus found means to escape from Rome, and returning to Judæa, excited fresh commotion. Gabinius, the Roman general, took him prisoner, and sent him a second time to Rome. On the breaking out of war between Pompey and Caesar, the latter sent Aristobulus to Judæa to proclaim peace with that country on the part of Caesar. He was poisoned shortly after by the partisans of Pompey.

The government of Hyrcanus was disturbed by continual commotions, which he bad not the ability to prevent. Caesar gave him many of the neighbouring towns, and allowed him to rebuild the walls of Jerusalem; but Hyrcanus derived little advantage from these concessions. Antipater, the Idumean, wrested from him all but the name of ruler. Antigonus, the son of Aristobulus, to revenge the death of his father, procured the assistance of the Pamiadanes; conquered Judæa, and dethroned his brother, and made him prisoner, and, in order to disable him for exercising the sacerdotal functions, cut off his ears. The king of Parthia treated Hyrcanus with humanity, and sent him to Jerusalem, where Herod had invited him to return. Herod, the Idumean, Antipater’s grandson, treated Hyrcanus so ill that Hyrcanus maintained a correspondence with the chief of the Arabs, caused him to be put to death b.c. 30, at
At 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, b.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, grand-daughter of Hyrcanus II. 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 b.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 Asmonaeus, from whom that family was derived, had both the office of the 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; one of which was Matthias, called Ephialas: he married the daughter of Jonathan the high-priest, which Jonathan was the first of the sons of Asmonaeus, who was high-priest, and was the brother of Simon the high-priest also. This Matthias had a son, called Matthias, Curma, 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 Caius Cesar. I have three sons: Hyrcanus, the eldest, was born in the fourth year of the reign of Vespasian, Justin in the seventh, and Agrrippa in the ninth.'

These are the last traces of the Asmonaean family.


In the British Museum there is a number of Asmonaean coins, from which the following drawings are taken.

The legends of the larger coin, which is of silver, are, if expressed in the usual square character, סומן = Shimeon; יתנש = to the liberty of Jerusalem.

On the smaller coin, which is of brass, we read — צמצמ = liberty of Zion; שע = second year.

ASP (Pipera Haje, Daudlin), 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 sap (dextrin) is often mentioned both by Greek 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. xiii. cap. 25), 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 Naucher. 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 carinated, and the tail is about one-fourth part the length of the whole body. The haje is closely allied to the cobra capello, or spectacled 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 putting out or distending the neck and throat when disturbed or provoked, is no other than the haje or sap 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 sap 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 sap 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, the haje...
bowed upon this reptile, so terrible from the deadly effects of its poison, as to make the head of the hajus so large as to prevent its seeing straight before it, that it is frequently trodden under foot before it is aware of its danger. Forbod, a Swedish naturalist, who has written on the animals of Egypt, informs us that the hajus of Grand Cairo is the best of the hajus, 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 can when irritated. The habit of this serpent has of erecting itself when approached, made the antient 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 have represented it on their temples sculptured on each side of a globe.

**ASP/ARAG.** [See ASP/ODEL.]**

**ASP/ARAGUS,** a genus of monocotyledonous plants belonging to the natural order asphodelace. 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 pulpy fruit.

Unlike the principal part of monocotyledonous plants, and especially of those which belong to asphodelace, the stems of the different species of asparagus branch like those of dryopteris and the hare's-tail, and become bolder and more woolly; sometimes they 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 destitute of leaves.

The species 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 cultivation and the culture of the heads.

An asparagus plant consists of a cluster of feathy roots connected by the stem, where a quantity of buds are formed, from which branches are yearly emitted. The heads are those 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 size and the most rapid growth are to be attained.

Several natural situations, where a funeral mound is, or a grave as the 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 capable of retaining moisture and not be water-repellent. 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 in 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 horse or of pigeon droppings, 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 this circum-

*ACACIA*  

On this and similar authority we learn that Pericles was indebted to Aspasia for much of the notable 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 Athe-
nians, by her influence with Pericles, into two wars. One of these was the Samian war, b.c. 440; an interference in behalf of Miletus, the birth-place of Aspasia, to secure to it the possession of Priene, contested by Samos. Thucydides, in his history of the war (i. 116), gives a hint that the Athenian leader was guided by any such corrupt influence: he merely says that the Milesians, being worsted, came to Athens, and accused the Samians; their complaints being sustained by a strong plea on the part of the Athenians to render the Samian government more democratic. Aristophanes charges Pericles with having involved the country in a quarrel with Megara, by a non-intercourse act, in revenge for the forcible abduction by some Megarians of their citizen at Attic attar. (Acharn. 523, ed. Kust.) Other comic writers, among whom Plutarch names Cratinus, were not slow in taking advantage of her real or supposed influence, and called her the new Omphale, Delilah, June, with epithets of no civil nature appended thereto. Hermippus, the comedian, prosecuted her on the more grave charge of not believing in the gods, and besides, of being instrumental in debauching free women to gratify the lust of Pericles. (See also Plutarch's Pericles, c. 24.) We are told on the same authority (that of Plutarch), that nothing but the personal exertions, the tears, and entreaties of Pericles procured his acquittal, and that Plutarch, in his account of his death, had the title of Pericles applicable to his character. Whatever the truth of the affair, the deaths of Pericles 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 trade it was to have adventures after the death of her lover and patron, except that she transferred her affections to Lysicrates, a man of low origin and vulgar mind, who, however, by her instructions, according to Plutarch, became after the death of Pericles for a time the popular leader in Athens. (See Plutarch's Pericles, c. 24, 30, 32; and Bayle.)

ASPECT, an astronomical term, now entirely disused, applied to the various positions of the planets with respect to one another, as seen from the earth. The terms conjunction and opposition are the only two out of five names which have been retained; the remainder being called sextile, quadrature, and trine. At conjunction two planets have the sun between them, and the aspect is sextile; when ninety, quadrature; when 120, trine; when 180 degrees apart, or opposite, they are in opposition. The following are the characters which are used.

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ASPEN. [See Populus.]

ASPER, or ASPER, a small Turkish coin, and money of account. As a coin it is worth something more than an English halfpenny. The only instances in which it is seen from the earth. The term conjunction and opposition are the only two out of five names which have been retained; the remainder being called sextile, quadrature, and trine. At conjunction two planets have the sun between them, and the aspect is sextile; when ninety, quadrature; when 120, trine; when 180 degrees apart, or opposite, they are in opposition. The following are the characters which are used.

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ASPERN, 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 1699. On the 12th of May in that year, Napoleon had made himself master of the Austrian capital, and the Archduke Charles had, subsequently to his repulse at Eckmuhl, in the 12th, taken possession of the Danube, close upon Vienna. Napoleon was not long in possessing himself of two islands in that river, by which he threw his forces across it; and, on the 21st of May, offered his adversary battle from the position he had taken up on the islands of Trenchen-Island. Keeping to this position he was attacked with so much ardour by the Archduke's forces, that both Aspern and Engersdorf were carried before nightfall. Aspern itself, which has since been rebuilt, was converted into a heap of ruins, after enduring thirteen successive assaults. Eslingen and the entrenched island of Lobau however remained in the hands of the French; but the Archduke, having employed the next night in destroying the bridge of communication between the island and the left bank of the river, renewed his attack upon Eslingen the ensuing morning, and ultimately drove General Massena and his broken troops back upon the main force. The obstinate encounter contested may be inferred from the loss of the French, which amounted to 30,000, or, according to the Austrian accounts, 41,000 men, killed and wounded; not more than 2300 killed and wounded; the three pieces of ammunition being brought as trophies to the victors. A pyramid was raised by the Austrians with the 3000 French cuirasses which they collected on the spot. Marshal Lannes, with Generals D'Espagne, St. Hilaire, and Albuquerque, fell during this two days' struggle; and Massena, besides, 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 Archduke. (See Asturias.)

ASPHALITTES, LACUS. [See Dead Sea.]

ASPHALT. (Greek word, δέκαλακχ, of unknown etymology,) frequently incorrect by the very known to be a heavy 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 conchoidal fracture, and a resonant husk. In opaque, and exceedingly difficult to reduce, but softens and melts with the application of heat; in density it varies from water to 1.8. It may be recognized by the following characters: it is insoluble in alcohol, but stirs with a white precipitate of which it forms a good and useful varnish; its combustion is rapid and brilliant, with the production of the bituminous odor.

Asphalt is found in most countries, but most abundantly on the shores, or floating on the surface, of the Dead Sea; at Hit, above Babylon, on the Euphrates; near the Tigri in the West Indies it fills a basin of three miles in circumference and of unknown depth. There is a pitch of black asphalt in Zanzibar, which we have known to be dug up and exported as early as 1800 years. (See Herod. iv. 195.) It is also found in limestone at Bleiberg in Carnithia; in beds of sandstone in Austria, and in veins in the Hartz in Germany; in Derbyshire, Shropshire, and several other places, the principal colouring matter of the dark inundated marl, or shale, which is found in coal districts.

ASPHODELLEA, or the sedge tribe, are monoclytcladous plants, which form a very natural assembly for the most part easily recognized, although in certain species and genera it approaches other orders so closely as to be distinguishable only with great difficulty. They all have regular flowers with three sepals, petals, stamens, and style, and only one style. Their fruit is either dry or succulent; and their seeds have a brittle coat.

Asphodelles are often found from autumn to the rush tribe, by their larger and more coloured flowers, and by the hardness

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A. rumores, of many gardens, 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 (ἀσφυξία) which signifies a suspension of the pulsation, originally arose from a 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. The state of respirations which is referred to in the last clause is entirely different [see Bloom]; that in the veins is incapable of supporting life; that in the arteries is the proper nutrient and excitant of the system. The object of respirations is to convert venous to arterial blood

The second subdivision, consisting of the true asphodells and those which resemble them, have no bulbs, but in their stead clusters of flexible roots such as we find in the asperagus, which belongs to this subdivision; the stems of these are frequently woody, but in that case they are branched; dracena, or the gum-drone 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 fleshy leaves and forked stems.

ASPHODELUS, the genus from which the foregoing natural order takes its name, comprehends some handsome hardy perennial plants, with fleshy 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. latifolus, 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 eastern parts of Europe. In the Botanical Register, plate 1307, it is principly known by its dwarfe stature, earlier and paler flowers, more glaucous leaves, and shorter bractes.

A. album, 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 last, and in similar situations: its flowers are white with a reddish streak on the outside of each petal, and are disposed in branched clusters.
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 alternation of enlargement and diminution of the cavity of the chest, indispensable to the entrance and exit of fresh currents of air, cease. In this manner they are abolished, though not quite simultaneously, yet in rapid succession, the function being preserved in a different form; namely, that of an inhaled and exhaled current of air, or a sort of breathing which serves to supply the lungs with the necessary oxygen and to rid them of the impure products of combustion.

As the circulation fails and the pulse sinks, the muscles termed sphincter, that is, muscles placed at the mouths of certain cavities in order to close their passage, that their contents may be retained, are given a comparatively relaxed; the rectum and the urinary bladder evacuate their contents; often violent convulsions now come on, and immediately before the extinction of life the forces and urines are expelled with great force.

The phenomena attendant on the state of asphyxia, and which are characteristic of it, are now sufficiently manifest. It is impossible to raise the thomox 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 lung, 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 systemic destruction of the heart and 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 body remains warm for a very long period; the nape and neck of the neck are swollen; it is either of a reddish violet hue or of a livid colour, and the eyes are clear, bright, and preternaturally prominent. Shakespeare's description of this state is physiologically correct:

*I see, 'tis very late, the night is grown; His eye looks sith he cannot when he live; His face, once fair, now ne'er so brave, is chang'd; His hair appears; his mournful eyes with struggles;
Tears in his eye that she was all in love, And tears for life, and was by strength subdued.*

As the animal heat is longer retained than is 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 proportionally 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 changed. In the heart and the respiratory organs, the mucous 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 blood are emitted from the lungs; the black blood oozes out, and the eyes are clear, bright, and preternaturally prominent. In the organs of circulation, the blood is the organ chiefly affected. Its veins are gorged with dark blood; dark-coloured blood is found both in 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 blood. Thus the blood in all the organs of the system is always discontinuously fluid in consistence and dark in colour.

Causux. 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 body, 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 air in the lungs, or of arresting the chemical action of the air upon the chest, is capable of producing the state of asphyxia.

2. Whatever affords a mechanical obstruction to the d and expansion of the lungs, while the respiratory muscles still act with the requisite energy, as the accumulation of fluid in the cavity of the chest, or the diminution of the cavity of the chest, is capable of producing the state of asphyxia.

3. Whatever affords a mechanical obstruction to the entrance of the air into the lungs, as the application of a ligature about the wind-pipe, causing strangulation; the submersion of the body in water, or drowning; the introduction of foreign bodies into the larynx, trachea, or its divisions, the bronchi: exposure to a too rarefied atmosphere, or to irresponsible gases, such as nitrogen, hydrogen, kerosene, gas, &c. &c.

11. The circumstances which are capable of producing the state of asphyxia, by arresting the chemical action of the air upon the blood, are either what may be termed mechanical or vital. The mechanical are those which act on the mode in which the air is admitted to the lungs, by the entrance of air into the lung, as suspension, submersion, and so on. The vital are those which act chiefly through the medium of the nervous system. If injury be done to the lungs, or to the respiratory muscles, thus destroying the sensitiveness of these classul to supply the lungs with the necessary oxygen which it is their office to afford, the requisite changes in the blood do not take place. Such an injurious effect upon this class of nerves may be brought about gradually and progressively by the long, interminable, and intense cold upon the system, or may be produced instantly by a stroke of lightning. The like cause may also act through the nervous system upon the respiratory muscles, stopping the action of which may be termed the mechanical portion of the respiratory apparatus, namely, the alternation of enlargement and diminution of the thoracic cavity. Injury done to the other great division of the nervous system, that is, the system of nerves; injury or pressure upon the upper portion of the spinal cord (the medulla oblongata); injury or pressure upon the spinal cord itself, and especially upon that portion of it which is placed in the neck, whether from fracture or compression, will necessarily destroy the controllability of the respiratory muscles, and thus stop the respiratory movements. It often happens that both sets of causes are combined; the controllability of the muscles of respiration being destroyed by the operation of the same causes which abolish the nervous energy of the lungs.

There are certain varieties of asphyxia in which, on account of their practical importance, being states of continual occurrence from accident and other causes, much consideration. The more important of these are drowning, hanging, strangulation, and suffocation. The physiological condition of the system is the same in each of these varieties of asphyxia; but there is a treatment suitable to each, which will be better explained under its appropriate head. [See DROWNING, &c.]

ASPIRATE, a name given to one of the divisions of consonants. Grammarians have generally avoided any formal definition of the principle which characterizes this or the other classes of letters; they have generally deemed it sufficient to enumerate those letters which belong to the aspirate class, and to separate them, without giving any reason for the selection. The subject is sufficiently one of difficulty, and it is therefore with much doubt that the following system is proposed. In the pronunciation of the letters called tenes—v, k, t, p,—the movable tongue is placed occluded, and remains in the minimum of contact with the organ struck, whether palate, tooth, or lip, and the stroke is rapid. In the pronunciation of the medialis—g (as in goose), d, b,—the surface of contact is greater; the contact itself is closer, and of longer duration. Lastly, in the utterance of the aspirated letters, the organs are brought more or less closely together through the whole breadth of the mouth, so that the vibration of air passes through a large fissure; the organ touched by the pressure of the prolonged expiration of air, the thickness of the organ of articulation of the air, the intensity of the pressure, and the duration of the emission of air, is less than in the aspirate. The series of aspirates, &y, ch (as at the end of German or Scotch words), th as in things, ph, or are produced. If the pressure be closer and more lasting, there result the aspirates ph, th as in this, and x. The former series might perhaps deserve to be called aspirated tenes; the latter, aspirated medialis. The sibilants again seem to have a claim to be admitted under the genus aspirate. If this claim be allowed, s as in song, sh as in ship, th as in this, and k, m, and ng, should be classed as aspirated. The letter l, which has been omitted in our series, is only a faint ch (as pronounced by the Germans). In the arrangement of the series of consonants the reduction of the larynx onwards, it will be found to terminate in the Hebrew church. [See Alphabets, pp. 372, 380.] In the comparison of cognate languages, it is important to bear in mind—first, that the aspirated letters are often convertible with one another;
and secondly, that they are all interchangeable with the medials and tenues of the same organ. Thus, 1st, ch of the Greek language often corresponds to ć in the Latin: chem (σήμερον, υπερέχων) Gr., hiem-ć Lat., winter; chama-cit Gr., hamano Lat., on-the-ground; cha (χα-ειμι) Gr., his-e-ć Lat., to go up; [See Greek.] 2nd, in Greek, corresponds to s in Latin, heps Gr., septem Latin, seven; hese Gr., see Lat., six; super Gr., super Lat., above, (upper).

3. in ordinary Greek to phr or of the κόλλιο διαερται, ć the quality which is exhibited upon a horse, to be transferred to his new master and despised rival, would have increased the size and developed the mental qualities of the ass to an extent which it would be difficult to anticipate, but which eastern travelers, and those who have observed the ass in its native climates, 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 have been developed nearly on the same principle.

The horse is proud, fiery, and impetuous, nice in his tastes, and delicate in constitution; like a pampered menial, he is subject to many diseases, and acquires artificial wants and habits, which are unknown in a state of nature. The ass, on the contrary, is humble, patient, and contented with scanty and coarse fare which other cattle reject; he bears with patience and fortitude the most cruel and oppressive treatment; yet he is more susceptible of strong attachment than the horse. The eastern nations, therefore, propose, and are capable of a degree of education which would not be anticipated from the forlorn and deserted appearance which coarse food and harsh treatment have rendered it. The ass is mortal to be treated with the same severity as any other quadruped; but it is subject to an unusual capacity of endurance, and is capable of a degree of education which would not be anticipated from the forlorn and deserted appearance which coarse food and harsh treatment have rendered it. The ass is mortal to be treated with the same severity as any other quadruped; but it is subject to an unusual capacity of endurance, and is capable of being instructed to the utmost extent of those parts which are susceptible of education.

ASPREDO, in zoology, a genus of abdominal mala-
copтерiform fishes, characterised by the horizontal flatness of the head, and the enlargement of the anterior part of the trunk, which is in an unusual degree the most prominent part of the shoulder. They are further distinguished from the Silurus of Linnaeus (from which extensive genus, indeed, they were originally separated by that great naturalist himself) by the proportional length of the tail; by having the eyes placed in the upper surface of the head, and the intermax-
lary bones concealed beneath the ethmoid, directed backwards, and furnished with teeth only along their posterior margin; and finally, they are remarkable as being the only known genus not being cartilaginous, which have movable opercula, the bones of which these organs are composed being soldered on either side to the tympanum and preoperculum. 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 slight attenuated muzzle. There is but a single 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 few species, the principal of which, the Silurus Asprodo of Linnaeus, inhabits the rivers and lakes of North America.

ASPROPTAMON. [See Archerian.]

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 quadrupeds receive—the care and attention bestowed upon developing the form and cultivating the spirit of the one, and the neglect and usage to which the other is subjected. Buffon has well observed, that the ass is despised and neglected only because we possess a more noble and powerful animal in the horse; and that, if the horse were unknown, the care and attention which is bestowed upon a horse, the ass would be transferred to his new master and despised rival, would have increased the size and developed the mental qualities of the ass to an extent which it would be difficult to anticipate, but which eastern travelers, and those who have observed the ass in its native climates, 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 have been developed nearly on the same principle.

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ASPROPE.
bable that Pharaoh would have neglected to include this noble and useful animal among the other riches which he brought. His chefs in vinegar, the hare, nameless things that he 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 same might be said of the horses, that in the time of Abraham the horse was not domesticated in Egypt. It appears further, from the catalogue of Ahimelech's presents to Abraham, from the enumeration of Abraham's effects on the lists which he carried, that the possessions of Jacob's riches, of his present to his brother Esaun, 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 invariably mentioned amongst the species of domestic cattle 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 Kulan 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 slender, and it is altogether a more graceful and symmetrical animal. The hair is composed 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 tail, and a more or less distinct dark flanks, as in the domestic variety. The Kulan inhabits the parts of Central Asia, from the 48° of North latitude to the northern confines of India. They migrate from north to south according to the season. In summer they are commonly found about lake Araz, but in autumn they collect in vast troops under the conduct of a regular leader, and proceed towards the south, arriving at Cutch and Guzerat in November, and returning northward again in the middle of spring. The Persians call these animals a black, or a high flesh of the Kulan in high esteem, and hunt it in preference to all other descriptions of game. Olearius assures us that he saw no fewer than thirty-two wild asses slain in one day by the Sekah of Persia and his countrymen, the bodies of which were sent to the royal kitchens at Isphahan; and we know from Martial, that the emperors of Rome held the flesh of the Onager, or wild ass, in the same estimation as we do venison.

From a passage in Pliny (lib. viii. c. 44) it would appear that the Onager inhabited Africa, and that the most delicate and best flavoured laliones, or fat foals, were brought from that continent to the Roman markets. Leo Africana writes the same, stating that 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 Pors.

ASSAFORTIDA (in As.

ASSAFORTIDA is a gum-resin, obtained from the roots of the Perula assafotida, a perennial plant growing in Persia, in Khorassan, and in the province of Lar. In its resin meal used, it is in style of being boiled off by exposure to the air it becomes of 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 consistence of wax, but by a reverse and fast 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 which correspond to this description constitute the best kind of assafotida in India.

The inferior sort is dark-brown, of a dull, fatty appearance, viscid, and gready, containing portions of the stalks, and other impurities: it is called assafotida in masses.

The smell of assafotida is penetrating, very disagreeable, and lasts some time. The taste is bitter, unpleasantly aromatic, of an allisaceous or garlic-like character. Its chief component parts are volatile oil, resin, and gum; and it is fatuous when in vinegar, the calorific, and is not to be considered, for effects, from which the resin is gradually precipitated. Assafotida can only be powdered at the temperature of freezing (32° of Fahrenheit); but even when it is being powdered, though kept in a cool place, it is apt again to run into masses.

An artificial assafotida is sometimes formed of resin and garlic juice; but this has only a weak smell, and is more perfectly soluble in oil. Formulations of this nature, with water, it forms an emulsion, from which the resin is gradually precipitated. Assafotida 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 the quassia and Peru bark, it might lead us to expect, 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 leucus, its action is often rapid and effectual, especially if thrown into the rectum: in this way cases of the most obstinate constipation, especially in hysteric females, have been relieved.

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 the cough of hysterical females, it is of very great utility.

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 externally, as means of keeping up counter-irritation. For local application, a convenient plaster may be formed by adding 1-12th part of camphor to 11-12ths of assafotida.

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 where assafotida is improper.

ASSAHAN, a district and town situated on a river of the same name, in the Batta country, on the north-east coast of Sumatra. The town is in 3°1' N. lat. and 95°52' E. long. The river, which is above 4000 feet wide at its mouth, is shallower and more sluggish, is rendered deeply shaded by extensive sand-bank. The Portuguese had formerly a settlement 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 articles of import are salt, cotton wool, cotton goods, muskats, and gunpowder. The exports are various—dyewoods, rattans, wax, rice, and horses. A trade in slaves was formerly carried on from Assahan. As many as 350, mostly females, have in one year to the Portuguese; and it is 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 after being proved, the duties, and also the age and bodily capacity, from twelve to forty dollars per head. Happily this trade has partaken of the general commercial depression.

The population of the whole district was estimated in 1822 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.]

ASSASSINS, a military and religious order, formed in Persia in the eleventh century. It was a ramifications of the Ismaelites, who were themselves a branch of the great Mohammedan sect of the Shiites, the supporters of the claims of Ali's posterity to the caliphat. [See Ali and Aas T-
11th, the Farsi stronghold, was a target of the Abbasid caliphs, and the Isma'ilites succeeded in placing on the throne of Egypt a pretended descendent of the seventh Imam in the time of Ali, from whom the Isma'ilites had taken their name. [See ISMA'ILITES.]

This descendant, whose name was Obeid Allah Mchedde, was the founder of the Fatemite dynasty, so called from Fatema, mother of Ali, and the founder of the line. Under the protection of these lions 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 Seljuque Turks, but on being disgraced, he went to Egypt, where he was received with distinction by the caliph, became a zealous adherent of the Isma'ilite lodge, and after many vicissitudes and wanderings obtained possession, by the aid of his brethren, of the hilly fastnesses of the Mekhet and Casvin, in Persia, and there (A.D. 1090) established an independent society or order, consisting of seven degrees, with himself at the head as sheikh al jebel, i.e., sheikh of the mountain. Under him came three dai al kebir, the grand priors; then, in the order of the days, the dai, the reefer, the companions; 6thly, the fedaws, or devout; 7thly, the isseeks, aspirants or novices; 8thly, the profane, or common people. Hassan drew out for the dai, 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 an interpretation accordingly. This did not conflict with the illuminated rules of morality and 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 most effectual class in the order were the fedaws—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 the unspeakable impiety of disputing his orders, which were the mandates of heaven itself. These fedaws were clothed in white, with red bonnets and girdles, and armed with sharp daggers; but they assumed all sorts of disguises when sent on a mission. Marco Polo gives a most romantic account of the dai at Mekhet. It was said that the head of the order, an important mission, was carried in a state of temporal worship produced by powerful opiates, and where, on awakening, he found every thing that could excite and gratify his senses. He was made to believe that this was a foretaste of the paradise of the prophet, reserved for his faithful and devoted servants, and thus became willing to encounter death, even under the most appalling forms, in order to secure a permanent seat in the above Paradise. Marco Polo's narrative is confirmed by Arabian 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 preparation administered to the fedaws. The name of Adda, which is that of an opiate made from hemp-leaves, is supposed to have been the origin of the word 'Assassin'; 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 sicarii, 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 Assassins, either by force or treachery, gained possession of the fastnesses and fortified castles and cities, and the sultan Melek Shah attacked them, the doctors of the law excommunicated them, but the fedaws carried secret death among their enemies; the sultan's minister, Nizam ul Mulk, was slain by one of their master swordsmen, who was supposed by poison. The Assassins spread into Syria, where they acquired strongholds in the mountains near Tripoli; and the sultan of the Seljuque 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 Alamoo in 1124, after thirty-five years' reign. He bequeathed his authority to his son, Abu Mansur Daniel, who, on the death of his father in 1126, renewed the war with the Seljuque, and Abou Wafa, his Dai al Kebir in Syria, entered into a temporary alliance with Baldwin II. king of Jerusalem, through the agency of Hugo de Puyens, grand master of the Templars, against their common enemies the Seljuque Turks. After this, the Assassins were sometimes on friendly terms, but often at variance, with the Christian princes of Syria and Palestine, as well as with their Mohammedan neighbours. The number of their members is not accurately known, but they resort 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 Baghdad was killed likewise, and 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 Buoorc, continued to reside at Alamoo, but they were weak and profligate; one of them, Hassan, who had the rashness to disclose in public the mysteries of the order, was murdered, and the founder 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 emissary on the great pilgrimage to Mecca, and received the appellation of New Mogul, or benighted master; 4thly, the caliph, who was the last of the Assassins, was murdered in 1177, and his son Aladdin, who, being murdered, the office of sheikh al Jebel devolved upon Roked-ed-deen, Aladdin's son. By this time the caliph of Baghdad had applied to the great Mongol conqueror, Gegen Khan, who sent his brother Sulukoo to exterminate the murderous sect. Alamoo was taken, and Roken-ed-deen was made prisoner; the fortress Kirdcoo resisted for three years, but the city was evacuated in 1187. This did not prevent the assassins from being massacred without distinction, A.D. 1256.

The Syrian or western branch of the Assassins, however, continued to exist for some years later under their Dai al Kebir. Massayd, not far from Beyroot, was their principal stronghold. The history of this branch is the most familiar to Europeans, being much interwoven with that of the crusaders and of the great Sultan Sala-ed-deen. The latter was several times in danger from the daggers of the Assassins. At last, on the death of the latter, in 1193, which were like bodies of a new order, the highest dignity, sent in 1173 to an embassy to Almeric, the Christian king of Jerusalem, offering, in his name and that of his people, to embrace Christianity, on condition that the Templars, who were their neighbours, should renounce the annual tribute of 10,000 pieces of silver, and live in peace and good neighbourhood towards them. Almeric was delighted with the offer, and dismissed the envoy with honour. The envoy, however, on his return to his territory, was killed by a party of Templars, led by Gautier du Mesnil. After this the Assassins resorted again to their daggers, which they had laid aside for many years. Among other victims, Conrad, seneschal of Tyre and Montferrat, was murdered by two daggers in the market-place of Tyr, 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 Assassins kept the countries of the mountains of Syria, and became their centre. 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 Acre on his return from the Domicite expedition, and was justly refused. At last the Syrian Assassins were conquered, and their stronghold taken, by Bihari, the Mamluke Sultan of Egypt, fourteen years after the destruction of the eastern branch by the Mongols. Many, however, found refuge in the mountains of Persia, and became the allies of the Koords; and some of the tenants of the order are believed to linger still among them. (Hammer, Geschichte der Assassinen; also Sir John Malcolm's History of Persia; and Weir's Assassins.)

ASSAULT and BATTERY. An assault has been commonly defined to be an attempt or offer with force and
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 waving it, and the like, is a threat, and in a threatening mannae 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, is an assault, but does not in itself cause any injury. 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.

An assault, however, to be inflicted as a result, 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, provided it proves personal to assailing. Territorial, officers, or lighted squib was thrown into a market-place, which was tossed about from hand to hand and at last struck a man in the face and put out his eye, it was held to be an assault and battery by the first thrower.

A person who commits an assault and battery is liable to an action of trespass by the party injured, and also to a criminal prosecution for a misdemeanor and breach of the peace; but the proceeding by indictment and action for the assault is ordered in the custom. When a defendant is found guilty upon an indictment, and the court is informed that an action has been brought for the same injury, a nominal sentence is usually passed, unless the defendant reserves his action, and is so disposed of.

It is not uncommon to permit the prosecutor of an indictment for a common assault to compound the offence with the defendant even after he has been convicted; and upon the declaration of the former that he is satisfied, a nominal punishment only is imposed. This practice, which is called speaking with the prosecutor, has been introduced for the purpose of reimbursing the person really injured the expenses of the prosecution, and of compelling the offender to make some compensation, without the formality 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 relieveing 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 Commentator, vol. iv. p. 365.)

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 party injured are made punishable; many of them were either comparatively recent, or passed in pursuance of a conspiracy to raise wages, may be imprisoned, with hard labour, at the discretion of the court. Also, by the 25th section of that statute, all persons convicted of 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 prevent the lawful apprehension of the party assaulting for any offence; (4) of any assault with intent to prevent the lawful apprehension of the party assaulting for any offence; and (5) of any assault with intent in pursuance of a conspiracy to raise wages, may be imprisoned, with hard labour, at the discretion of the court.

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 of the loss of the right hand attached by the common law to assault, the right hand being an instrument 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 Temple was, while in the midst of the most bloody and 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 imperious upon them to pass the specific sentence of amputation; but the attorney-general entered a Noli prosequi as to those parts of the charge upon which the double 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 13 Geo. III. c. 28, that no prosecution should be instituted for 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 judge shall find the damages greater than the costs, shall recover four times the 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., with the costs, upon one of the base men, 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 was not sufficiently proved, or that 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 this, that 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 is ascertainable; and the operation is done to ascertain the substances with which it is mixed or alloyed.

The operations of assaying are sometimes conducted entirely in what is called the dry oven, or by heat; at other times in the moist oven, or by acids and other reagents; and in some cases both methods are necessarily resorted to in assaying the same ore or mixture of metals.

The use of the term assaying is sometimes restricted to alloys or mixtures of gold and silver; but in the present day may be extended to include the assaying 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 nearly as possible of the same weight as the gold, by reducing litharge, it contains only about half a grain of silver to 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 depends upon the weight of the base metal; and this is stirred in the alloy; this, if coarse, is harder than standard silver, of a brilliant glassy appearance, and is flattened with difficulty on the anvil; if soft, easily flattened, and if a dead-colour, a nearer approach to silver 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, becomes flattened, gives off fumes, and considerable motion shows on its surface. The lead thus gradually oxidizing and fusing is absorbed by the cupel, and carried away in the fumes; the latter is met 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 to the mouth; when the fumes appear, the silver becomes indiscernible, and the operation is complete. Care must be taken to allow the assay to cool very gradually, and its weight will denote 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 it is an alloy only 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 parting process is therefore had recourse to. The gold is covered with the silver by diluting the thiac 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, the gold is stripped at a height twenty grains is to have from twenty-four to thirty-six grains of pure silver added to it, and to be cullpelled with one hundred and eight grains of lead. The button obtained is to be flattened into a plate of about one inch and a half in diameter, when 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 guill. This is to be put in a mattrass with about three times its weight of nitric acid, of sp. gr. 1.25, and heated on a sand-bath. By the action 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 house fresh clay crucibles to bright redness. The pieces of 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.

Iron ores are chiefly of three kinds, protocarbo, commonly called the argillaceous iron ore; the peroxide, including the specular and hematitic iron ores; the black, or magnetic ore, which is a compound of the protocarbo and peroxide.
The argillaceous iron ore is that which supplies by far the greatest proportion obtained in Britain; the hematite occurs in North Lancashire and many other places; the mines of Elba yield the specular ore, whilst the Swedish iron is obtained principally from the magnetic ore.

The methods have been proposed for assaying these ores, but the principle is in all of them the same; it is that of separating the oxygen from the iron, by the greater affinity of charcoal for that element at high temperatures. The operation of calcining the ore is frequently assisted by the use of a flux to combine with the earthy matter, and to convert it into such a glass as will let the melted metal easily fall through, and form, on cooling, a clean button. A flux composed of lime and bottle glass has been used, or the clay which accompanies the argillaceous iron ore is to be burnt and mixed with an equal weight of lime; 200 grains of the powdered ore may be mixed with an equal weight of this flux and forty grains of powdered charcoal; the mixture, put in a crucible, and heated on a fire or in a wind-furnace or a forge. It is not always easy to appportion the charcoal exactly to the oxide of iron in the ore; when it is either too large or too small, the product of iron is imperfect, and this will be denoted by the imperfection of the glass.

In the supplement to the Encyclopædia Britannica, Mr. Mushet has given the results of using various fluxes with an iron ore that yielded forty-six per cent. of the metal; and it appears that the following mixture of the ore and substances, all of course reduced to powder, gave the largest proportion of iron: ore 200 grains, lime 100, borax 100, charcoal 40, gave 91 of metal; it is therefore seen that only one-half per cent. of iron remained in the glass.

According to M. Desoleils (Ann. de Chimie, t. 84, p. 188), the earthy portion of the argillaceous iron ore is frequently such as to form a glass without adding any flux whatever to the charcoal. He used crucibles lined with a mixture of clay and charcoal; and thus, among many other essays, with nearly similar results, an ore which was found by analysis to contain about thirty-seven and three-quarters per cent. of iron, and yielded thirty-eight and a-half per cent. of the metal, and the glass was of excellent quality.

Copper ores, with reference to the mode of assaying them, may be divided into two classes—those that contain silver, and those that do not. The former class may be subdivided into such as also contain iron pyrites, arsenic, tin, lead, zinc, &c., with a considerable quantity of earthy matter; and such as are composed principally of a mixture of the sulphures of copper and iron, with but small portions, if any, of other metallic or earthly minerals.

To treat the first subdivision of the sulphurous ores (which constitute at least 99-990ths of all copper ores sold in Great Britain), a flux should be prepared by mixing the following ingredients in the undermentioned proportions—

2 parts
Flour spar,
1 ditto
Slaked lime,
1 ditto
Borax,
1 ditto
Flour of argol (impure tartar),
1 ditto
Nitre,
al炫耀 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 hearth, with a mixture of flux and charcoal prepared in the manner proposed, 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 quantity has been given off, as the charcoal may 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, this will be finished within from four to five minutes.

Should the operator have reason to think that the mixture in the crucible has not melted thin, so as to allow the metallic regulus to subside through the slag, he may proceed upon it a mixture of scrapel and argol; and this may be again repeated if necessary, adding, however, ten grains of flour of sulphur. When thoroughly melted, pour the contents of the crucible into a hemispherical iron mould, previously warmed and greased; allow it to become solid, and then quench it in water. Separate the button of regulus from the slag with a small hammer; it ought to be round and well defined, of a reddish-brown colour with shades of blue, or else bluish white. When of the former colour, it is a little more sulphur than the latter. Should the button of regulus exhibit a brilliant bluish-white surface, the slag should be re-melted with two drachms of red argol, and a scrapel of blackened lime and sulphur which will give a small button of regulus to be added to the former. It may here be remarked, that a button of regulus with a nucleus of metallic copper should always be rejected, and a fresh assay commenced, calcining the ore less. And if, when the slag and button of regulus are quenched in water, it renders the latter immediately turbid, and of a dirty orange-yellow colour, it should also be rejected: the ore in this case also having been too much calcined, or too large a quantity of nitre used. On the contrary, if the button is clear, and has a distinct defined button, but spreads under the slag a considerable way up the sides of the mould, and of a dull-brown aspect, the ore has not been sufficiently calcined.

The crucible must now be calcined, for which purpose reduce it to powder, and expose it in a clean crucible to a very dull red heat, constantly stirring it. As the operation proceeds, the heat must be increased and the stirring continued, until the whole of the sulphur is disseipated. Especially must be taken, particularly at the commencement of the operation, to prevent the regulus from clotting or sticking together, which is caused by excess of heat or want of stirring, and much retards the operation. The same remark applies to the calcination of the sulphur.

The crucible having been removed from the furnace, and allowed to cool, add to the calcined regulus about a drachm each of borax and red argol, with a scrapel of nitre, covering the whole with common salt. Melt the mixture well and, as soon as it is prepared, pour it into a mould as before; quench it in water, and knock off the slag (which reserve) from the metallic button.

The latter is now termed coarse copper, and requires to be refined; for which purpose return the crucible to the furnace, putting into it the button of copper, upon which, when

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melted, project about half a drachm of flux (prepared as below), 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 is not free of the fines (or slags, as they are called), repeat the operation until it is.

An unerring mark of fineness is a sinking or concavity in the centre of the upper surface of the ‘assay,’ or button; but so long as the upper surface is convex, it is not fine. If the button, when fine, instead of sinking, is round and smooth, a reddish-brown 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 directly from the crucible or mantel, the crucible and all the flux, together with the flux and slag from the refining process, and mix these with three drachms 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 done by mixing 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 preserved in a well-sealed bottle. If the weight of the flux is about five ounces, 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, and likewise the crucible the metal will oxidize, which of course is to be avoided.

The ores of the second subdivision of sulphur-oxides are best assayed by calcining them perfectly in the first instance, so that the first melting shall give a metallic button, instead of of the second quality; to effect this, when the one has been calcined until the whole of the sulphur is driven off, it should be melted with a drachm each of slaked lime and flour-spar, the same quantity of borax and red argol, with a like quantity of charcoal powder; and then proceed with process 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 sulphurtetrahedron, commonly found mixed with the common lead, and known as white lead ore, is sometimes found in considerable quantity.

To assay the former ore. Take 400 grains coarsely powdered, mix it with 100 grains of iron in filings or small pieces, 100 grains of black flux, and 50 grains of cream of tartar. Heat 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 master 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 very 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 as before with common salt, and pouring it in, as the ore of copper. These are principally of two kinds, the oxide and the sulphur; the latter is, however, very rare.

To assay the oxide of tin, or black tin, as it is commonly called, it requires only simple fusion with half its weight of black flux, one-eighth borax and the like of cream of tartar, covering the mixture in the crucible to the depth of half an inch with common salt.

The sulphur, or pyritic tin ore. Let 400 grains be reduced to tiny globules, and carefully examined, with occasional additions of small portions of charcoal powder, constantly stirring it with an iron rod, and so managing the fire as to prevent the ore from clotting. This operation should be continued until the ore ceases to emit either sulphurous or nitrous fumes; and then the crucible is lifted, and all the iron from the stirring-rod any portion of the ore that may adhere to it, adding, 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 zinc, borax, and cream of tartar; when these are well mixed, cover the crucible 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, and zincite.

There is perhaps no mode of directly assaying the ores of this metal, so as to obtain their metallic contents. That generally given in books of chemistry and metallurgy, viz., that of the roasted ore mixed with charcoal in an earthen retort, has not been found to yield the metal either wholly or partially. Even in the treatment of these ores in the large way, the quantity of metal obtained seldom exceeds one-third the quantity which they contain; the loss arises from the condensation of metallic vapour, and partly from unreduced oxide.

The best mode of making comparative assays of the ores of zinc is as follows: if the ore is the carbonate, or calamine as it is usually termed, reduce it to pieces of the size of hazel nuts, weigh thirty-two ounces avodupois, and expose it under a muffle, 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 the weight of its own bulk and one-half more of powdered charcoal, and press it down moderately tight into a Stourbridge clay crucible, which it should not fill nearer than two inches to the top. Then add a portion of the zinc ore, in which a little charcoal-powder and sand have been mixed, rolled it out to one-eighth of an inch thick, and cut out of it a round cake to fit into the crucible upon the mixture of calamine and charcoal, giving it a flat edge on its upper surface. Then weigh as much granulated copper as is equal to two-thirds of the calcined calamine, spread it upon the dish of clay in the crucible, cover it with charcoal-powder, and latter clay, close to the crucible. Set the crucible in an air furnace, and expose it to 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 edge and weight it to see if 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 too hot, the metal is so 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 sulphur, 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 muffle, 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.

ASSEMÁNI, JOSEPH SIMONIIUS, a learned Maronite native of Syria, who came to Italy in the beginning of the 18th century, was made Archbishop of the Patriarch of Tyre, and Librarian of the Vatican, by Clement XI. He was sent by that Pontiff on a literary mission to Egypt and Syria, in the years 1715—16, and he brought back to Rome many valuable MSS. and MSS. set about compiling his Bibliotheca Orientalis Clementina Vaticanana, four volumes folio, Rome, 1719—28, being a biographical account of the Syrian writers, divided into three classes, i. e. Orthodox, Nestorian, and Monophysite, with a comparative view of the Syriac text, and a Latin version, lists of their works, and comments on the same. He intended to proceed with the Arabian, Coptic, and other Eastern writers, but nothing appeared in print beyond the Syriac. The fourth volume is the Bibliotheca Syriaca, divided into three classes, the Syrian Nestorians—2d. St. Ephraem Syri Opera omnia que extant, six volumes folio, Rome, 1732—46. This edition of the works of St. Ephraem, one of the old Syrian fathers,
containing the Syriac text and a Latin translation, was begun by Ambrach, another learned Maronite living at Rome, and better known as Father Benedetti, being a member of the society of the same name (as it was called by Asseman). This work is much esteemed, and the Latin is better than that of the other works of Asseman, who was more skilled in the Oriental than in the Latin language.—ed. Kalendaris Ecclesiae universae, in quindecim tomis, tempore Regni Orientis ac Occidentis, primatissi um quinque Ecclesiae originibus, recentissimis, &c., et notis illustratur, six volumes quarto, Rome, 1733-7.—4th Bibliotheca Juris Orientalis Canoni et Civilis, four volumes quarto, Rome, 1762-4.

Asseman died at Rome in 1768, at the age of eighty. He left MSS., several historical dissertations, and other frag-
ments, on the Christian population of the ancient patriarchate of Antioch, on the nation of the Copts, on the Nesto-
torians, and other Eastern sects, &c., which have been lately published by Monsignor Mai. In his lifetime he pub-
lished a dissertation on the origin and religion of the ante-
Mohammedan Arabs, which he appended to his translation
of Benraheb’s Chronicle. Of Asseman’s friend Am-
brach, we may here mention, that he translated from the
Arabo into Latin the work of Stephen, Patriarch of
Antioch, on the Origin and the Liturgy of the Monar
cines. [See GENERAL ASSEMBLY.]

ASSEMAN, STEPHANUS EVODIUS, nephew of the pre-
ceding, was Bishop of Abyssin, and succeeded
his uncle as librarian of the Vatican. He published the four
first volumes of the Bibliotheca orientalis in Latin
latinum codicis MSS. Orientalium Catalogus, two volumes
folio, 1742, with notes by Gori.—2. Acta Sanctarum Mar-
tyrum Orientalium et Occidentalium, two volumes
folio, Rome, 1745. To this work, which he compiled from MSS.
in the Vatican, he added the Acts of St. Simon, called
Stytilte, in Chaldaic and Latin. He also began a general
catalogue of the Vatican MSS., divided into three catego-
ries, Oriental, Greek and Latin, Italian and other modern lan-
guages, of which, however, he published only the first volumes
in 1756; a fire which broke out in his chambers having
destroyed his papers. Mai has continued part of this oc-
talogue in his Scriptorium veterum novae collectio, of which
the eighth volume has been lately published. Another
member of the same family, called Joseph Louis Asseman,
published the Alexandrine Missal, with the liturgy of the
various churches of Egypt, old and modern: Missale Alex-
andrinum S. Marti, in quo euchariae liturgiae omnes
antiquae ac recentes Ecclesiaram Egypti, Graeci, Coptici,
Arabici, et Syndicate exibuntur, quarto, Rome, 1734 ; and
also a chronology of the Patriarchs of Chaldea. The Asse-
man had a rich collection of Arabic and Syriac MSS.,
which he purchased from the Vaticans, and Monsignor
Mai has lately given catalogues of them. The Syriac MSS.
alone are 202 in number.

ASSEMANI, SIMONE, grand nephew of Joseph
Assemani, was born in Istria in 1686. He was
was many years professor of Oriental languages in
the university of Padua. He published several works in
Italian and in Latin on oriental literature and history. 1. Sagg
sullo origine, culto, letteratura e costumi degli Arabi,
annali ili pseudo persona ius moventis, Padua, 1755.
2. Catalogo dei codici MSS. Orientali nella biblioteca Na
miana, quarto, Padua, 1757-8. To this catalogue he added
extracts from some of the works registered in it, such as the life of the prophets and heroes of the East,
Arabian, and Turkish monarchs, and also illustrations of
the Cufi coins and other antiquities existing in the
museum of the same family of Nuni.—3. Globus Calatin,
Codex Arabo-Scoti, quarto, Padua, 1790, being a description
of the celestial globe in the Borgo palace, having
with a dissertation on the astronomy of the Arabs. It
was this Assemani who first exposed the imposture of
the Malthese Vells, who pretended to have found, in an Arabic MS., in the possession of the antique
learned and famous Patriarch of the Sicilian Saracen.
Vella made a translation of it, and published it at Palermo in 1789. (Codice diplomatico di Sicilia edito il Governo degli Arabi, 3 vols. 4to. Palermo, 1801.) This work was dedicated to the King of France.
Assemani, to whom some of the proof sheets had been
sent, pronounced the text to be unintelligible, except some
lines which were Malthese 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 intermixed with Maltese words,
apparently with the intention of rendering the original text
more intelligible, so that after his death, he was sentenced to imprisonment. (Cesarotti Opere, vol-
une xviii.; Fundgruben des Orientes, volume i.; and also
Allgemeinen Literarischen Anzeigen for 1795.)

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 be represented by the lords 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 33d Henry VIII. chap. 21. All the commissioners are usually three: they are all the officers of state. They take their seats, attired in a peculiar costume, on a bench placed between the woolsack and the throne. When the king comes down in person, he is seated on the throne, robed and crowned. The bills that have been read a second time in the Commons, and which have been
seeSUPPLY, are brought up from the Commons by the Speaker, who, in presenting them, especially at the end of a session, is accustomed to accompany the act with a short speech. In
these addresses it is recommended that the bill, which has been so liberally supplied by his majesty’s faithful
Commons should be judiciously and economically expended; and a considerable sensation has been sometimes made by the emphasis and solemnity with which this advice has been delivered upon the screen. The royal assent to a bill is announced by the clerk of parliament. Having read the title, he says, if it is a bill of supply, ‘Le roi remarque ses
deur sujets, accepte leur bienveillance, et ainsi le veult; if any other public bill, ‘Le roi le veult;’ if a private bill,
‘Soit fait comme il est destine.’ 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, and, when it is only
read once in each house, no royal assent is required, as 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, ‘Le Seigneur, Seigneurs,
faites votre lois, voici vos lois.’ If it is a bill of supply,
tous vos autres sujets, remarciez tes hardes, moyestre vos
majestat, et priez a Dieu vous donner en santé bonne vie et
longue.’

When the royal assent is refused to a bill, the form of announcement is Le roi s’assente. 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 crown
under 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,
unpublished memoirs of a high officer of state), that the last instance was the rejection of the bill for trien-
annual 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 eyes and expectations
were sufficiently excited; but the king, in the end of the
session, refused to pass it, so the session ended in ill humour.
The rejecting a bill, though an unquestionable right of the
crown, has been so seldom practised, that the two houses are
practically considered as the only sovereign in parliament. To
consider an instance of the crown denying 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 he
had assented 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: "This house doth assent to the act which was to redress a grievance, and take off a scandal upon the proceedings of the Commons in parliament, is an enemy to their majesties and the kingdom; and that a scandal upon the proceedings of the Commons in parliament, and the reason of the Commons for not having given the royal assent to several public bills, and in particular to this bill, which tends so much to the clearing and the reputation of this house 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. This address was assented to, 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. Hatton in the second volume of his Precedents (edit. 1687) quotes other instances of subsequent date to this. The latest 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 on the basis of reasons stated, by ninety-one bills which were presented to her, rejected forty-eight. It was the royal assent which makes a bill an act of parliament, and gives it effect and validity. As by a legal process the acts 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 a bill in the last quarter of the session, if made, did not make the act operative from the beginning of the session, when no day was particularly mentioned in the body of it as that on which it should come into effect. In order to settle this point, it was ordered by the com. 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 employed in this ceremony from the first institution. Thus, instance, Sir Henry VII. gave his assent to the bill of attainer passed in the first year of his reign (1483) against the partisans of Richard III. in the more emphatic terms, Le roy le voit, en tout point. On some occasions, of earlier date, the assent is stated to have been given in English. Thus, to a bill of attainer passed against Sir William Oldhall in 1453 (31st of Henry VI.), the clerk is recorded in the Rolls of Parliament to have announced his majesty's assent as follows: 'The king volle that he beade 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 gives this assent, that by virtue thereof he be not put from his prerogative to shew mercy grace and grace shall please his highness, according to his regale and dignite, to any person or persons, whose names are 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 used, and are now in use. On the 1st of October, 1656, 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 consent, that if the bill of 1st June, 1867, also, a bill passed the House of Lords, and was read a third 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 instead of Le roy le voit, these words be used, il est désiré, these words be substituted, Be it as is prayed; where these words, Le roi remettra ses bons sujets, acceptez leur bonté et de vos veux, have been used, it shall hereafter be, The king thanks his good subjects, accept their goodness, and do it; or, The king wishes these, The king will consider of it, be used.'

'Why this bill was rejected by the Commons,' says Hatsell, 'or why its provisions with respect to proceedings in parliament act which the Commons passed in 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 Hatsell's Precedents, especially vol. ii. pp. 355-356 (1816).

ASER, ASSEVERIUS MENEVENSIS, called ASKER by Ingulphus, and JOHN ASSEY by Bale and Pits, was a learned monk of St. David's, whence (the name of that place in Latin being written Menapia or Menapia) he obtained the appellation. He is known to have written a volume of the Talmud, in Latin, and to have lectured thereon at the college of Sora, in Wales, 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, Asser was undoubtedly distinguished very early in life by intellectual powers and acquirements. He died A.D. 426, aged seventy-four.

Rabbi Abraham Ben Dore asserts, in his Kabbalah, p. 68, that since the days of Rabbi Jethuda Hannasi, or Rabbanu Haskadosh, in the time of Herod, but Asser had not only assented to the king's rejection of a bill, but had written his own knowledge of the law, piety, humility, and magnificence. The exposition of the Mishna delivered by Asser in his lectures to the students under his care were collected, and the Babylonian Talmud was founded upon his lectures. The scene of the address, when the king incited 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 an answer. If Asser had not incited them 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 clauses explained at the beginning to the students when he read them from the master. Prizes were awarded to the most distinguished disciples. Asser 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, Asser 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 Terma David, first part, in the years 4127 and 4187; Sepher Juchasin, fol. 117; Halitchoh Olam, p. 18; Wolf, Bibliotheca Hebraea, tom. i. p. 229.)

ASER, called ASSEY by John Asser, was a distinguished Hebrew scholar, and his works are numerous and valuable. Among his works are: "De Red. Grat. Aevit," ed. Wise, p. 49 for his being related to an archbishop of St. David's of the name of Noe.

Asser was invited to the court of Alfred the Great, as is generally believed, in or about the year 866, but probably not in 880. The account of the pieces left stated by Asser's own account is (p. 47), that those who were sent to fetch him introduced him to the king at Dane, in Wiltshire, and that the king not only received him gravely, but, at the first interview, pressed him to reside constantly at court.

Asser 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 desired that he would assort his time between the court and his monastery, passing six months at one, and six at the other: but Asser was unwilling to comply even with this request, till he had consulted the brethren of his convent, St. David's, in Wales, and they therefore sent a letter to the bishop of 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 proposed to send themselves to the court, and more especially against the oppressions of Hemen, one

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of the petty princes of South Wales, who had occasionally persecuted their archbishops. They, however, requested Asser to preserve 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 the king at a place called Leominster, where he remained 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 to the monks the goods proposed to be Amesbury, in Wiltshire, and Banwell (Baw- well, in Somersetshire), together with a silk pall of great value, and as much incense as a strong man was able to carry; adding also, that other small things, and had before 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 Biogra- phia Britannica, in 1823, though he always retained the title. Thenceforward be constantly attended the court, in the manner before stipulated, and is named as a person in whom be bad particular confidence, by King Alfred in his will, which must have been made some time before 885, since mention is there made of Eans, bishop of Hereford, who died that year. He bequeathed to Asser one hundred mancuses. (Will of R. Ajf, pubd. at Oxford p. 20.) Asser states that the King fixed to his translation of 'Pastoralis,' addressed to Witsig, bishop of London; and there the king does not call him bishop of Sherburn, but minic brepre, 'my bishop,' which proves he would receive 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, who lived at the time 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 regulated their time and the books 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 the things he could not bear to lose. The king consented, 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 real estate, and was what the king called his 'Hand- book,' or 'Manual.'

Asser appears to have continued at court during the rest of the reign of Alfred, and probably several years after; but wherever he died is doubted. His obituary in the Saxon Chrono- nic positively fixes the time to the year 910.

The prefaces and the works of Asser have both been subjects of controversy. The writer of his life in the Bio- graphia 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 (Harpfield, Hist, Essex, 161), if such a person did exist, was a different person from the Asser of St. David's.

Bale and Pits 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. Aurearum Sactentiarum Enchiridion; 4. A Book of Homilies; 5. A Volume of Letters. The Commentary on Boethius probably means nothing more than his explanation of that author to King Alfred when the king wished to have his 'Enchiridion' in Latin, as the Annales translated and published by Gale in his Script. xv. at Oxford in 1659, but are believed to be the work of a pseudo-Asser. The Enchiridion is, beyond question, Alfred's Manual already mentioned. A large share of the two works, the Homilies and Letters, is unsupported by any other authority. Many other works (but without specification) are said by Bale and Pits to have been translated into English by Asser.

The 'Annales Reorum Gestarum Alfredi Magni' were first published by Archbishop Parker, at the end of Wel- singham's History, fol. Lond. 1574, and reprinted by Cotton in his Anglica, Normanica, &c. fol. Francist. 1603. They were again reprinted in an elegant octavo volume at Oxford, by Francis Wise, in 1772; the best edition.

It is celebrated that Asser, formerly in the Cottonian Library, marked Otho Aprill, was burnt in the fire at Westminster in 1731. (See the 'Annales,' published by Wise, Tanner's Bibliotheca Britannica-Hibern. p. 53; Brit. Gr. art. Asserius, A. 1439. Nothing is known of Asser's life after 893, but he was still living in 904.)

**ASSESSMENT OF TAXES.** [See Taxes.]

**ASSESSMENT OF DAMAGES takes place on a writ of inquiry before the sheriff or his deputy, and a jury comes to the county or such parts of it as may be involved. In such cases 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 on the trial where issue is joined to try the issue as well as to assess the damages (tam ad triumquam ad inquirendum). Such assessment is subject to be set aside on motion before the court where the action is brought, in cases where the jury are improperly returned, or the sheriff has misdirected them in point of law, or the damages are excessive. (See Writ of Inquiry.—Damages.)

**ASSASSED** on the Norman French assets (sufficient) is the real and personal property of a party deceased, which, either in the hands of his heir or devisee, or of his executor or administrator, is chargeable with the payment of his debts and legacies. Assets are also distinguished as real or personal. 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 devisee. Assets are also distinguishable into legal, or as arising from the executor or heir's liability, and equitable, or 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 marshallable among creditors, and legateses, 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 admin- istrator at any time in lieu of them. Thus, a lease made before the death of the lessor by the lessee to the executor, in pursuance of a covenant in that lease to deliver a tenant to the lessee at the death of the lessor; goods which are left on the property in order to deliver to them a tenant; damages recovered by an executor for breach of a contract made with the tenant; personal legal assets. So the young of sheep or other of the flocks born after the death of the deceased, by his executor in carrying on his trade; the value of his mortgaged chattels, redeemed by the executor after his death, are assets of this description.

2nd. As to the location of the property. The question in general, does 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 8th Geo. I. c. 7. s. 4, houses, lands, negroes, &c., in the plantations of the West Indies, are ren- dered personal assets, devolving on the executor for satis- faction of debts. And the Act 1 Geo. II. c. 3, has produced the same operation on all real estates of British subjects (not being Mohammedans or Gentoos), 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, limited to those assets which are in the hands of the executor, and those of which the deceased may die possessed. It was said by Wentworth, a considerable authority on this subject, that if the tenant at his death has sheep in Cumberland, bullocks in Wales, fat oxen in Bucks, money, house- hold stuff, and plate in London, and goods in the Indies at Coventry, viz. far from all these places, the executor has such an actual possession immediately on the tenant's death, that he may maintain trespass against any one
taking them away, and therefore it is doubtful whether these goods must be considered to have 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 a stranger within it has been actually possessed by the executor or administra- tor, or if it be without any fault of the executor, he will only be liable to account for the damages by which he may actually recover against such stranger; notwithstanding such damages may be less than the value of the particular 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 consideration. The personal property of the testator is generally 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 chargeable. 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 legally salvable. It is to avoid this definitio 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 principles it shall be considered personal property, 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; nor does he receive, by the executor himself under a specific trust to apply it in payment of the 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 conse- quently are not assets until it is made a personal asset by the plea of plena administratix 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 the assets; it consists in the nature of the mode of payment for debts. While legal assets must be applied in payment of debts, according to certain rules of priority (viz. 1. Funeral charges, &c.—2. Debts to the crown.—3. Judgment—4. Evidence, &c.—5. Costs and specialty—6. Simple contract debts—7. Legacies.—8. Equitable assets are distributable among all creditors, equally, the only distinction recognised in courts of equity, the creditor is the person to whom a judgment or order in chancery is made for payment of debts. By the courts of equity, a legal asset is a mortgage, bond, &c. 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 preference to those of his legatees or assigns.

3. Real Assets comprise all such lands, tenements, &c. as descend to the heir at law of the deceased, and which at common law rendered him chargeable with specialty debts having the heir. They embrace many things not strictly of a real nature. 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 a personal asset, such as the fixtures, wainscots, doors, 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, and to descend to the heir as real assets. By the statutes 29 Car. II. c. 3. estates pur auribus, limited to the grantee 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 assets, to which they may attach in the hands 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 state of Pennsylvania) to the tenant in fee-simple (judgments and personal charges of the owner) in general follow the nature of the inheritance.

At common law, it was strictly only the real estate de- scended 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 Statutes of Wills, 12 Harry VII. c. 12, had carried away his lands, his creditors were entirely defrauded of their debts. To remedy this evil, the 3d William and Mary, c. 14, § 3, rendered such devises void as creditors by bond or specialty in which the heir was bound, and enabled all such creditors to sue the devisee 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 used in the same principle by the courts of equity, and has been re-enacted by the 1st William IV. c. 47, to creditors not only on bond 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 testator: the creditors by simple contract obtained under the same act 3 & 4 William IV. c. 74 (re-enacted by 1 William IV. c. 47); but this was con- fined to cases where the debtor, at the time of his death, was a trader; and none of the above provisions applied to copy- hold 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 a special asset for payment of his debts, as well those due on simple contract as on specialty: provided that in the administration of assets in courts of equity creditors by specialty in which the heir was bound, or by specialty, in which the heirs are notbound. It is to be observed that this important enactment confines the remedy of simple contract creditors against the real estate to a court of equity, and does not enable a simple contract creditor to sue the heir or devisee for payment of his debts.

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 his own hands. As to such personal assets, the testator or the executor is clothed with the powers of a court of equity for payment of his debts. If the deceased had left personal assets, yet it is a settled rule that the personal estate in the hands of the executor or administrator is the person to whom a judgment or order in chancery is made for payment of the debts of the deceased, of whatever description. If the creditor, therefore, proceeds against the real estate, de- scended or devised, the heir or devisee who has sustained the loss shall be allowed to stand in the place of the specialty creditor, or, in favour of the heir, to apply the sale of the real estate in the hands of the executor; provided, of course, that such reimbursement will not prejudice any creditor of the deceased; and where the exoneration of the real estate is in favour of the heir, he must not disavow or disclaim the claim of an equitable legatee, except the residuary legatee, nor the wife's claim to paraphernalia. But a devisee stands in a different situation from the heir; and if he is compelled to pay a bond to a creditor of the deceased, it seems he is entitled to reimbursement out of the personal assets, to the disappointment of general legacies, and even (as it would appear) of specific legacies.

To entitle the heir or devisee to this exoneration out of the personal estate, it must be shown that the cause of the debt arose before the decease; for if it was a debt charged on the estate when the deceased purchased it, or a debt incurred for money borrowed to pay off then existing charges (whether debts or legacies), the land is then the proper fund for its discharge, and the heir or devisee must take the lump sum and cannot throw the burden on the personal funds. The rule is the same with respect to both debts and legacies, viz. that the personal estate is the primary and natural fund out of which they must be paid, and that if there is not sufficient to be resorted to in aid of the personality; and even though debts and legacies are, by the will, effectively charged on the real estate, this is only taken for a declaration by the testator that the estate shall be sufficient to discharge the deficiency of personal assets. But though it requires more than a mere charge of the real estate to exempt the personality, still a testator is not debarred, if his intention be sufficiently expressed, from effecting such an exemption. As to the
mode of expression in a will requires to operate this effect, if the cases have been very numerous and contradictory, and evidence dehors the will has been, in some of them (as it now is), held insignificant; and in earlier cases it was held that express words were requisite; but it is now settled that the personal assets will be exempted, if there appear, from the whole testamentary disposition taken together, sufficient to convince that the testator intended to give the real estate, not to pass to the heir, but to charge it as to exempt the property.

Marshalling assets is that operation by a court of equity, by which claimants entitled to claim against both the real and personal property of the deceased debtor. But this rule of law is only applicable to cases of joint tenancy, where the personal 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 payment of legacies, a legal equity arises in favour of such bond creditor against the real assets descended 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 (nor it is wished) would be entitled to-pay the debts of the deceased, even if the devisees were beneficiaries. The language of the testator is general for the whole of his estate, and if there had been any particular devisees, this would be necessary to be shown by the will. [See Executors, Legacies, Wills and Testaments; and see William's Treatise on the Law of Executors and Administrators; Bacon's Alienment (7th ed.), tit. Executors and Administrators, Legacies, Mortgages.]

ASSIDIANS (까우드) Chasidim 'Ambaios, 1 Maccab. vii. 13. Chasidlar, the piross, from the root 'ādām, or rather from 'ādā'ēm, 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 attempts of Antiochus Ephiphanes and his successors to force the Jews into idolatry. The Assidians, or Chasidim, of those days, found a leader in Ma'aseh, a Levite, who gave it as his task to defend the Temple 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 headed the Chasidim during four years against the Graecomania of those days. These four years are not included by Josephus in the hundred and twenty-six years of the Amonasian dynasty, which he commenced from the time at which Judas Maccabaeus assumed the chief command. Later Jews called those persons 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 bearing the suffering 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 God and angels. They fasted frequently, and abstained from such things as their nature had visions. Solomon Maimon informs his readers in his Memoirs (Berlin, 1792), that some of the Chasidim died in consequence of their austerities, and that others became deformed; he also states that they used the noonday professions 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 practice. They taught, that the mortification of the flesh was not efficacious 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 tranquillity which is necessary for the contemplation of God. These Chasidim endeavoured that unto the religious cultivators of their religionists 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 such natural and supernatual things as they desire. The tasdik is always in communion with God.

After this sect became numerous, some of its members were considered representatives of God, and their words were received with the same reverence as those of other founders. The tasdik 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 the modern Chasidism is briefly this: Israel Baalschism, t. 'אִירסְיָב, The Lord of the name, i.e. Geopyk, Theurgy, whom Maimon erroneously calls Joel, lived A.D. 1740, in the town of Vlussy, in the circle of Czarkow, in Poland. His partisans 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. Baalschism went afterwards to Medziboz in Podolia, whence he propagated his doctrines, which are condensations of those written in the same year by himself under the title of the good name, the Lord of the name of God. His testament has been published under the title of the good name, the Lord of the name of God. From the word Besht, the modern Chasidism has been called Beshtian. The orthodox rabbis held that Besht was the founder of the whole movement, and that the spread of the Chasidism, or Beshtian, by anathema and excommunications. Baalschism based his doctrines upon the cabalistic book of Zohar, recommending a contemplative, inactive life, and frequent bathing in spring waters. The Beshtians soon spread over Wallachia, Moldavia, 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 propagated their opinions rather by manuscript copies of their writings than by printed publications; but since 1817 they have printed and circulated more than twenty-five different works. After the death of Baalschism, A.D. 1760, R. Bar of Madezycy, R. Mendel Przemislaw, and R. Melash of Lyansza, endeavoured to govern the sect; not as combined triumvirs, but by each assuming the government of his own circle, under the title of the tiskind, just or priest. The title of the tiskind was formerly applied to Baalschism by way of distinction, after his death each of his three most distinguished disciples endeavoured by its assumption to vindicate his own prerogative of conversing with spirits. In conversation the disciples of Baalschism are satisfied with the title of Besht or teacher.

At the present time every showed individual, well read in the Talmud and in cabalistical literature, may by hypothesis obtain the dignity of a tasdik, even if his morals are suspect. But the disciples of Besht have more facility in obtaining this dignity, because they are a kind of hereditary nobility among the Beshtians, the richest of whom are allholders of the title of tasdik. Besht himself taught in his besht, that by honouring the disciples of the tasdik men might induce God to send the Messiah, and that the son of a tasdik is sanctified from his conception by the holy thought of his father, and may be called a son of God. The tasdik has, no certain salary, but is supported by voluntary gifts, for which he grants his advice to the chasidim in all transactions of life. In case that his advice seems to be unproductive of good, the cause is thought to be in the sinfulness of the receiver, and not in the inappropriateness of the counsel.

The doctrines of the chasidim may be classed under the following three heads:

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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 a renewal of the treaty.

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 majority of the constituants decreed to be the property of the nation. (Thiers, Histoire de la Révolution Française, vol. i. p. 154, 2d ed.) Shortly afterwards, the assembly, desirous to profit by this measure, decreed the sale of lands belonging to the crown and the clergy, the reassignment of 400 millions of francs, or about sixteen millions sterling (lb. p. 512). 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 unexampled extent (see Thiers, vol. vii. p. 377), and moreover in a time of mistrust, insecurity, rapid political change, 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 ready money, might give the state a bond 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 lands thus acquired.

The holders of the securities would thus have a claim not on the government but on the municipal bodies, which would be compellable by process of law to pay; and the creditor might moreover extinguish the debt at any time put up to sale, and by offering the securities 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 which case, moreover, to obviate this objection the legislature of 1789 had proposed that they should be transferable and be made a legal tender.

There was also another motive for the adoption of this latter expedient. The realisation of the war debts and stagnation of trade which prevailed in France at this time, money had become extremely scarce, and much of the current coin had been withdrawn from circulation; the king in common with his French and foreign creditors were therefore disposed to adopt the expedient of paper-money. But 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 2600 millions had been already issued, a second issue of 800 millions was provided, and the Convention.

(Thiers, vol. iii. p. 151.) Towards the end of this year, the double effects of the general insecurity of property and person, and of the depreciation of assignats caused by their over-issue, was felt in a much greater degree than in the beginning of the year. The Convention, the Convention.
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 in the depreciated paper-currency, had been nearly doubled: the washerwomen of Paris came to the Convention, to complain that the price of soap, which had formerly been four sous, had now risen to thirty. On the other hand, the wages of labour had decreased, according to the terms of the assignats, and the disturbances arising from the depreciation of the assignats greatly aggravated the poverty and scarcity which was now becoming universal, and increased the troubles and incertitude of a revolution. The labouring classes accused the rich, the engrossers, and the aristocrats, of the evils of which they were suffering, and demanded the imposition of a maximum of prices. Not only lowerer in the Convention did the most violent declarations 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 yells and hisses of the populace. 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 mob of Paris, who had exulted to have good bread, 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 treaty of commerce between the states, by which the evil still went on increasing; corn diminished in quantity and increased in price; the national lands, on account of the uncertainty of the tithe and the instability of the 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 laws, made it penal to exchange coin for paper money; and if reckoning a bill of exchange at a price beyond that of 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 vendors, 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 only, at a price to be fixed by each commune, according to the prices of the first four months of 1793. In one was to have had the following consequences: the less the law was punished by forfeiture of the property bought and a fine of 300 to 1000 francs. The truth of the declaration might be ascertained by domiciliary visits. The commune of Paris also regulated the selling of bread, so that each 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 dealer was compelled to declare by summary proceedings. The writer who was the principal of production, if a metal coin were still accepted, it would become 2500 francs when the currency was 2500 million, 3000 francs when It was therefore decreed that, taking a currency of 2000 million as the standard, a fourth should be added for every 500 million added to the circulation. This rule however was only applied to the taxes and arrears of taxes due to the government, and was not extended to payments made by the government, as to public creditors
or public functionaries. Nor did it comprehend any private dealings between individuals. (Thiers, vi. pp. 40-51, 132-41, 232-89, 365-85, 420-6.) Iniquitous as this regulation was, it was 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 150th part of their nominal value. The taxes being levied in part on the capital invested in the assignats, they must have been prodigiously increased, and the tax-payers, instead of a fifth, would have produced scarcely anything 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 paper, the assignats, which are nothing more than promissory notes, must have died of starvation. Many, indeed, notwithstanding the scanty and precarious supplies furnished by the government, were threatened with the horrors of famished indigence; its assignats were bought and sold from evening to evening in the Seine, in order to save themselves from this extremity. (Storch, Economie Polit., 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 1792, there was not a single piece of furniture in the office. The doorkeeper lent them a rickety table, a sheaf of letter-paper, and a red carpet on which to sit till they risked 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 payment of the 150th part of the revenue issued in the morning wet from the press. Even before the entry of the directors into office, the sum in circulation amounted to 15,000 millions: a sum unheard of in the annals of finance. This was not, however, in order to procure silver, was to issue 3000 millions in addition, which produced not much more than 100 million francs.

In this formidable state of things the next measure adopted was worthy of the violence and shortsighted administration from which it emanated. A forced loan of 600 million was raised from the richest classes, to be paid either in coin, or in assignats at the hundredth part of their nominal value. So that if the current paper was 20,000 millions, a payment of 200 millions would be sufficient to extinguish the whole. The government however refused to sanction this principle as against itself; for in paying the public creditor, it gave the assignats the tenth part of its nominal value. The land-tax and the duties in farm were required to be paid half in kind and half in assignats; the custom duties, half in coin and half in assignats. In the mean time, until the funds produced by this loan, which was enforced by law, could be realised, the government went on issuing assignats till they had absolutely lost all value, and had become waste paper. It therefore anticipated its resources by issuing promissory notes, and when these became due, they were rejected, and with difficulty prevailed on bankers to discount them to the amount of 69 millions. At this time the Directory gave up the task of supplying Paris with bread, and allowed the bakers shops to be opened as before: an exaction being made in favour of the indigent, and of fundholders and public functionaries whose annual incomes were not more than 5000 francs. The payment of the loan, however, went on slowly, the produce of the government bills was exhausted, and fresh funds were required.

By this time some new financial expedient became necessary. It was expected that, by payments of taxes and of the forced loan to the government, the paper in circulation would be reduced to 24,000 million, as was the case in the original forests. Any reduction of the assignats to the amount of 2400 million, was determined to make a new issue of paper, under the name of mandats, to the amount of 2400 millions. Of this sum 800 millions were to be employed in extinguishing 34,000 millions, so as to reduce the estimated value of any of the national lands to enter at one into possession; for the forth they furnished a somewhat better security than the assignats, as these could only be offered in payment at sales by auction: and consequently the price of the lands rose in proportion to the depreciation of the paper. The estimate of the lands having been made in 1790 was not true in 1795, at which time they had in some cases lost half, in others two-thirds or three-fourths of their former value. The mandat of 100 francs, however, at its first issue, was worth only fifteen francs in silver; and the new paper was soon so much discounted that it was impossible to get into general circulation, and was not able to drive out the assignats which was now almost universally employed in transactions between individuals. The only holders of mandates were speculators, who took them from the government and sold them to the public for the face value of the assignats. The credit of the government-paper the property of individuals had been in some measure restored, and trade revived a little from its long sleep. The government was destitute of all means of redress: it assigned nothing of personal value and refused any longer to do their duties. The armies of the interior were in a state of extreme misery; while those of Germany and Italy were maintained only from the countries where they were quartered. The military hospitals were shut, the gens-d'armes were not paid or equipped, and the high roads were infested with bands of robbers, who sometimes even ventured into the towns.

In some time the government was forced to abandon the mandats, as they had abandoned the assignats, and to declare that they should be received in payment of taxes and national lands only at their real value. Having fallen to near a seventh of their ostensible value, they were, in the process of time, to be replaced by the issue of new assignats for the purchase of lands; and with them ended the revolutionary system of paper-money, which probably produced more wide-spreading misery, more sudden changes from wealth to poverty, than any other measures. The transactions both between individuals and the government, more loss to all persons engaged in every department of industry and trade, more discontent, disturbance, profligacy, and extravagance in September, the war in La Vendée, the proscriptions in the provinces, and all the sanguinary violence of the Reign of Terror.

From the extinction of the mandate to the present time the legal currency of France has been exclusively metallic. (Thiers, vii. pp. 85-9, 102-19, 126-2, 177, 183-91, 334-44, 432-4; Storch, Courts d' Econ. Pol., vol. iv. p. 164.) ASSIGNEE—of a bankrupt. [See Bankrupt.]

ASSIGNEE—of an insolvent debtor's estate. [See Involvent Deantor.]

ASSIGNEE—of bill of lading. [See BILL OF LADING.]

ASSIGNEE—of a lease to the party to whom the whole interest of the lessor is transferred by assignment, which assignment may constitute only a portion of the lessor, unless the lessee 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 other covenants contained in the lease, 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 priority 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 priority 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 in gross), but only to such covenants as run with the land. [See Land, etc. in France.]

ASSISTANT—of a lessee. It is not necessary in order to become liable to the covenants, to leave part of the land in pasture, to insure premises situate within the weekly bills of mortality, to build a new mill on the site of an old one, &c. [See further, Assistant, Vol. I. p. 178.]
As and the lease is not assignable to the owner on this covenant; for there is no privity between the assignee and the owner, such privity only existing where the subject of the lease is that which is mortgaged. The landlord, however, may, in the case of the lease by Tenant to Bally v. Bally, [2300 345] The assignee may acquire his interest by operation of law, as well as by an actual assignment from the lessor, and therefore a tenant by estoppel, who has purchased a lease under the lessee's privity of estate, has the same interest and right as the lessee, in respect of his privity of 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, and which are to 'assign, transfer, and quit 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 binds the lessee to the lessee in respect of the expiration. In, 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 purchased land in B's name, and given the land, twenty years, reserving a rent: in such a case B is assignee of the whole term and interest, and not under-lessee to A; and for want of having any reversion, cannot distrain for the rent (a distress being only enforceable where the original interest is in the assignee). A, in such case, can only sue B for the rent as money due upon a contract. In all under-leases, therefore, it is necessary that part (a day will suffice) of the original, pay the should remain in the lessor's hands, the courts will not permit him to plead such payment to an action brought by the assignee in the lessee'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 recognised the right of the assignee, that if the obligor, after notice of the assignment, pay the should remain in the lessor's hands, the courts will not permit him to plead such payment to an action brought by the assignee in the lessee's name on the bond. 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 provisions for the retiring of trustees, and for fresh appointments, with the consent of the assignee. In choosing an officer to pay, or the future half-pay of an officer is capable of being assigned, it being considered contrary to public policy that a stipend given to a man for his public services should be transferred to another man, not capable of executing 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 an assignment was entered to have execution against the body, lands, and goods of the debtor. But this preoga-

ASSISO, 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 though not upon the high road from Perugia to Foligno, a distance of ten miles, and is long. It commands a full view of the fine valley of Foligno, watered by the Toppino, one of the tributaries of the Tiber. Assis is the birth-place of St. Francis, the founder of the mendicant order which bears his name, of which it is considered as the metropolis. The Sacro Convento, or
Assis was a forest in the realm of the clergy, signifying that the king or some prelate, exercising the delegated authority of the royal authority. Thus the Assises of Jerusalem were a code of feudal jurisprudence for the new kingdom of Jerusalem, drawn up in 1039 by an assembly of the Latin barons, and the clergy and lay under Godfrey of Bouillon. (Gibbon's Decline and Fall, vol. xi. p. 93.) This sense is in ancient English history. Fleta speaks of the laws, customs, and assizes of the realm (ib. 1.c. 17) and in the same register the law of the land and the customs were called the assises of the realm. This made the assises a code of the manners which had been adopted by Henry II. in 1164, and commonly known as the Constitutions of Clarendon, are called by Hoveden Assises Henrici Regis. The assizes and their regulations were 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, fuel, and other common necessaries of life, called in Latin assises velludium. The earliest express authority of laws in the realm of 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 others of the same kind. In very early times these 'assises velludium' appear to have been merely royal ordinances, and their arrangement and superintendence was under the direction of the clerk of the market 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 is the assise of bread and ale, 'assises panis et aeris,' commonly called the statute of 51 Hen. III. 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 wheat, were altered in some measure by 23 Hen. VIII. By a subsequent statute the power with the justices of the peace of fixing the price of ale within their jurisdiction [see A43.]; but the assise of bread was imposed by this act, and enforced from time to time by orders of the courts of common law.

3. The word assise also denoted the peculiar kind of jury by whom the writ of right was formerly tried, who were called the grand assise. The trial by the grand assise is one of the forms of trial to have been adopted by the Code Civil, by which it was intended that all cases of 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 of battle, which had previously been the only mode of deciding a writ of right, the alternative of a trial by the grand assise was offered to the tenant or defendant. Upon its choosing this mode of trial, a writ of summons was issued to four knights, by whom twelve others were to be elected, and the whole sixteen composed the jury, or grand assise, by whom the matter of right was tried. The late act of parliament, 3 & 4 Will. IV. o. 27, has now abolished this mode of trial, the cumbersome machinery of which was entirely unfit for the habits of modern society. [See Jurv.] By the law of Scotland, the jury, in criminal cases, are still technically called the 'assists' courts,' and by 32 Geo. III. it was enacted that a jury shall consist of twenty-four men. 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, held periodically in each county for the purpose of enforcing the administration of civil and criminal justice. These ensembles do not doubt originally derived their denomination from the business which was at first exclusively imposed upon them, namely, the trial of writs of assise. 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 production of sessions, and the practice of all the courts, that persons were tried for their own actions, and not for those of their subordinates. This provision was rendered ineffective by the fact that the county court was held 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 added to this 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 sworn judges, associating to themselves one or more of their county council, and if they are disbarred from taking 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 the civil authority in 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 civil authority to determine civil issues, it was provided by the statute of Westminster 2, that in a suit or 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 where the cause of action arose. Thus, if a suit arose in Cornwall, the writ from the superior court must direct the sheriff of county to return a jury at Westminster for the trial of the inquest in the next term. But before the statute, namely, on certain day specified in the writ, the justices of assize came into existence at Westminster to try such actions. This was sure to happen under the directions of a previous statute in the statute of Westminster 2, in the course of the vacation before the next term. The court and the jury were 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 jurors to London. The jurisdiction of the judges of *mini prior* 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 dignity and dignity and the necessity of assize, while their annexed or incidental authority has grown into an institution of immense practical importance. For centuries, until a few years ago, the whole of England was divided into six circuits, of which judges of assize were sent twice a year. Previously to the year 1380, the Welsh counties and the county palatine of Chester were inferior to the superior courts at Westminster, and the judges assigned for assize 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 enacted 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 under commissions issued in the same manner as in the counties of England. Since the practice was prolonged, therefore, 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 a year. In addition to these ordinary assizes, a third assize for the trial of criminals has for the last ten years been held in the counties of Hertford, Essex, Kent, Sussex, and Surrey. The judges upon the several circuits derive their civil authority, ultimately from the ancient statutes of *mini prior* in the manner before described; but they have also a commission of assize which is issued for each circuit by the crown under the great seal. This commission pursues the same general terms, and is derived from the ancient statutes of *mini prior*, 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 statute 6 Edward III. c. 14), which contains "the king’s sworn, under which words Lord Coke says the any serjeant at law is intended (2 Inst. 429), and commands them "to take all the assizes, suits, and commissions, before whatever justices assaigned." Under the direct authority of the king’s commission, but by their own will, and without the knowledge of the ordinary courts, certain justices of assize have also a commission of *mini prior*. This is, however, a mistake, no such commission being known in our law, and the only authority of the judges to try civil cases being that confided to their offices 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 magnates, and the king’s counsel and serjeants on their respective circuits; but the judges of 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 hear and determine upon any criminal cause, and to commit 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, in their legal effect, 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 the regular and orderly committing of the prisoners in each particular gaol. [See Gaol Delivery.]

The judges on their circuits have also a commission of assize. In addition to the above authority, the judges of the superior courts on the circuits are also fortified by the commission of the peace. The judges of the King’s Bench, Common pleas, and Exchequer, for the time being, are always inserted in the commissions of the peace; and consequently, if they choose they may exercise all the powers and functions communicated by the commissions of the particular counties which compose their respective circuits. In practice, it is usual for Westminster to 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 commissions are afterwards made out in the Crown Office of the Court of Chancery from a flat 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-embodying 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 arrange, not to originate ideas. By its influence over the sensations, perceptions, and judgments, it regulates the succession of the thoughts. When one thought is suggested by another, or when a train of past images is left in the mind, the association present, whether spontaneously or by an exertion of memory, the process by which this effort is made is called association. Dr. Brown has designated it "the principle of association," a term which, if its operations were purely intellectual, and not voluntary, would be preferable to the one in present use. But suggestion implies deliberation, choice; whereas, it is the province of association to awaken perceptions, not to perceive; to link the thoughts, not to think; to lead the mind from one idea to another, to pass between which there is a bond of connexion, not always obvious, 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 denominated 'ressemblance, contiguity, in time or place, and habit.' He has 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 no case this is to say there may not be large classes of 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 simplicity of the connexion, the value of 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. Anomalies like this, 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 explained, let it once be ascribed to its representative genus of objects, and it instantly calls 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 connexion of which it speaks is not a part of 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 blooms before the mind's eye, are the results of association.

Mr. Hume has annexed to his enumeration of the three principles above enumerated an example illustrative of each. 'That these principles,' he observes, 'serve to connect the objects of our ideas, as far as their simple characters do, is natural enough; but the picture naturally leads our thoughts to the original. The memory of one apartment in a building naturally introduces an inquiry or discourse concerning the others. And if we think of a wound, we are soon carried back on the pain which follows it. The first of these illustrations is founded upon the law of resemblance; the second, upon the law of contiguity; the third, upon the law of causation.' But, continues he, 'that this enumeration is complete, and that there are no other principles of association except these, may be difficult to prove to the satisfaction of the reader, or even to a man's own satisfaction.'

To whatever principles or laws we ascribe the association of ideas, it is evident that there is not only a connexion amongst them, but a bond of order. The greatest irregularity and confusion would obviously prevail in our mental operations, without some regulating principle. This fact has been of recent date, who, in his 'Of 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 his last posthumous edition, observed that the three preceding principles of all ideas are the relations of resemblance, contiguity, and causation, to which some subsequent writer appended a fourth, viz. contrast. In the works of these philosophers it is always acknowledged that the doctrine of association, later writers having done little more than expand or illustrate the views of their predecessors.

ASSOCIATION, AFRICAN. [See African Association.]

ASSONANCE, asonancia, in Spanish romantic and dramatic and in several species of lyric poetry, is a peculiar correspondence in sound in the termination of verses, less than complete than that which is called correspondence (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 asonance, although the former is true, it is not necessary that the last

that which is, for the time, 'the ruling idea of the mind; when this mental intensity subsides, and the attention relaxes into that desultory state which is its ordinary mode of action. Hence it is that the association which fixes the thoughts controls the associations; the relaxation of attention which allows the thoughts to wander grants the same license to the associations. A striking illustration of this is to be found in the state of mental ennui, in which the mind shrinks from exertion, and resigns itself to the guidance of the associations. In sleep, this emancipation from mental direction is still more complete; in consequence of which, the order and connexion of the mental operations, as they pass over intellectual exertion, are deranged. Strange contradictions and anomalies present themselves, announcing the suspension of that faculty whose office it is to restrain the wild and involuntary action of the associating power.

It should be added, however, that, although our associations roam at large during slumber, and although they may occasionally refuse to come and go at our bidding at other moments, yet they are capable of being controlled and regulated to a very high degree. A habit of attention is the governing power. Attention implies abstraction from desultory thoughts, and the act of mental direction to a particular object, or to a particular subject of this habit, which is necessary to the exercise of particular 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. When we are upon an influenza, our thoughts and moods dispositions of the mind, the passions are perverted by an unlascetion of ideas. Mr. Locke gives an example of this tendency, in reference to the origin of superstitions—a weakness that appears in the present than in the past generation. He alludes to the vulgar belief in ghosts as spirits of the night. 'The ideas of goblins and sprites have really no more to do with darkness than with light; yet let but a few of those objects occur in the mind of a child, and raise them there together, possibly he never shall be able to separate them again as long as he lives; but darkness shall ever afterwards bring with it those frightful ideas, and they shall be so joined 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 undisceamed use of the associating faculty, the greatest pains ought to be taken to render 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 this principle is ascribed to Mr. Locke in his 'Essay upon 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 his last posthumous edition, observed that the three preceding principles of all ideas are the relations of resemblance, contiguity, and causation, to which some subsequent writer appended a fourth, viz. contrast. In the works of these philosophers it is always acknowledged that the doctrine of association, later writers having done little more than expand or illustrate the views of their predecessors.
ought to be different. Thus, *habitar*, which has the accent on the antepenult, is an assont with calzado and *glutinum*. *Misca*, which is accented on the penult, is an assont with *misca* and *sma*. (So in English, hardy, manly, and party, would be assonts; in German, toben, *Sitz*, and *Order*.) *Corasón*, which is accented on the last syllable, is an assont with *cora* and *ospita*. Assonts of this kind, like rhymes, are exhibited in insulanded pairs, but are continued through the whole poem, or, in dramatic compositions, through an entire act or day (for example, without any other change than the alternation of place between the assonts, thus the third, fourth, and eighth lines, *âe* being blank verse, and the second, fourth, sixth, and eighth lines, *âe* are all assonts to each other; unless indeed the blank line and the assonted line following it be considered as containing an assonant, as in the Arabian prototype supposed to be discovered by Sarmiento in some of the morceal parts of the Koran.

But for this constant recurrence of the same assonant through a long succession of alternate lines, the ear would probably be 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, as to render them assonted consonants, while, when 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 ornament.

Calderón, and the other classical dramatists of Spain, always use *assenates*. The assonant of the drama is that in which the assonant is on the penult; the verse consisting of eight terminal syllables.

In lyric poetry, rhyme is more frequently adopted; but the *vendela*, a species of slyg, and some other lyric measures, require the assonant. The following extract from romances contain lines with assont and assonanted, as is always the case in romantic and in dramatic poetry.

In the first of these examples the assonant is on the penults; in the second, on the last syllable:

*Salió el gualdache Alifaro*
*Cien con Morisco gualdaches
En defensa de Matín*
*Salió de su hermano*
*A caballo salió el Moro*
*Y otro día desechado*
*En negras uñas le vuelven*
*Por donde salió a caballo,*

Maldecir mis homens,
Y también mi mocead,
Maldecir el triste día
Que nos quiso casar.

The next is an example of double assonts:

Aquíadentro, dijo el pavón
Al cuervo de los
¿Sabe lo que estás pensando?
Que era negro y feo.
Reueba; también reparo,
Le gritó más ruego,
En que no se un pajarico,
De mi mal agiter.

**Prieta.**

**ASSOUAN.** [See Sûan.]

**ASSUMPST** is the technical term denoting one of those specific forms of action which were provided, at a very early period of the history of English law, as the course by which redress for particular injuries must be pursued. It is so called from the past tense of the Latin word *assumpsit*, barbarously applied to signify 'I undertake'; and is taken from the use of this word, describing the defendant's undertaking, in the old Latin pleadings. Thus, the form would be 'that in consideration that the plaintiff had furnished goods to the defendant, the latter undertake, or rather to state that he (unless a *assumpsit* to pay the former so much money.' The action of *assumpsit* is exclusively used for the recovery of damages occasioned by the breach of a simple contract; that is, a contract not made by the law of nations; and is not generally adopted than any other form of action in such cases. It cannot, however, be sustained, unless there has been an express promise to pay money (as in case of a promissory note), or to do any other act; or unless circumstances have, by the nature of the case, created a liability, and from which therefore the law will imply a contract. An example of the latter occurs in the familiar instance of the delivery of goods by a tradesman to his customer. In that case, if the effect that has been made, it is an inference of law that the customer has promised to pay for them as much as they are worth; and, accordingly, the plaintiff's declaration, or formal relation of his cause of action, would state the debt generally, and also an express promise to pay it. This would be called an *assumpsit* on a quantum valebant. If the consideration were the personal services of the plaintiff given for the benefit of the employer, the latter would be considered as constituting a 'reasonably deserved to have'; and then the act is called an *assumpsit* on a quantum meruit. So also the character and relative situations of parties will often raise a legal liability, from which an *assumpsit* or undertaking will be implied in the absence of any express contract. Thus, an innkeeper is bound to secure the goods of his guest; in consequence of this liability, the law supposes him to promise to do so; and if the goods are lost or injured, he is liable to an action of *assumpsit* for the damage which the owner may have sustained. In like manner, it is the duty of surgeons and attorneys to use proper care and skill in the service of those who employ them in their respective callings, and being at the same time under a legal consideration to provide, so, they are liable to be called upon in an action of *assumpsit* to make compensation in damages for any negligence or want of skill. Where the undertaking, whether express or implied, is founded upon an antecedent debt for an assontained sum, the action is called *indebitatus assumpsit*. This form of action is of comparatively modern invention, being introduced for the purpose of enabling plaintiffs to evade the wager of law, which was allowed in actions of debt on simple contract until the late statute of 3 and 4 William IV. c. 42.

**ASSUMPTION, or ASCUNSION,** the capital city of Paraguay, in South America. It is situated on the eastern bank of the River Paraguay, between the Conch 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 nearly destroyed by fire in 1542, the greater part of the houses being built of wood. From this calamity it speedily recovered; and in 1647 was of sufficient importance to be erected into a bishorp. 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 comparatively small, 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, who live in the surrounding country, where the houses, having small farms attached to them, are 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 *harch called mate", 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 by the farmers, who grow wheat, maize, sugar, tobacco, cotton, mandio, potatoes and other vegetables. Honey and wax are produced in abundance; and the rivers supply large quantities of fish.

The air is in and about Assumption is generally temperate and genial; for the greater part of the year the wind blows from the south.

In the course of the convulsions and revolutions which of late years have disturbed so large a part of South America, the city of Assumption, with all the commerce which 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 province, the country, and the progress and condition of the inhabitants.

The city is in 25° 16' S. lat., and 57° 27' W. long.
ASSURANCE. Of late years it has become usual with
writers on the contingencies to speak of assurances upon
lives, instead of insurance, reserving the latter term for
contingencies not depending on life, as against fire, losses
as sea, &c. [See INSURANCE, ANNUITIES, &c.]

ASBY, in Yorkshire, is celebrated as the birthplace
of a Roman army, with the use of the game 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 in the hands of the English. Of the lost part of the
British fleet was also very great, 426 being killed and 1138 wounded;
so that more than one-third of the corps was included among
the killed and wounded. [See Mill’s History of British India.]

ASYRIA, the name of an ancient empire in
western Asia, which ceased to exist before the epoch at
which the authentic history of the East is usually consi-
dered to commence. As a geographical term, the name
Asyria is used to denote different geographical regions. Greek and Roman
historians commonly employ it as a general designation of the
countries of Babylonia, Mesopotamia, Aturia, and Adi-
beto; but frequently extend its limits so as to make it
comprehend almost immediately the whole Asiatic
continent. The name was accustomed to use the name Syria and Assyrians in a very
vague sense: Herodotus applies the term Syrians to the
Cappadocians (i. 6, and i. 72), and he remarks that the
Asyrians in the army of Xerxes were by the Greeks called
the Syrians, while the Eastern nations named them Assyrians
(vii. 53). Aristan, on the other hand (who was for some
three years governor of Cappadocia, and cannot be supposed to have
been ignorant of the name of a country so near his own present
situation), is not acquainted with the Eastern nations
where we should have expected he would say Syria; for
instance, when he makes Ciliica border on the east upon
Assyria (i. c. 3 and 6). Herodotus does not appear to have given
much name to that country, nor to the
passage (i. 23, and 30), the Arabians and Assyrians are named together
as bordering upon Egypt; but here Valckenaer and Schweinheiser agree that the reading is incorrect, and that
Syrians should be substituted for Assyrians. [See also ii. 141.]

Ptolemaeus (vii. 1) and the Roman historians confine
the name Assyria to a province in the northern part of the
Assyrian empire, namely, to the country east of Mesopo-
tamia 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; Susiana and Baby-
lonia constitute its southern frontiers. This portion of the
ancient Assyrian empire, which comprehended part of the
modern Kurdistan, seems to be meant by Herodotus (i. 102)
when he speaks of those Assyrians that had in their
possession the town of Ninus. The country is divided into three
parts, the highest part lying among the Zagros mountains,
and, after traversing Kurdistan, fall into the Tigris.
The first is the Lyceus, the Zabatur of Xenophon, and the
modern Greater Zab; the Ten Thousand Greeks crossed this
river in the year 301 B.C., as well as by Diodorus (vii. 7)
and Strabo (viii. 6. 21), and the latter says that it
was very long, and the Roman historians name it
four hundred Greek feet. [Xen. Anab. ii. c. 5.] The second
river, the Caprus, also named Zabat, or Arzabas, by the
later Greek and Roman writers, is probably the present
Les- d̄az, and the river which joins the Tigris and here they found its breadth four fathom
by four hundred Greek feet. [See Anab. ii. c. 4.] The country to the
north-west of the Lyceus, or Zabat, is by the ancients called
Aturia; that to the south-east of that river, as far as the
Caprus, is named Assyria; to the south of the Caprus we
find the province of Apollonia, fertile to the east Chal-
nis, and Sitakeos towards the confines of Susiana. Ama-
mius Marcellinus observes (lib. xxxi. c. 30) that the
province of Adiabene derives its name from the two rivers
which surround it, the Adhel and the Euphrates. The
Arabian name of Adiabene is Wawabah, which is likewise a derivation of the
word Waw. [See Assmann, Bibliotheca Orientalis, t.
ii. iii. p. 711.]

The name Aturia, or Assyria, as is observed by Dion
Carus (i. xvii. c. 26), is a mere dialectic variety of pronunci-
ation instead of Assyria; and the province thus designat-
ed probably was the original central point from which the
Greeks, as well as the Persians, who are accustomed to
spread further to the south and west. After the dissolution
of the Assyrian monarchy through the revolts of the Medes,
the name Assyria was again restricted to this northern
province, while the southern parts were designated either
Babylonia, 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 four parts of the Persian empire, which we
find sometimes named Babylonia and sometimes Assyria.
This apparent confusion of the names Babylonia and
Assyria is observable even in the later history of these
regions, as when the wars between Cyrus, Artaxerxes, and
the province of Adiabene was once comprised under the
appellation of Assyria, is distinctly asserted by Pliny (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 pre-
sent notice we confine ourselves to pointing out some of the
more important ancient sites of the country.

The celebrated ancient town of Ninus, founded by the
king of the same name, was situated, according to Strabo
(xvi. c. 1, t. iii. p. 334, ed. Tauchn.), in the plains of Aturia,
on the river Tigris. The same author says that it fell into
ruins, and was destroyed by Cyrus (538 B.C.). According
to the history of this part of the world, the capital of Adiabene
was once comprised under the
appellation of Assyria, is distinctly asserted by Pliny (Hist.
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http://www.britannica.com/EBchecked/topic/1242342/Assyria
of Coche or Choche. The foundation of Ctesiphon had been laid by the Macedonians; it did not, however, rise to importance until the time of the Parthian kings, who chose it for their summer residence. (Strabo, xvi. c. 1, t. iii. p. 344, 345 ed. Tauchn.) The ruins of Takti-i-Kares, on the eastern side of the Tigris, are supposed to mark the situation.

The principal city of the Persian province of Bactra was Arbela, a name which has been preserved in that of the modern village of Briba. [See Arbeia.] Curtius (v. 1) notices a copious well of naphtha at Menia, in the neighbourhood of Arbela: the country around these places still abounds with minerals, especially asphaltum.

The province of Apolloniaiis derives its name from that of its principal town, Apollonia; but of both the history and the present 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 its dominion, says the Hebrew text, was Bela; Erech, Accad, and Calach, in the country of Shinar. From this country Ashur went forth and built Niniveh and Rechoboth, and Calach, also Rezen, 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 earlier 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 Phur, the contemporary of Menahem the king of Israel; and it is often difficult to read, from the numerous names of the earlier kings, what is the present position of the mythical character that pervades the earlier periods of history generally. He subdued Media, Persia, Egypt, and Ethiopia, but is defeated in an attempt to seize Babylon. He returned to Nineveh, his residence, reigns the government into the twelfth year of his age, and dies in the sixty-second year of her age. Unlike his mortal parents, Ninias confined himself to his palace at Nineveh, and indulged his fondness for the enjoyment of an inactive and undisturbed life during thirty generations, followed his example. Teutamus (or Teutanus, as the name is written in some copies of Synecelus) the twentieth successor of Ninias, is reported to have been the first to create a capital Semiramis, and to have sent troops under the command of Mommon the son of Titthous. The names of the other Assyrian kings are not mentioned by any extant Greek or Roman historian; a list of them is, however, given in the Armenian translation of the chronological work of Eusebius (p. 44, &c. ed. Mai and Zobrab). The last of them was Sardanapalus, the thirty-first in succession after Nineveh, who even surpassed his predecessors in indolence and voluptuousness. This encou-

According to the statement of Herodotus regarding the duration of the subsequent Median empire, as elucidated by Volney in his Chronologie d'Histoire (p. 83, &c., Paris, 1809), the revolt of the Medes (under Arbas) took place in the year 717 before Christ; and as the same ancient historian (Herod. 1. 53) assigns to the commencement of the Assyrian empire a duration of 526 years, it follows that he conceived their dominion to have lasted from the year 1237 till b.c. 717. Ctesias gives to the Assyrian monarchy a duration of upwards of 1500 years, and differs moreover from Herodotus with regard to the period of its overthrow by the revolt of Arbas; for he makes the division of the Medes last 282 years, and as it may be considered as almost certain that the dissolution of the Median kingdom by Cyrus took place in or about b.c. 630, it follows that its commencement, the end of the Assyrian empire, are, by the statements of Ctesias, thrown back to the year b.c. 843. Heren considers the statement of Ctesias as erroneous, and conjectures that the error might have arisen from his being count of some of the Median kings twice over. (Gütinger Gelehrte Anzeigen, 1810, No. 4; Behr's Citaten Culturi Reliquiae, p. 441.) Syncellus assigns to the Assyrian empire a dura-

According to Diodorus of Sicily, the Medes, in the year 1450 before Christ, commenced a war against the Assyrian kings with Belus and Ninus, and conclude it with Sardanapalus (also named Thonosconcoloros), who, according to Eusebius, was a contemporary of Lycurgus and of Jerob-
some fifteen surprising a hard sometimes and, quite more al'uded state. Subsequent provided plied by Fabricius, indexed as Linnæus and of antient authors, which also comprised the short-tailed crustaceous decapods, with the exception of Hippa. Fabricius broke it down into four inches in length Squilla, leaving Astacus to represent a certain number of crustaceans, from which he afterwards, having the advantage of Dalhoff's labours, separated the genera Palinurus, Palinura, and Astacus; and Douton, an officer of the French navy, in adopting the genus as left in its last shape by Fabricius, separates from it the genus Nephrops, of which there is only one species recorded, the Norway lobster, Nephrops Norvegicus. Desmarest adopts the views of Leach and the genus Astacus is now reduced to very few species.

Of these the most interesting, from their commercial value as food, are the common lobster, Astacus marinus, and the porcupine lobster, A. Fabu. The former is found in the greatest abundance on the rocky coasts of this kingdom, in clear water of no very great depth, at the time of depositing its eggs, about the middle of summer. Pennant mentions the great quantities supplied to the London markets, in his time, from the Orkneys and the eastern coasts of Scotland; and states the number annually brought in well-boats from the neighbourhood of Meols to be no less than sixty or seventy thousand. But almost incredible as the consumption of this species is, Nature has provided for its security by the most profuse fecundity. Doctor Baxter says that he counted 12,444 eggs under the tail of one female lobster, besides those that remained in the body of the animal.

Lobsters are very voracious, and the fishery for them is carried on sometimes by means of traps, or 'pots,' (as they are called in some places) made of twigs, baited with gar- banza, and often in point of size and magnitude, times by nets baited with the same materials; and, in some countries, by torch light, with the aid of a wooden instrument which acts like a forceps or a pair of tongs.

One of the best narratives of the habits of the lobster extant, is to be found in the following letter from Mr. Travis, of Scarborough, to Mr. Pennant, dated on the 25th October, 1766—

"We have vast numbers of fine lobsters on the rocks, near our coast. The large ones are in general in their best season from the middle of October till the beginning of May. Many of the small ones, and some few of the larger sort, are good all the summer. If they be four inches and a half long, or upwards, from the tip of the head to the end of the back shell, they are called sizeable lobsters. If only four inches, they are esteemed half size; and when sold, two of them are reckoned for one of size. If they be under four inches, they are called punks, and are not saleable to the carriers, though in reality they are in the summer months superior to the large ones in goodness. The pinchers of one of the lobster's large claws are furnished with knobs, and in some of the other claws are always serrated. With the yoke of the former it keeps firm hold of the stalks of submarine plants, and with the latter it cuts and mincs its food very dexterously. The knobbed, or numm claw, as the fishermen call it, is sometimes on the right and sometimes on the left, indicating to the buyer what claw it is to be disposed by them with the cutting claw than the other; but, in either case, 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 at first.

"The female or hen lobster does not cast her shell the same year that she deposits her own, or, in the common phrase, is in berry. When the ova first appear under her tail, they are very small and extremely black; but they increase, in successive months, till they are about the size of the ova of the Medes 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 ova in constant succession, as long as any of that black substance can be found in their 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 notion, that a hen lobster is more suitable for the table. When her berries appear large and brownish, she will always be found exhausted, watery, and poor. Though the ova be cast at all times of the year, they seem only to come to life during the warm summer months of July and August. Great numbers of them may then be found, under the appearance of tadpoles, swimming about the little pools left by the tides among the rocks, and many also under their proper form, from half an inch to two inches in length.

"In casting their shells, it is hard to conceive how the lobster is able to draw the fish of their large claws out, leaving the shells entire and attached to the shell of their body; in which they are called curling. French fishermen say the lobster pines before casting, till the fish in its large claw is no thicker than the quill of a goose, which enables it to draw its parts through the joints and narrow passage near the trunk. The new shell is quite transparent at first, but gradually坚强en, and they only grow in size while their shells are in their soft state. They are chosen for the table by their being heavy in proportion to their size, and by the hardness of their shells on their sides, which, when in a perfect state, are able to moderate pressure. Barnacles and other small shell-fish adhering to them are esteemed certain marks of superior goodness. Cock-lobsters are in general better than the hens in winter; they are distinguished by the narrowness of their tails, and by their having a strong spine upon the centre of each of the transverse processes beneath the tail, which support the four middle plates of their tails. They are more tender and delicate in their flesh, than in their shape of digestion, than that of the tail. Lobsters are not taken here in pots, as is usual where the water is deeper and more still than it is upon our coast. Our fishermen use a bag-net fixed to an iron hoop, about two feet in diameter, and suspended by three lines as large as a fish-gut, tied to the bottom and middle of the net. They can take none in the daytime, except when the water is thick and opaque: they are commonly caught in the night; they are even then to be sought by the light, as there is that luminous appearance which is supposed to proceed from the Neris noctiluca. In summer, the lobsters are found near the shore, and thence to about six fathoms depth of water; in winter, they are seldom taken in less than twelve or fifteen fathoms. Like other insects,—they are much more active and alert in warm weather than in cold. In the water they can run nimbly upon their legs or small claws, and, if alarmed, can spring tail foremost, to a surprising distance. This can fly. The tail is used by them to pass about thirty feet, and by the swiftness of their motion, suppose they may go much further. Athenæus remarks this circumstance, and says, that the incurvated lobsters will spring with the acceleration of a missile. Their eyes are raised upon moveable bases, which enables them to see readily every way. When frightened, they will spring from a considerable distance to their hold in the rocks; and what is not less surprising than true, will throw themselves into their hold in that manner through an entrance barely sufficient for their bodies to pass, as is frequently seen by the people who endeavour to take them at Filey Bridge. In frosty weather, if any happen to be found near the shore, they are quite torpid and become swimable. Sizeable lobsters is commonly from one pound to two in weight. There was one taken here this summer which weighed above four,
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 and must continue to shed it in order that it may grow; but this operation 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 its crust-clad fellows, the young are found in the mud at the bottom; but we contend that the process is one of absorption, and these are, in proof of their views of the case, what becomes of the old crust if there is a true cyclist or mud, for that the sea-coast at the molting period would be strewn with them. The crust of the lobster is a large piece of armor as does in the crawfish. Lobsters, in common with most of the crustaceans, have the power of reproduction to a great extent. If a claw be torn off, it is renewed; and if the animal will continue to throw it 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 plucking the animal, when in full life, into spirit. Perman 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 when they are fired at; and often when men meet a lobster-boat, a jocular threat is used, that if the master does not sell them good lobsters they will salute him.'

That the lobster was well known to the antients appears from the quotation in Mr. Travis's letter, and from many other evidences. It will be sufficient to add that, under the name of erseka, Aristotle, in the second chapter of the fourth 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 rivers, where, in holes in the banks and under stones, it lies in wait for the small molluscous animals, little fishes, the larvae of insects, and decomposing animal substances, which form its prey. Desmarais says that it will live for weeks without food; it grows 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, sometimes by 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 have neither claws nor spines, but a ramifying tissue, which occurs in the umbilical region of the parent, 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 is also taken by inserting the hand into the hole which it inhabits. In addition to the above, it is called the garum, or torches. Plot, in his History of Staffordshire, says 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.]

ASTARTE, Achetor or Achiaroth, one of the deities of Phoebus, of whose attributes and character we are unable to give a detailed account, from the scantiness of the information respecting him. The author of the treatise De Del Dei Syriac, usually ascribed to the Parthian, says that she is the same as the Greek Selene (moon); but Cicero (Nat. Deo. iii. 23) considers her as the fourth Venus, the wife of Adonis. Herodian (v. 15) tells us that the Africans call her Urania, which, however, is a Greek name, and the Phoenicians, Astarque (queen of stars). By others she is thought to be the Here (June) of the Greeks, but we think the opinion of Cicero is most consistent. We know nothing of her, and that she was nothing else than the planet Venus, worshiped by the Phoenicians worshipped as Astarte. She is frequently mentioned in the Holy Scriptures in connection with Baal, as seducing the Israelites from their duty. (Judges ii. 15, iii. 14, iv. 18; II Kings xix. 16) The goddess is represented 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 Derceto. The island of Cyprus received her religious rites from Phoebus, and this divinity became known there as Aphrodite. The rose and the lotus were sacred to her, and, among animals, the lion, the horse, the hare, the heron, and the raven. She is called Saltus Bay, De Dios Syriac, 244; Hecat., Cret., Göttingen, 1832; Münster, Der Tempel der Himmlischen Göttin zu Ephesus, Kopenhagen, 1834.

ASTERPA, a genus in Ecology, a genus of hirvales or conchifers, with two muscular impressions and a simple mantelline. The hinge has two diarthritic teeth in the right-hand valve; in the other, one distinct and one oblate tooth, and the rudiment of a lateral tooth. The ligament is external.

The species consist of some of the Venereos of Montagu, one of which is a Callista. Some of them are English shells, and they are generally found on the sandy mud of coasts at a depth which ranges from near the surface to ten fathoms.

The crape, the green-sand, and some of the old fossiliferous beds, afford many species.

ASTERRY, a parish in Cheshire, (with a population in 1831 of 14,573) in which is the town of Congleton. [See CONGL.]

ASTERIA, a genus of plants belonging to the natural order Compositae, and comprehending a great multitude of species scattered over the whole of Europe, Asia, and Africa, 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 demand any special notice in this work; the best account of them is the Genera et Species Plantarum, by Nee v. Esenbeck.

ASTERIADAS (Lam.), 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

Asterias of Lamarck includes only the starfishes properly so called. These are divided into two sections, the scutellated starfishes, and the radian starfishes. The former have an angular body, the lobes 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.

Teожmann has given the name 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 tubes or tentacles, which are membranous, cylindrical, and terminated each of them with a little disk, which performs the office of a cupping glass, somewhat in the same manner as the acetabula of the starfishes. By the union of 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 small moveable spines, which also serve for locomotion. The surface is furnished 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 canals, each suspended to a kind of mesentery, are given off to each ray, which is also furnished with two ova- ries, by means of which the animals are supposed to reproduce their species without the aid of a hermaphrodite, which fertilizes it. It is said that the mouth is a sort of spiral, resembling a spur-rowel; because that fish gets into the oysters when they gasp, and sucks them out.

Some of the species are subject to the attacks of a paras-
Asi (Astraea tessellata), a site testaceous molluse (Sigyller, Brod.), which burrows in their integument, and the remnant of the species occurs in India, Ceylon, China, Japan, and the recesses of the south China Sea. An aristem, 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.]

Astha. [See Bronchis.]

Asti, the province of, one of the six intendents 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. 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 di 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 Montecchio—are 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 46° 57' N. lat., and 80° 12' E. long. Asta was a town of the ancient Ligurians; it was taken and devastated by the Gauls, under Bellovaces, about B.C. 400; it afterwards made alliance with Rome, and submitted to Hannibal on his invasion of Italy. In the subsequent war of Rome against the Ligurians, Asta submitted to the Romans, but retained its municipal rights. The Romans soon after founded in its neighbourhood the colony of Pella, 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. 66, and assumed the name of Asa Pompea, Veepaia at a later date sent many families from Rome to Asta. Asta was devastated by the Goths, under Alaric, and restored by Narses; and taken again by Alboin, who put to death many of the inhabitants. It was erected into a duchy by the Lombards. It afterwards submitted to Charlemagne, and under his indolent successors governed itself, with its consuls, as a republic, like most Italian cities, under the influence of its Bishops. In 1600, the people of Asti, after many quarrels with those of Pella, about the limits of their respective territories, being reinforced by the citizens of Pavia, took Pella, 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 Holstenstaven came to Italy, the Marquis of Monferrat, who wished to extend his jurisdiction over Asti, but found opposition from the citizens, complained of them to the emperor, who placed 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 Alessandria, and the citizens there submitted to 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 seven years that followed had their possesta, or chief magistrate, chosen out of another town, and their council of trust composed of nobles and plebeians. They had frequent wars with the Marquises of Monferat, as well as with the Marquises of Saluzzo; the latter of whom invaded the peace, by seizing from them their particular lands, for which they acknowledged themselves its vassals. The people of Asti had once manufactures of cloth; but their wealth was chiefly derived from banking or money-lending, in which business they had constructed houses in France, Flanders, and other countries. In 1248 they built the town of Villanova d'Asti, which was to them a sort of colony. About this time the factions of the Guelphs and Ghibelines broke out in Asti, and disfracted the citizens for many years after; sometimes one faction prevailing, and sometimes the other, and each by turns driving its antagonist out of the city. Tired of these civil struggles, the people of Asti chose for their captain one of the princes of the ancient families of Savoy, who obtained the fortune of it from the Emperor Henry VII., in 1218; but soon after the people revolted, and gave themselves up to Robert, King of Naples. Asti afterwards fell into the hands of the Commune of Milan, and Duke Gian Del Duca d'Astis; Asti as a dowry to his daughter Valentina, on her marriage with Louis, brother of Charles VI. of France. It remained in the possession of the French till 1599, when it was given up to the Emperor Charles V., by the Treaty of Cambrai. Charles gave Asti to his relation Beatriz of Portugal, who married Charles III., Duke of Savoy; since which it has remained attached to the dominions of that house.

Asta is a large city, but not populous in proportion to its size. In the quarter where its nobility and the streets are rather wide, but little frequented. The most remarkable palaces are those of Trinzco, Rovero, Branigo, Massinetti, and Alferi, in the last of which Vittorio Alferi was born in 1745. The rest of the town is nearly built, and there is not much appearance of trade or industry. Of the churches, the most remarkable are the cathedral of the Secondo, which is dedicated to the first bishop of Asti, and is Consolata. Asti is a bishop's see, and the intendent of the province. It has eight parish churches, a court of justice, and a royal college, with chairs of philosophy, theology, and surgery. Its population in 1825 was stated in the Royal Scottish Calendar at 28,000 inhabitants.

Ashteld, 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 Neasword Forest, and whose ancestors were proprietors of the manor of the same name. 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 antiquities 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 the Library. He afterwards left business and engaged in antiquarian writing. Soon after this, Mr. Astle married the only daughter of the Reverend Philip Morant, the author of the History of Devon, and by this connexion he eventually inherited the property of his father-in-law, which was considerable. In 1768 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 management of the office of the Receiver-General, Mr. Astle, many 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 Receiver-General Office in the Tower, and was returned 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 Rise, near Clapham, on the 15th of December, 1809. Mr. Astle is the author of a number of works.
AST

article in the Archaeologia, and also of several separate publications, a list of which may be found in Watt's Historie of the Greek, Roman, and Gallaecian Dictionaries, and in Oliphant's Geographical Dictionaries; 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 the same form. A facsimile of an example 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 had been first printed in an improved form in the seventh volume of the Archologia 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 second.

ASTOLPHUS succeeded his brother Ratchis as king of the Lombards, by the driving volleys of the people, received and retired into the monastery of Monte Cassino. Astolphus, who was bold and ambitious, aimed at driving away the Greeks from Italy; he took Ravenna, expelled the Exarch, and conquered the Pentapolis, which comprised the ancient Rome.

In 752 he turned his arms against the duchy of Rome, which still acknowledged the authority of the eastern empire, trembled however by the influence of the popes. Stephen II. sent ambassadors to Astolphus with splendid gifts, 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 capitatory tax; threatening them with sword and fire in case of non-compliance. Stephen, despairing of assistance from the indolent Byzantine court, had recourse to Pepin, king of the Franks, and he himself repaired to Paris, where he crowned Pepin, and bestowed on his two sons Carloman and Charles ( afterwards Charlemagne) the title of Patricians of Rome. A.D. 733. Pepin now invited Astolphus to restore the Exarchate to the empire, and to let Rome enjoy peace, but his request failing of effect, he assembled his barons, 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. This was the first expedition of the Franks through the length of Italy.

Astolphus did not keep his word, but in 755 marched against Rome, and laid siege to it. The pope wrote to Pepin, who crossed the Alps a second time, and again besieged Astolphus, and the latter was driven out of Italy with a large sum to Pepin for the expenses of the war, and gave up the Exarchate, including Comaschino, as well as the Pentapolis, which were not restored by Pepin to the empire, but bestowed by him on the see of St. Peter. Pepin sent the abbot of St. Denis, who received the keys of the various towns from Astolphus's commissioners, and deposited them on the altar of St. Peter at Rome. This was the origin of the temporal power of the pope, as independent sovereign. A difference of opinion exists with regard to the terms of this donation, the act of which, if it ever existed in writing, has been lost. The territory thus given up, however, included the country of Ravenna and the province since called Reggio. The whole of the territory of Romagna, which was not included in it. Astolphus died in 755, owing to a fall from his horse. Having no son, he was succeeded by Desiderius, one of the Longobard dukes. Astolphus, during his quarrels with the pope, founded several monasteries, in one of which his daughter took the veil. (Muratori, Annales d'Italia; Moseheim's Ecclesiastical History.)

ASTON. [See Birmingham.]

ASTORGA, the ASTURICA AUGUSTA of the Romans, on the coast of the Asturias, and now an episcopal town in the kingdom of Leon. Pliny (iii. 3) calls it a magnificent city. It is situated near the Touerto, in a plain, bounded on the N. and N.W. by the mountains of Asturias, its walls being nearly 1 mile in length, and of an oblong form, 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 pasture. The town, which is surrounded by small wall, 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 dedicated to St. Mary of the altar, or high altar, which is one of the best works of the famous Gaspar Becerra. This altar was built in 1569, and cost 30,000 ducats (about 330l). There is also at Astorga a castle belonging to the marquis of that name, which is surrounded by a state of six or seven towers. 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 general, Santiciles. The old ramparts were strengthened by fresh works, and the place garrisoned with 2000 men. On the 22d of March, 1810, it was invested by General Junot. Santiciles, 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 1812, Santiciles, with the Galician army, succeeded in reducing the fort and the garrison, and made prisoners of the garrison, amounting to 1200 men.

(See Miliano; Pons, Viaje de Espana, tom. xi. carta 6, No. 92—93; Napier's History of the Peninsular War, vol. iii. book x. ch. viii; Annales of the Peninsular Campaign.)

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 Mazanderan, and on the east by the river touragain, which is by some writers called Jorjan. Except in the immediate neighbourhood of its rivers, the country is of an unhealthy character. The level lands are pleasant, and extremely fruitful, producing, among other things, grapes of an uncommon size. In other parts the soil is sandy and sterile. The province is nearly surrounded by rivers, which abound with fish, principally sturgeon and salmon. The chief town, also called Astrabad, is ten miles from the shores of the Caspian, and stands in 30° 50' N. lat., 54° 53' E. long. The site of Astrabad has been changed several times. The ancient city 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 Yazid bin Melhoob, an Arab general, and to have been built towards the end of the tenth century. 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 them. 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 Astrabad towards the Caspian, has usually been considered as a gulf of that sea, and is so laid down in some maps. Lieutenant Conolly, whose travels in that quarter have recently been published, says that this lake does 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 Astrabad suffer from the malaria that is caused by it.'

Astrabad is a frontier town, and chiefly inhabited by Kujurs, from which tribe the present shah of Persia has his origin: it is governed by a prince of the blood royal. The country on the northern bank of the Gouran is inhabited by Turcomans, who are only in name tributary to the Persian government, and carry on against their more settled neighbours a constant petty predatory warfare, seizing Persian subjects whenever they are遇见ed into slavery. (See Fraser's Historical and Descriptive Account of Persia; Lieut tenant Conolly's Overland Journey to the North of India.)
ASTRAEA (zoology), a genus of fixed polyps, sometimes incrusted marine bodies, sometimes collected in a hemispherical or globular mass which is sometimes, but rarely, located. The surface is covered with orbicular or subangular starry disks, which are lamellar and sessile. Each disk is the seat of a polype, 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 interspaces between them; and the second, of species whose starry disks are contiguous. Of the first section, Astrea rotulosa, an inhabitant of the West

Indian sea, is an example of the second, Astrea favosa, common in the seas of the East Indies, affords a good illustration. The species are numerous.

ASTRAGAL, a moulding used in architecture, and applied principally to the upper ends of the shafts of columns and to their bases. It is also used in the entablatures of the Roman Doric, the Ionic, Corinthian, and Composite orders. The term is derived from the Greek ἄστραγαλος, which signifies the bone on which the tibia rests, and sometimes a vertebra. The form of this moulding is semicircular, projecting from a vertical diameter. The surface is usually worked plain, although there are Roman examples of its being carved to represent leaves; as in the arch of the goldsmiths at Rome, or reeds bound together, as in the pedestal of Trajan's column. The astragal cut into beads is common in Greek and Roman architecture.

The apparent use of the astragal is to bind the parts of columns and entablatures together, for which purpose it is employed both at the top of the shaft where the capital commences, and at the bottom where the base终止s. Many of the parts also of the entablature are bound together with the astragal moulding.

In Egyptian architecture, hands curving after the manner of astragals seem to bind the reeds of which the shaft of the column often appears to be formed. In the monument of Lysicrates at Athens, supposed to be one of the oldest examples of the Corinthian order, it has been conjectured that the hollow between the top of the shaft and the lower part of the capital of the column formerly received a metal ring of the form 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. Cockerell in the portico in the front of Hanover Chapel, Regent-street. In the temple of Jupiter Olympus, 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 Base, Capital, Entablature, and Fillet.

ASTRAGALUS, an extensive genus of leguminous plants, the most remarkable species of which is the Astra
galus odoratus, from which the substance called astragal
an is obtained. This is a small bush, with pinnated 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 astragal of commerce is said to be furnished by this species, it is certain that it is also procured from several others, such as A. celticus, which is the Poterion of Dioscorides, and A. aristatus, which still bears in the Peloponnesus the classical name of Tragakanta.

A few kinds of astragalus are cultivated in gardens; but they are for the most part more botanical curiosities: the most complete account of them will be found in the second volume of De Candolle's Prodrumus.

ASTRAKHAN, formerly called Astorokan, a khanate or kingdom in the western part of the Asiatic possessions of the Russian crown, extends northerly from the banks of the Terek to the sources of the Ural. It is divided into two parts, the outer, 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 44° and 54° N. lat., and 44° and 66° E. long. It was one of the numerous sovereignties which Gengis-Khan and his successors incorporated with the gigantic empire of the Moguls, 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 Kapshik, which had the Jai or Urul 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, Kazan, 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 cupidities of a formidable and encroaching neighbour. In 1552 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 subjugation 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, greeted with naval walls and tenentless buildings. Ivan reoccupied the town and prevailed upon five hundred nobles and ten thousand Astrakhanské to swear fealty to him; the oath containing a recognition of his subjects title to the same privilege as that of the Tartars in the whole of the Volga from Kasaan 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. The conquest of this province, and the wild hordes of the steppe, was considered as a natural step towards the grand duke himself, that, when signing public documents, he afterwards attached its date, in conjunction with that of the conquest of Kasaan, to his autograph. The khanate was comprehended in the eastern provinces of the Turkish government; it was ceded to the Caucasia, until the year 1810, at which time part of it the province of Caucasus or Georgiowsk was annexed to the government of the Caucasus, and the remainder divided into three distinct govern- ments: those of Astrakhan, Saratoff, and Orenburg. The latter have a surface exceeding that of the French or Austrian dominions, whilst their population scarcely ex- ceeds a fifteenth part of the population of either of those monarchies; for the three governments, though ex- tending 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 these provinces, the dimensions of which will form the 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 in a northerly direction from the head of the Caspian to the entrance of the Volga into the Caspian sea; and, with the exception of Port Potocki, the largest and most important town 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 Kirghish-Cossacks; it is comprised between the 45th and 51st degrees of north latitude, and the 69th and 82nd degrees of east 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 ex- ception, a plain, lying between the mouths of the Volga and Black Sea. 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 very annual flowers of the steppe, and the salt and briny lakes of frequent occurrence. This immense plain lies so low on the Kalmuktaian, or eastern side of the river, that the waters of the Caspian are driven over a large extent of the Asiatic continent, where they are blown for an indefinite length of time from the south-east; even vessels are at times borne by the overflow some miles inland, and stranded in the midst of the steppe, where the only alternative is to break them up. Here, says Potocki, 'where the eye has no object to dwell upon but the azure sky, the steppe and lakes encrusted with salt, I was astonished to meet with a large ship lying on her beam-ends in the heart of the steppe, between Bkaly and Talagai. I learnt that, a year before, a south-easterly, which had pre- vailed for several weeks, had inundated the country, and forced several vessels a distance of seventy versts (forty-six miles) from the shore. All but the ship in question had been taken to pieces and consumed. This incident 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 huts, being for obelisks, and low heath-bushes for Karatschus, of ten feet height; the laden camel became, to appearance, a moving mountain. When on the Caspian, another similar delusion accompanied the rising of the sun: the coast and vessels in the distance appeared elevated high in the air. Even the horses in the steppe took fright at the whirlwind of trees which apparently drove across the waste; yet they were but bushes, which the blast had turned into low trees or savagery. In the Volga, however, where the Volga winds between five islands, this portion of the steppe assumes a bluish or bluish-green tint, which

it acquires from the abundance of an extremely aromatic species of wormwood. Neither wood nor forest are found throughout the whole extent of these steppes, as well as other fruit and vegetables, however few to the eye, are watery and tender. It is possible to walk for two hours by the Volga without finding a single tree whose existence is not immediately detected by the indifferent quality; and we believe it to be well assured, that no juice of grape, or even of elder, can be produced, unless the average temperature of the year is at least 47° or 48°.
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 exhauling from the greater part of its surface. At the commencement of spring it is a few degrees warmer than 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 arm of the Volga, a broad line of 750 yards or more, becomes frozen over, the capes of suspending loaded sledges. The various streams throughout Astrakhan are commonly closed at the end of November, but the February thaws invest the faces of nature with so instantaneous a spring, that the walls of the streams or ditches, which have been renovated verdure under the influence of a few days' sun, become frozen over again, and are a blessing to the inhabitants, as well as the first indication of the annual return of spring.

The productiveness which nature seems to have denied to the land, she has lavished upon the coasts and rivers. This noble river, whose course is diverted by the mountains of Astrakhan into a number of smaller streams of the more southern latitude, forms a front of the extent of the Volga, a broad line of the Urals, from a northerly to a south-easterly direction, at a short distance before it enters the western frontier of this province, flows through it in constantly increasing breadth and with a more winding course; before its fall into the Caspian, about thirty miles below Astrakhan, it branches into eight principal arms and sixty-five subsidiary outlets, forming this quarter of the province into a delta of seventy islands. In the spring of the year its fishing grounds, particularly between the sea and the capital, are so abundantly-stocked with the sturgeon, sevruga, souvor (earp), sturgeon's roe, or caviar, which adds to the luxuries of our English tables, that it is almost incredible how the native name of Astrakhan was derived. The Sturgeon has been estimated as yielding a clear annual profit of 220,000 roubles.

The traffic on this river is another source of prosperity to the province; above five thousand boats, Kamsz, and wessid (ships, banks, and rafts), freighted with their respective cargoes of salt, grain, and timber, descend this stream in the course of the year, but from the difficulties of the voyage up the river, most of them are broken up and sold at Astrakhan, the 'Alexandria,' as it has been denominated, of the Scythian Nile.

An expanse of sand and swamps above 250 miles in breadth, extending north-east of the delta, separates the Volga from its principal arm, the Kaspi, and the western limit of the Kirghiz-Cossack steppe; the waters of the latter stream are moderately clear, abound in fish, and are navigable for both water and land traffic for some distance northwards from the Caspian, and beyond the point where it enters this province to enter that of Orenburg, a distance of at least 400 miles. Both banks of this river are lined by a dreary waste of rushes, and (west of it, in the Astrakhan district) are inhabited by the Cossacks, or the Ural, who 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 (100,000 pounds) in a season, and in the summer of 1807 the Cossack fisheries were so advantageous as to cause the fish-sellers to knock on the doors of Astrakhan, and the herring to be sold at 25 per ounce, a price which they have not been equal to competitor with the Cossacks for the space of twenty years.

The winter fishery is of a singular description, for the fish must be taken under the ice. Several thousands of Cos-
stands, and repel the attack of the enemy within their heads. The whole number of domestic animals in the province has been estimated by a recent writer at 4,000,000 sheep, 1,000,000 horses, 500,000 camels, and 200,000 horned cattle.

The population of Astrakhan is composed of a motley group of Tartars, Kalmucks, Bokhars, Kiptshaks, Armenians, and other settlers from various parts of Europe and Asia, with whom the highest estimate does not state as exceeding 225,000 individuals, and the lowest, which, as it is made on numbers only, is less than the current population amounting to 80,000. Nearly one-half of this population would appear to consist of Kalmucks, who occupy large tracts to the east of the Volga; the number of their kibitkas, or tents, being computed at 15,000. Another considerable proportion 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, when they have acquired the appellation of the 'Eye of the Army,' and garrison 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 Astrakhans, which would far exceed the estimated yet found.

Independently of these, there are a few colonies of Tartars of Kazan extraction, about 1,600 yurts or tents of Nomadic Kunduroff-Tartars, or Mangoutes, descendants of the Nogay horde, who live under the protection of the Russian government, and, as some writers report, 12,000 kibitkas of Bukay-Tartars, who settled in the districts between the Volga and the Lesser Uzen about thirty years ago, and made an attempt to remove to the steppes east of the Ural in order to escape the pressure of the superior force.

To the principal branches of industry already enumerated we may add the manufacturing of magnesia, tallow, and soap, in considerable quantities, distilleries of brandy and spirits, some large fisheries, and a few silk and cotton manufacturing 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 capital of this province, the coasts of Asia, and the steppes of Eastern Europe.

Astrakhan is politically divided into four circles: Astrakhan, Krasno-yar, Yakut, and Tatar-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 Uralskoi, the chief town of the Cossacks of the Ural. Of the remainder, the short account which follows will be sufficient. The port, and nearest approach of some less than five miles above the city of Astrakhan, we find Kalmucks-Basar, a place on the right bank of the Volga, in which all sale and barter between the townsmen and the shipping are transacted. In the small steppes that place stands the Russian, with his handy bread, 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 ironworks and leather articles. Here the Kalmucks also resorts with his supply of domestic manufactures, cattle, and felt. 'These sons of the steppe are seldom a match for their customers,' says Potocki. 'Here you may see Tartars from Kums, Kulan, and the Five Mountains; Truchmanes, Nogays, Kiptahaks, and Cossacks from the Shait; but, above all, it was this traveller's fortune to meet a Kirghisian ambassador in the Bassar,' who had but little of the air of diplomacy.

About nineteen miles to the north-east of Astrakhan lies 'Krasno-yar,' the capital of the circle of that name; a small town of about 2000 inhabitants, with two churches, built on the island formed by the Algars, the Akhtuba, and Bassan, three arms of the Volga, and surrounded by dilated walls with wooden towers, which were constructed by the Tzar Alexis Michailovitch to protect the town against the incursions of the Cossacks and Kalmucks. The inhabitants are comfortably upon the profits of their fisheries, 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 eatable stem of which is about as long as a common walnut. The capital of the circle, situated on the steep right bank of the Volga, is the seat of a tribunal, which jurisdiction over the 4900 kibitkas of Kalmucks who pass the winter in its vicinity; it is a circle of houses, built round a small court, and surrounded by five east and west, north and south, fort-like walls, embellished with two towers, having gilt cupolas, is an opulent place, and contains between 1500 and 2000 inhabitants. The circle of Krasno-yar comprehends the towns of Kollmuk, Kopylo, and Krasno-yar, and is inhabited by the Cossacks, who take their name from that river. At its influx into the Caspian stands the small and strong fortress of 'Guri-Gorodok,' built upon an island, and so remote from the coast as to be out of reach of the gale, under the government of which province it was placed in 1750.

The inundations, which cover the whole face of the island in the spring, render it in the highest degree unhealthy; it is consequently inhabited by few individuals besides those composing a regiment of cossacks and a company of infantry. A redoubt, called the Guriwaskoi-Redout, lies about twelve miles farther up the river. Along the line of the Ural are numerous Watagays, or fishing villages, erected for the purpose of making magnesia, tallow, and soap, in considerable quantities, distilleries of brandy and spirits, some large fisheries, and a few silk and cotton manufacturing 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 capital of this province, the coasts of Asia, and the steppes of Eastern Europe.

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have nineteen mesedchs or mosques. There is a Scotch mission too in the town, which, Keppel tells us, is a branch of a colony at Karass in Circassia or Czabardis, whose affairs are managed by the Scotch. At temporary elections, the Moslems are at liberty to make converts of Mohammedans or heathens; pay no taxes but about five crocks (one halfpenny) for each acre of arable land, and are authorized to purchase the fisheries of the town at the expiration of five years. Independently of an academy for marine cadets and a Greek seminary for ecclesiastics, there are a high-school, a district grammar-school, and four inferior schools in the town for the education of native-born subjects (of the race of an Armenian) are sufficient to supply its present wants. The chief architectural ornaments of Astrakhan are the *Kremel* or citadel, which contains the cathedral and barracks, while a number of edifices being embellished with the principal government buildings and the three factory halls, one for the use of the Russian, another for the Asiatic, and a third for the Hindoo dealers; the beautiful street inhabited by the Persian merchants, on each side of which runs an arcade, supported by handsome columns; and the cathedral, which was erected in 1696, and, like most ecclesiastical edifices in Russia, consists of a massive parallelogram with four small cupolas on all sides, and a tower, from with 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 holy wood, (or relic of the wood), of the Lamentation which are said to have cost 800£; six valuable mitres inlaid with pearls and precious stones of extraordinary size; a baptismal font of massive silver, ninety-eight pounds in weight, and of more value than all. To commemorate the celebration of the mass, one of which has been four centuries in use. The Jousits and Greek-Armenian churches are also handsome structures; but the most singular building is a beautiful masclched of free-stone, lately erected by a wealthy Commissary, who, we understand, was taken from the usual form of Mohammedan mosques, and resembles the Christian churches of the East in shape. The *Kremel* is an ancient Tartar fortress, surrounded by stone walls and built on eighteen feet high hill; and the beautiful building of the town comprises sixteen *slobods* or suburbs, beyond which the progress of modern improvement has transformed moor and swamp into places of public resort and agreeable promenades. Warni, 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 has been calculated that, in this 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 generally divided into the civil, commercial, and military departments and many of them in affluent circumstances. *You cannot form an idea,* says Gamba, who visited Astrakhan in 1820, *of the throng of splendid equipages which make their appearance on festive occasions, in which 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-cellar, which contain compartments for storing away the fish when salted, with intervals between the compartments boarded up and 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 succeeded by innumerable shoals of small fry, some descriptions of which, particularly the obia, are caught and used as bait for the larger species which succeed them, such as the sevrouga, sturgeon, and bidenta. The fishing season, both on the Volga and the Astrakhan, closes about the middle of May, when the fishermen return for a time to Astrakhan, and sell their stock; for, after the fresh water, being started, the river rises, and the fish move out of the Volga in the autumn; and this is a signal for the men to recommence their operations, which are prolonged to the depth of winter; the fish being frozen, cut in two and hung up, are thus easily preserved. Prince Kourakin is the proprietor of the fisheries at the mouth of the river and within the territory of the town of Astrakhan, but he has gratuitously given the right of fishing some time ago; and this is no inconsiderable donation, for there have been years in which he has ceased
his entire right for 40,000£. Many of the Astrakhank dealers also send out parties in spring and autumn to take the skins along the shores of the Caspian islands, where they are flayed and forwarded to Astrakhank for the sake of their skins and the oil extracted from the carcasses.

Besides the ruins of Adshotarkhan, to which we have already referred, vestiges of Tartar dominion in former ages lie scattered in various directions. As a matter of course, something more curious than the sepulchral mounds of Adshotarkhan is to be expected in Astrakhank. The greater part of these 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 monument of architecture more curious than the sepulchral mounds near Prishibinskoi, a village on the Akgutba. It is raised on a quadrangular substructure of earth, and consists of six flat vaults shutting one against another, the whole being about 500 feet in circumference. The vaults are covered with earth, the walls are 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.

Astrakhank 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.

The port is, in a certain sense, more constricted (or, bringing closer 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 excessive quantity, or the contents of the blood-vessels escaping accidentally, 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 parts to 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 aloe is brought in contact with the tongue. The sensation then experienced may be considered the best general test of the presence of astringency, which cannot be ascribed to any one principle, but is owing to tannin, gallic acid, and hæmatine, 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 rhâtany and tormentil), 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 astrin-igent principles can be obtained. [See explanation of the term exogenous, under the article Aox or Taax, vol. i. p. 202.]

Sir Humphry Davy found that the inner layer of the bark possesses the most quantity of astringent principle, and that 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 then be found to possess principles similar to those of the bark. Most astrin-igent 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 alumin and potassa.

The particular principle to which any substance is indebted for its astringent power may be ascertained by appropriate tests. When tannin exists in plants, its presence is betrayed by the incrustation taken 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. This compound was first prepared 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 sources of fallacy difficult to guard against. (See Papers by Dr. Robins, Scribner’s Journal, vol. ii. p. 103, and Mr. E. B. Stephens, in Annals of Philosophy, New Series, vol. x. p. 401.) Tannin rarely exists alone, although it probably does so in echinus, but mostly along with gallic acid. Excessive application of tannin is to be recommended to those suffering from excess of tannin, and is of considerable service, assisting its action in the prevention of, and recovery from, the effects of tannin. Gallic acid strikes a bluish-black precipitate with all the salts of iron, but a solution of the persulphate is the ordinary test. Hæmatine exists in logwood, along with tannin and extractive. It may be known by burning with a candle; on the point of lead without smoke.

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, sometimes employed as steps which lead to the effect of astringents, to contract the musculature 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 mucous membranes, and to which agents, if 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 patent, but becomes stiff and inextensible. 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 is considerably diminished, the vessels are bruised, and the tissues, not having the opportunity to lose their 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 which possess a power to cause the parts remote from this: yet it deserves to be remarked, that as the intestine is a more or less closed cylinder, it possesses a muscular structure, parts of a similar structure are more influenced by astringents introduced into the stomach than other parts; and, hence, increased secretion of the mucous membranes is produced. The 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 the circulae, but remains in the intestinal canal without being absorbed: for Sir Humphry Davy found, that when tannin is present in grasses, as it is in that of aftermarth crops, it is voided in the dung of the animals which feed upon it. (See Davy, Elements of Agricultural Chemistry, Appendix, p. 1xi.) But that other plants enter the system so rapidly, that the astringency of the see mæt, 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 sympathetic which exists in so great and unquestionable a degree between the alimentary canal and the other parts of the body; vegetable substances, while passing along the intestinal canal, promote the fulfilment of its functions, is obvious, from the effects following the use of food in which astringent principles are absent. Plants possessing astringent 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, favour 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 dilute sulphuric acid, which often checks the passage of blood; or the use of the commercial astringent, which 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.

Tannin, tannic acid, or gallic acid, can be 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. With this attempt for the permanent action of astringents, to do 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, during which the symptoms, astringents and vaso-motor, 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 may be somewhat considered as sedatives; 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 termed absorbents than astringents. When astringents are applied to the regenerating surface of wounds, or to the nostrils or gums, they are termed stypics, and in such cases they often act chemically as well as vitally. Before proceeding to consider the cases in which astrin- gent may be advantageously employed, it may be observed that while most common and valuable substances may be given. Of vegetable astringents the chief are berries, as of oak and willow, the best kind of the former of which is obtained from the oak of Medicea (the true English oak), which is synonymous with the quercus pedunculata of Willdenow, while the inferior sort is obtained from the quercus sessi- flora 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 Rusebtniana, or Bed- ford willow.

Roots, as of tormentilla, from potentilla tormentilla; dried bark (bark of the horse chestnut, or aconite, as of common aconite, from aconitum napellus, or sloe-thorn (pimpinca graminata), and se- creted juices of many plants, as kino, from pterocarpus Sempervirens, and several others; and cateln, from acasia catechu, and galls, from quercus Infestora; in all of which the action is more acute and more potent; and vegetable gums; and lastly wood, (hamatoxylin Campechianum), in which hematin as well as tannin possesses an astringent property. Aconitum must also be classed among the vegetable astringents.

The mineral astringents are, diluted 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 cases of the kind the employment of astringents as curative agents, 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; also between their mere astringent 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 gland, increased at the general expense of the system, the return to the healthy proportion and quality can only be insured by increasing the power or tone of the body gland, which astringents do by bringing the living tissues into a state of tone, under complete tonics do by bringing to a heightening the vitality of the debilitated structures. Hence astringents are beneficially employed in diseases where a laxity of the muscular and vascular tissues exists, accom- panied with imperfect discharge of the functions of the se- creting 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 its functions in the other organs of the body, an impaired state of the structure and func- tions of this canal extends to every other part. The re-establish- ment of its healthy condition is a primary object in en- deavouring to cure many diseases. Of these, intermittent and remittent fevers may be taken at the head of those that may be made the subject of attention. 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 been most successful in this regard, both in heightening 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 may be subdued by appropriate means before tonic astringents can be advantageously employed. In diseased states of the intestinal canal, in which greatly in- creased or unhealthy secretions take place, as diarrhoea, dysentery, and cholera, the most careful inquiry should be made as to the nature of this nitrate and its effects to make this condition of the mucous membrane of the intestine, or is owing to the presence of any secret sub- stance, the former may be overcome by antiphlogistic mea- sures, and the latter be removed by purgatives. When the increased flow of the bowels is of the nature of mucus, and determination towards these parts, owing to the application of cold to the outer surface suppressing the secretion of the skin, which has the greatest sympathy with the internal surface, and which consequently is excited to double action, the application of heat, which is the most effectual, 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 skin; after which, if the discharge continue, or astringent astringents may be used, of which logwood or tormentil is the best. A preliminary treatment is likewise required in dysentery: in the common cholera a purgative should preferably be given for the expulsion of the materia morbid. In the bilious cholera of autumnae, after the employment of suitable purgatives, nothing seems to act more effec- tually as an astringent than the infusion of cusparia, or angustung bark, with dilute nitric acid; to which, in some cases, a small portion of laudanum may be added at first, but afterwards omitted. Nor in the epidemic cholera, as far as a very limited experience enables us to judge, has more marked benefit followed the use of any means than has resulted from the employment of the compound of this speedily checks the liquid discharges, and restores the circula- tion and animal heat.

Diarrhoea, or looseness of bowels, proceeding from acid conditions of the stomach, are relieved by astringent medicines, which, when applied, are generally called astringents. They combine chemically with these—such as lime, or its carbonate, which are rendered more suitable by uniting them with aro- matics, an excellent form of which is supplied by the posto carbonata caelestis of the Edinburgh pharmacopoeia. Some- times, in order to increase the astringent properties of these medicines, alkaline 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 virtue of both the charcoal and the lime, nor is the combination of opium with chalk less objectionable.

The next most important class of diseases in which astrin- gent may be employed are termed hemorrhages, or a dis- charge of blood, either from the exhalant extremities of the arteries, when they are gorged or when they are too much relaxed, or from the wounded or ruptured parts of any blood-vessel. The above distinction refers to the differences between active and passive hemorrhage, or that which takes place when the system is too much excited to the point of internal bleeding; or a vein which takes place when the power of the vessel is greatly below the natural standard. In the former, astringents cannot safely be employed for the removal 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 admin- istered, cold air admitted freely to the surface of the body, the natural action of the system in the quantity of blood may be given; after which, astringents will either not be required, or if so, may be safely used.

In passive hemorrhage 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 muriate of iron is very eligible when the kidney is the source of the bloody discharge, as acetate of lead is when the lungs are the organs whence 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. Bleding from the nostrils or gums may be checked by the direct application of strong, hot, or cold, or by the opium; for 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 in the form of a poultice, and it heightens the action of the liver. Various hemorrhages in the uterus, or the menses, when they are too profuse, are such cases. It is to be observed, that astringents may be employed for the purpose of stopping the flow of blood, instead of diluting it, or making it into an ointment. Scourful inflammation of the eye is often benefited by them, if internal means be also used. Salvina-
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 ipecacuanha 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 tartaric 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, and 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. 178.]

ASTROCAVRYUM, a genus of palms found in small groups, or in single specimens, in the tropical parts of America, 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 murumuri, a common inhabitant of swanny places in the neighbourhood of Para, where it is called mururumuri; 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 pitch.

Another species, A. airc, 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. tucana are much valued for fishing-nets. (See Martius, Palma, p. 65, &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, sights were added, for the purpose of taking altitudes; and in this state it was the constant companion and badge 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, 1733. In the older sense of the word every one of our modern astronomical instruments is 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 lie 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, NOB its north polar distance, or BOD its declination, may be measured. If the circle be fixed in the plane of the equator, and CD be made to point towards the vernal equinox at the same moment at which the tube points towards the star, then the angle DOB 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 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; whereas the moderns, in order to measure only one of the two. Secondly, the ancient 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 in altitude was to be measured. The moderns for the most part fix their instruments in the meridian and wait for the star. But the equatorials, the altitude and azimuth circle, and the theodolite, are strictly astrolabes, according to the ancient 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 auxiliary 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 Cusanus (an ecclesiast 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 (Syntaxis, book 4, 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 circle. In the poles of the ecliptic place cylinders, projecting within and without beyond the rims of the solstitial circle, 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 circle 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 Astronomia Instaurata 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.
not made to depend upon the position of the meridian. This is perhaps more evident near to the modern equatorial than it was to the ancients 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; while astronomy might mean the science of the earth and atmosphere. 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 (derisory) and astrology (derisory) seem to be used in the same sense by the Greeks, at least till about the Christian era. Cicero (Offic. i. 6.) uses the word astrologia to express astronomical knowledge.

It has long been usual to produce any arguments against the science; but there are 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 mere matter of amusement with the more enlightened; but we are afraid there are some who play with edge-tools in reading the fancies of the works alluded to. The love of the marvellous is not under proper regulation, even in the minds of many who do not go the length of supposing astrology credible; and we shall therefore perhaps do good service in showing what 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 prevails in the whole world in the 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 astronomers; 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 vulgar as the Deity himself. It is, however, absurd to demand, as it is demanded in that assumes the description, creation 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 assumed to exist between the places 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 got 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 under them. 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, but is not necessarily in 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 circumference. The following figures representing the twelve houses was in universal use, and the readers 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 boundary of each house is written the point of the ecliptic 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 $4^\circ 14'$ of Gemini. The boundary between the ninth and tenth houses is in $1^\circ$ 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 (\(\text{\textcopyright}\)) appears to be in the twelfth house, at $22^\circ 46'$ from the boundary of the eleventh and twelfth.

But, on all the preceding conditions, 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 way 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 followers of each system complain just as much of the rest, as if they had some reason to show for their own. For instance, Ptolemaius, or Ptolemy, who introduced astrology into France, and wrote on the horoscope in 1568, expresses himself thus: Some out 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 converti, zodiac sce polos esse turines in to negat quo quod zodiac maxime proprium est. The placing of the signs in the horoscope he takes as a dream, and seems perfectly satisfied with the preceding 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; and the point of the ecliptic which is just rising is called the horoscope. The next house in power is the tenth, which is coming on the
meridian, &c. 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 religion; the tenth, of renown; 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 it is but fit; and of two planets equally strong in other aspects, the one in the strongest house is the stronger. 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 houses they occupy or the positions relatively to each other—the result will be as good an idea of the mysteries of astrology as it is worth any one's while to obtain.

We shall now give some examples of the application of the science which we do principally, because in the mystical announcements which issue from our press, the darkness of the hints which are given throw a posthial 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 fool libel on the powers of astrology. Thus, in 1815, instead of announcing some such prediction as the following—Mars in the house of death, and powerful in aspect, by a very irregular other cause, a personage will strive against the new order of things, but, if we mistake not, the conjunction of Luna and Saturn in the twelfth house bodes him no good—instead, we may, of such an undertaking, make beligerent aspersion on the astrologers, and 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 man, 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 person who had just died; and, by a process of other cause, 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 are not, nothing, may as reasonably be drawn from the stars as elsewhere, we take the following instances of 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, with tables) 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 by manner of law hanged. An astrologer 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 the matter having been reduced (a process amounting to giving the stars power to make a map or picture almost any change he pleases), the result was as follows:—

"Mercury being lord of the ascendant, irradiated by a malefic quadratic 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 quadrile of Mercury and Mars, particularly when Mercury is constituted principal significator, has an application of late on our domestic occasions.—and the native's own beneficent aspect might have been remarked.

"Upon a further inspection of the figure, we find a benefic quadratic aspect of Mars and Jupiter, with a mischievous opposition of Saturn and Mars. To the first of these we are to attribute felicity; to the second, some general misfortunes and the native, under the dominion of the evil genius, 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 the Sun by direct direction, while she occupied the cup of the seventh house, which represents the unfortunate woman. Thus the Sun I find to be giver of life, posted in the tenth house, the house of justice; Mercury, lord of the ascendant, being in Gemini, on 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 that it would be fatally, that it should be in due course of law, by the bands of justice; and not by suicide."—I brought up the direction of death with great nicety and precision, and found he would be plunged into eternity when the Sun came to the other end of the orbit, and the Moon, being in opposition 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 person who married twice in the same morning, and found himself 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 asking 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 most ascertained signature of a woman's love, and much to oblige him, and to secure the marriage. The Sun, likewise, being in a sextile aspect with Mars, the lady's significator of marriage, plainly shows her a disposition to marry, and that the Sun is very strongly fixed, and her affection to be perfectly sincere—such is 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, are applying to a quintile aspect 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 unfavourable to the Sun, and but as the Sun is from Venus, applies to a perfect trine with Mars, the sun's principal significator of marriage, and also to a sextile 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 Happy." This opinion is greatly strengthened by considering the mode in which their significators are severally disposed. Saturn disposes of the Sun, who is posted in the terms of Venus, 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 marriage. Our case could not have been more favourable 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 to stand in the way of her wishes, yet she must rest perfectly assured that he was the man allotted to be her husband."

"Apparelly 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 sextile aspect with the Sun, the lord of the ascendant, and the Sun is same to Mars, and perfect sextile, and further, by converting the degrees into time by the rule heretofore given, I fixed her marriage at about the end of three months, assuring her it could not exceed that time."

"But looking at the examples you have given, we see that they refer to matters which are proverbially 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., and will fully explain the risk of such speculations."

"If the lord of the sixth and the lord of the second are in conjunction, in a good house of heaven, the querent may thrive by them; (i.e. small cattle) or if they be in the same house. But if, on the contrary, the lord of the sixth be unfortunate, and in evil aspect with the lord of
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rays to either of
the ascendant or second, or cast malignant
small cattle.
their cusps, the querent will lose by dealing in
opposition to
If the lord of the sixth be in quartile, or in
the dispositor of the part of Fortune,.or the Moon, the querent 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 be found either retrograde, combust,
cadent, or peregrine. 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 murrain.'

That the antient 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 various
fortunes he would meet with, and his relative 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 take a case that might have occurred
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 astrologers in the same town.
To tbem it would not be necessary to tell their names, or
exhibit their horoscopes ; the present position of the heavens
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 precesThus, though the constellation
sion of the equinoxes.
Aries is now in the sign Taurus, and the influences of its
stars ought to have moved with them, we find that the
astronomical Aries, or the first thirty degrees of the ecliptic,
is used for the constellation. Under die circumstances, this
is of little consequence ; but such a practice would be fatal
to astronomy.
That observed facts did stubbornly refuse to fulfil the preIn the fifteenth
dictions of the planets need hardly be told.
century, Sterner foretold a universal deluge which should
take place in 1524, in consequence of three planets being
then 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 made an ark for himself and his friends. 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
easv 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
The former we have, perhaps, even now, and a
believers.
few of the latter, though only 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 the first of James I. c. 12, sorcery of all species
was prohibited, though it does not appeur certain that this
term included astrology; but by the vagrant act, 5 Geo. IV.
c. 8, sec. 4, all ' persons pretending to bill fortunes, or using
any subtle craft, means, or device, by palmistry or otherwise, to deceive and impose upon any of his Majesty's
that is, punishable by
subjects,' are rogues and vagabonds
any magistrate, with three months' imprisonment and hard

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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.
Hence to it, as to alchemy, we owe many really useful
It is a singular fact, that the first lunar
discoveries.
tables which were constructed on the Newtonian theory
were intended to be subservient to tho calculation of nativi-

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there is no question that the necessity which the
astrologer lay under, of being ready, at any moment,
to lay down the positions of the heavenly bodies, produced great numbers of useful tables and observations ;
ties;

and the Greek works which have been preserved by the
Arabs were valued principally for the use to which their
mathematics could be turned in astrology. The origin of
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, » here it is men
tioned in the earliest records of every nation. The Chinese
are 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
Montucla, iv. 372). The Hindoos have long regulated the
most important actions of their lives by the stars (see introduction to the Liliwati) ; but Mr. Colebrooke has shown
(Hindoo Algebra, preface, p. 60) 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 J eremiab 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 Christian sera, became much addicted to it.
Several
of the more celebrated writers on astrology under the
caliphs were Jews, as Messahalah, Moses ben Maimon,
Solomon Iarchus, whose almanacs we have mentioned as
among the earliest published, and many others.
In Greece, at least during the classical ages, 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 ; and 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
several edicts of the senate. In the second century, the

whole world was astrological; and even Ptolemy waa
infected.
There is a work entitled ' Tetrabiblos 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. Ast. Anc* ii. p. S43.)
All the followers of Mohammed are and have been
astrologers.
The predestinarian doctrines of their system
render the transition easy and natural ; for, as we have
seen, the scienoe of astrology is based upon the notion of
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the necessity of human actions. The establishment of the
Moors in Spain, and the crusades, caused the introduction
or the increased cultivation of the art among the descendants of the barbarians who destroyed the Roman empire ;
probably the former, for we have no distinct traces either
of astronomy or astrology 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
calia, contends that the stars neither incline nor compel,
but only prophesy or point out what men will do without
He then gives a long and curious
exerting any influence.
argument against their compelling power, without explaining how it does not hold equally against their predicting
faculty.
St. Augustin (cited by Vossius) argues 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 among the errors imputed to the Priscillianists.
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 Jesus Christ. The astrology of comets, which is hardly yet out of date, has even
been recognized by a Pope : in the fifteenth century Calixtus III. directed prayers and anathemas against a comet

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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 at last deemed possible to imagine an other existence for the globe, it soon came 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. But why should the principle of nothing but the motions to which they are subject, whether periodic 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 in particular the current of the phenomena, 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 a 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, so far as our system is concerned, will be 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 as to the objects for which it is undertaken.

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 as actually observed, 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 is no such thing, except for the mere 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 complete periodicity. To this head we should refer such questions as those of Refraction, Aberration, and Gravitation. The term physical astronomy is usually applied to those investigations connected with the laws of nature and the analogy warrant its extension to the former. Under this, also, we must place all questions connected with the physical constitution of the various planets, so far as that can be known. Of these we must, for the present, leave the predicting power of astronomy has received since Newton deduced the motions of our system from the simple law of attraction, there is no need 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 for 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 nature and magnitude could not 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 to be most advantageous, it is found, and its exact magnitude, as ascertained by observation, is no mean in correction 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 complete and correct, would have been in a state of the merest infancy.

If the theory had arrived at a degree of completeness, towards which it has been and is rapidly tending, nothing would be needed more to agree with 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 the present time it has been necessary to use more 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 Damosiow, to which we have referred the 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 Damosiow and Burekhart for January, 1834, and may be described as an estimate for the nearest comparison.

The Hindoo astronomy, on the other hand, though certainly more extensive and correct, may have been, for anything that can be shown to the contrary, received from the Arabs of the middle ages. At least such is the opinion of De Mailla, who states that only a few of the mathematics who have had means of knowing more of the subject than either. But this question is one of difficulty, and ought not to be considered as finally settled.

The Chinese tables of astronomers, translated by De Mailla, a Jesuit missionary at Pequin, 1777-1785. They claim to go back to the year B.C. 2857, but of astronomical phenomena they record hardly anything, except eclipses of the sun, and the appearance of comets, and of the former nothing but the fact and the day of their happening. They state that the astronomers by profession were obliged, on pain of death, to predict every eclipse that occurred, and that, even after such phenomena were found capable of prediction, it was not always possible, by the methods at their disposal, to frighten away the monster which they supposed to be devouring the sun. The mathematicians, in spite of their responsibility, were forbidden to make any alteration in their theories or methods, without the consent of the emperor. The method used for different dates, which is formerly practised, is attributed to the burning of all scientific books by one of their princes, B.C. 221. But perhaps the loss was not great; for Gauhi, who recollaged their asserted eclipses, could not verify more than one of a date anterior to the reign of Augustus; and even that one is doubtful. The fact of the motions of the planets was known to the Chinese, but not the precession of the equinoxes, till about A.D. 490. They had also the Metonic and Calippic cycles, and the use of the actual place of the heavenly 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 presented by the heavens in the course of a 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. Astronomical observations have always been one of the most important phenomena in the embellishments 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 ancient civilization, we may know so much more of its products than the inhabitants themselves. Nor should 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 Ptolemic complicated beyond a certain point of doubt, and results of certain extent, actual representations of fact. Mungo Park mentions an African tribe, whose opinion it was that the inhabitants of the west fry the sun when he got down to them, and after beating him sufficiently for next day's service, took him round by a passage to the east, so that he could collect the importance of the whole antient world, there can be little doubt that the comparatively humble efforts to which we are coming would appear miracles of sense and recall the great 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 apply it to astrology. Among the Greeks only, the science had no reference either to politics, religion, or soothsaying; and here it throws with a vigour which permits us to make the astronomy of the Hebrews and the Ptolemies a part of the chain which connects the moderns with the people of the east. It is not clear 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 of the moderns is the pretensions 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; and it is of sufficient consequence to enter into the question of the antiquity of the astronomy of the first and two last is 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 explanation of anything so long since. These differences, however, are not to be weighed upon it. The Hindoo astronomy, on the other hand, though certainly more extensive and correct, may have been, for anything that can be shown to the contrary, received from the Arabs of the middle ages. At least such is the opinion of De Mailla, who states that only a few of the mathematicians who have had means of knowing more of the subject than either. But this question is one of difficulty, and ought not to be considered as finally settled.

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relates that a series of eclipses preserved at Babylon was transmitted by Alexander to Aristotle, and contained the observations of 1965 years preceding the conquest of Babylon by the Macedonians. But Poleney gives only a few of them, the earliest of those of a greater kind being only in 352. He does not mention those 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 invention of the underwriting of the observation.

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 Egyptians the meridian of the sun, and of the horizontal dials of the sun's rising and setting.

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 Berosus, Chaldez.]

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 Sotric Period. They observed eclipses, but none have come to us: they foretold occurrences, 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 successful. The idea attributed to them that the sun moves in a circle, is mentioned by Polemy; 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. Diodorus mentions an account of the Egyptians, which as but a few parts out of 166 of the whole circumference—was adopted by Hipparchus and Polemy.

Archimedes of Syracuse died b.c. 212. He observed solar, lunar, and terrestrial phenomena, and 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 Timochares, 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 by the application of a map of the earth. He computed 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. His catalogue of the longitudes and latitudes of 1081 stars was the first at all accurate, and the first to bear names. 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. Calculating his means, his observations are perhaps unequalled.

After the death of Hipparchus there is no astronomer of eminence till Polemy. Between them we have Hippocrates of Alexandria, b.c. 146, wrote the 14th and 15th books of the Elements of Euclid, which contain some astronomical propositions.

Ge CU. (? b.c. 70, wrote an introduction to the heavenly phenomena, containing no new discovery. It would seem that he was only a compiler, of the works of others. Posthumus about the same time attempted to verify the measurement 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 south wind of the month.

Theodotius of Bithynia, b.c. 50, left a work on spherical geometry, another on climates, and a third on the phenomena of day and night.

Hyginus, a.d. 34, wrote a calendar under Julius Caesar.

Hyginus left an astronomical description of the heavens.

Manilius, a Roman, a.d. 10, wrote an astronomical and astrological poem.

Ptolemy, a.d. 169. His book on natural philosophy contains many pieces of information on astronomical history, but is principally remarkable for its bold opinions on the nature of comets. This declares to be planets, whose lives he predicted would one day be calculated, and that posterity would wonder how so simple things could have so long escaped notice.

Menelaus, a.d. 80, has left three books of spherical trigonometry.

Theon 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, whether before or after Ptolemy is uncertain. He is usually considered as having lived under Augustus Caesar.

We must suppose that there were many real observers between the epochs of Hipparchus and Ptolemy, from the old known, and, as far as the nature and the scope of Ptolemy himself, it is clear that no discovery of any importance was made.

Ptolemy of Alexandria, a.d. 150–160. We may briefly mention his works, his system, and his discoveries. The μαθηματικά σύνταξις, or mathematical collection, afterwards called μαθηματικά σύνταξις, and, by the Arabs, the Αλμαγέστι [see Almagest, Syntaxis], 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 reasons 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 [for 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, as then known, were 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 excentricion (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 spherical excentricion of the disc of the sun and 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. [See Ptolemy.]

With Ptolemy the originality of the Greek school ends. We must come to the Arabs before we find anything worth particular notice.

Seclus Empiricus, a.d. 173, described and wrote against the Alexandria school.

Centurinus, a.d. 239, wrote an astronomical work on the day of nativity, containing historical information with regard to astronomy.

Julius Firmicus Maternus, a.d. 370, wrote on astronomy.
Abul Hasan, 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 Chrysococcus, a Greek physician, in the fourteenth century; but the best known are those of Nasir-edin, published a.d. 1270, under the protection of Hulagu, grandson of Jenghis Khan, and conqueror of Persia. The Peripatus have a method of finding their solar years, which, though highly complicated, is of survival value when we first began to employ it is unknown. [See Calendar.]

Ulugh 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 its day, the most correct ever published. He also gave tables of geographical latitudes and longitudes. The Emperor Akbar, then from Fereydun, directed, as a part of his education, and many Hindoo works were translated into Persian.

In China, Cocheo-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 antient chronology.

Since the fifteenth century, astronomy has declined throughout the East. The Chinese received many methods from the Jesuits, 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 now pass to Europe.

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 Frederic II, about a.d. 1293.

Sacrobosco (an Englishman named Holyoke), a.d. 1290, wrote a work on the sphere taken from Ptolemy, &c. It continued for a long time in great repute. He also wrote on the calendars. About the same time, Jordanus wrote a curious work on the Planisphere.

Almezo X., king of Castile, a.d. 1292, with the assistance of Arabs and Jews, formed the first European tables. They differed little from those of Ptolemy. [See Almains Tabels.]

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. 258, 444.)

The Cardinal Sessa, a.d. 1449, wrote on the correction of the Calendar. He is said to have maintained the motion of the earth.

George Parbach, a.d. 1460, extended trigonometrical tables, and published a theory of the planets based on that of Ptolemy.

John Muller, called Regiomontanus, (died a.d. 1476), made an abridgment of the Almagest, published more extensive trigonometrical tables, extended various parts of trigonometry, and suggested the use of an artificial star not, in this 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 Trebizon, called Trascanzis, who died a.d. 1486, first translated the Almagest from the Greek into Latin. Bianchini, a.d. 1495, published tables similar to those of Alonso.

Wulcherus, died a.d. 1704, 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 refer the 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: —

Riccius, a.d. 1521, wrote a work on astronomy, containing much useful material discussion.

Werner (died a.d. 1528) gave a more correct value of the precession.

Stöffler (died about a.d. 1531) published almanacs for fifty years. See Stöffler.

Münster (died a.d. 1552) wrote on clocks and dials.

Procatorius (died a.d. 1543) wrote on the heavenly motions.

In 1529, Fernel, who died in 1558, gave a very correct measure of a degree 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 1533 he had finished his treatise of the planets, and his work was published in 1543, and his 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 the original and augmented Copernican system.

This work is the best known, the date in brackets is that of the publication of some work.

Copernicus...
cessation, already mentioned, which had more or less infected all tables up to his time; he also ascertained that comets (those of his day, of course) were further removed from the earth than the moon; in fact, that they had no part in the gums which his instruments could discover, thus refuting the notion that they were atmospheric bodies. He greatly improved and extended the instruments in use as well as all the methods of observation.

Tyché Brahé did not admit the Copernican theory; but submitted to it for one of his own, usually known by the name of the Tychočn system. This consisted in supposing the sun to move round the earth, but all the other planets to move round the sun, being also carried with it round the earth. This system explains all the appearances as well as that of Copernicus; and we must say (though it is always usual to reproach Tycho for refusing to admit the simple system of Copernicus) that by this means the then unanswerable arguments against the Copernican system were avoided. In fact, there is nothing but the aberration of light (a comparatively recent discovery), which is demonstrably conclusive in favour of the motion of the earth.

[See Aberration, Motion (APPARENT).] The system of Tycho is said to have been promulgated by some of the antients, at least with regard to the inferior planets.

The reformation (as it was called) of the calendar took place in 1582, under Pope Gregory XIII. As the views then held were rather theological than astronomical, we shall only here mention the fact and the disputes it gave rise to; referring for further information to Calendar, CLAVIUS, VIBTA, SCALIGER (JOSPHI).

The death of Tycho Brahé, to that of Newton, which forms the next great epoch in the history of astronomy, we can only dwell generally on a few leading discoveries. To enable the reader to search further, we give a table of all the names between the deaths of Tycho Brahé and Newton which Delambre has thought worthy of any mention, with some few additions. The names mentioned from 1581 to 1727, which are not in this list, will be found in the next. The year of death is given opposite to each name; or where that is not known, the year of some publication is given in brackets. The dates are principally from Weidler, and several from Delambre, compared with those in the first edition of Lalande's Astronomy.

<table>
<thead>
<tr>
<th>Astronomer</th>
<th>Date of Birth</th>
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<tbody>
<tr>
<td>Tycho Brahé</td>
<td>1546</td>
<td>1601</td>
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<td>Galileo</td>
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<td>Kepler</td>
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<td>Newton</td>
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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 additions to the sciences, keeping, according to our original plan, only enough to direct the attention of the reader to points worthy of further reference.

1591, 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.

1603. Bayer's maps, in which the stars are first denoted by letters.

1604. Kepler approaches more nearly to the law of refraction.

1609. Galileo made a telescope from a general description of a reflecting instrument furnished by one Jansen, in Holland. He used a concave object glass, Jansen made a convex.

1610. Kepler publishes his work on Mars, in which he establishes, from Tycho Brahé's observations, the elliptic form of the orbit, and the proportionality of the areas to the times.

1611. Galileo announces the discoveries of Jupiter's satellites—of spots on the sun—of nebulae—of some new appearances in Saturn, afterwards found to proceed from the rings—phases of Venus. He also discovers the diurnal libration 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.)

1613. 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. Wendelinus 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.

1627. The Rudolphine Tables published by Kepler, from the observations of Tycho Brahé.

1631. Gassendi first observed the transit of Mercury over the sun's disc—measured the diameter of Mercury, and predicted that of Venus with success. Verriuer publishes his invention of the instrument which bears his name.

1632. 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 obliged 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; and

1640. Gascoyne applied the telescope to the quadrant, and a micrometer to the telescope.

1646. Fontana observes Jupiter's belts.

1647. Selenographia of Hevelius, in which the moon's libration in longitude is announced.

1650. Scheiner constructs a convex object-glass telescope.

1654. Huyghens completes the discovery of Saturn's ring.
1685. Huygens discovers Saturn's fourth satellite.
1685. Académie des Ciences founded.
1685. Huygens made the first pendulum clock.
1686. Cassini improved the micrometer.
1686. Mouton applied the simple pendulum to observations of differences of right ascension, and measured the sun's diameter very correctly by it.
1687. Gregory makes his reflecting telescope.
1687. Cassini determines the time of rotation of Jupiter, and publishes the first Table of the Satellites of Cassini's more accurate measure of Mars, and makes a first approximation to that of Venus. Academy of Sciences founded at Paris, and observational first thought of and commenced in the following year. Auzout applied the microscope to the telescope with all that was known of Gascoyne. Newton first turned his attention to gravitation. Auzout and Picard applied the telescope to the mural quadrant, without knowing that Gascoyne had preceded them.
1688. Cassini's second Table of Jupiter's Satellites.
1689. Newton made his first reflecting telescope.
1690. Mouton's first use of Interpolations.
1691. Picard and Lahire publish their degree of the meridian, from an examination of the measures of Huygens. Richter, in a voyage to Cayenne, observes the shortening of the seconds' pendulum in approaching the equator. Cassini discovers Saturn's fifth satellite. Flamsteed begins observing at Oxford, and begins the observations which led to his discovery of the inclination of the lunar equator, and the coincidence of its nodes with those of the orbit. Flamsteed discovers Saturn's third satellite.
1692. Huygens publishes his Hypothesis Oscillatorium, in which are found the first theorems on central forces and centrifugal force. Flamsteed explains the equation of time.
1693. Hook revived the idea of attraction, but without assigning any law, or connecting it with any observed facts. Spurzio watches made under the direction of Huygens.
1695. Halley (who went to St. Helena for the purpose) published his Catalogue of Southern Stars.
1696. Appearance of the Commet des Tres.
1697. Flamsteed gave the law of the annual equation of the moon, and corrected the tables accordingly.
1698. Newton, who had laid aside his theory of gravitation when he found it not capable of verification by taking the earth's figure, reinforced the belief in the matters of Picard's more accurate measurement, tried it, and finds a remarkable degree of nearness to the result deduced from his celebrated law.
1699. Cassini and Lahire continue till 1700 the arc begun in 1689.
1700. Cassini discovers Saturn's first and second satellite.
1701. Newton publishes the Principia.
1704. Cassini's theoretical determination of the ellipticity of the earth's Catalogue of Evelyn's published.
1705. Cassini's tables of Jupiter's Satellites. Annunciation of his discoveries on libration. Halley discovers the acceleration of the moon's mean motion.
1706. The Cassinis (D. and J.) extend the arc which the former began southward.
1706. Halley first predicted the return of a comet, viz. that of 1758.
1707. Berlin Observatory founded.
1708. Cassini discovers the inclination of the orbit of Saturn's fifth satellite.
1710. J. Cassini discovers the divisions of Saturn's ring.
1716. Bradley publishes his tables of Jupiter's satellites. J. Cassini and Maraldi complete at Dunkirk the arc begun by Cassini.
1718. Harrison's compensation pendulum.
1719. Bianchiemi determines the rotation of Venus.
1720. Graham invented the mercurial pendulum.

1727. Bradley discovers aberration. Death of Newton. We have now brought the history to a more remarkable epoch. The great comparative perfection of instruments, the invention of the telescope and the micrometer of the clock, of logarithms, the introduction of algebra, the invention of fluxions, and the establishment of the theory of gravitation, in England at least, were so many steps each of magnitude in former times. But the most 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 published the Tables of the Celestial Motions; but the first might have been left to the present day without much loss. The latter was a new era in sidereal astronomy. It would have done more for astronomy than the mathematical Syntax of Ptolemy, had it been similarly circumstanced: that is, the work of the ancients, a solid base, the knowledge of what had been done before, with no material improvements either in methods or instruments; whereas that of Flamsteed contained both, and gave a catalogue of stars such as had not been published before. (See Remark.) We cannot here help noticing the great use of scientific societies. The theory of Newton was lying idle in his hands for ten years, because he doubted its conformity to fact; and had he not happened one evening at the Royal Society to hear Newton say, 'I had not that principle of force,' 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 discovered. And, moreover, additions have 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 distinct perusal of Newton's 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 Boulliau or Bullock, 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 fluxions could have made, and an embodiment 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 discoverer of the latter. After what we have 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 was as truly the first of Copernicans as was the most forcible character drawn from probability. But it was Bradley who by his discovery of Annihilation (which see) furnished the direct and unanswerable proof of the earth's rotation; and it is a coincidence worth remembering, that the year of the death of Newton was that of this remarkable accession as well to physics as to practical astronomy. We shall now proceed to sketch the annals of astronomy from the death of Newton to the present time.

The interval between the death of Newton and the present time may be divided into two parts: the first reaching to the end of the century, abounding in magnificent discoveries both of analysis and observation; the remainder more distinguished by efforts to extend the power to realize the results of the first. In giving a few, as well as the distinguished names, as of their discoveries, we cannot help observing with regret, that in all the histories which have been published, as well of astronomers as of their labours, very little attention has been paid to chronology, and the dates given in different works very often differ. In fact, we know of no work to which we can refer the reader in which he will be certain to find the exact dates of all the principal astronomical researches. La Condamine and Monsieur and Professor Airy's report to the British Association are honorable exceptions in most points, and to them we have been much indebted. The latter is confined to the present century. In collecting, therefore, such facts as have come in our way, we dare not attempt to complete list of what has been done, or even of the principal points.

The following is the list of names from the death of Newton, arranged in the same manner as the preceding: —
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. Maskelyne, on the determination of the arc in Lapland, and Bouguer and La Condamine in Peru.

1733. Lalande and Cassini de Thury re-measure the arc of D. Cassini. Clairaut improves the theory of the figure of the earth.

1739. Dant Thurn'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 Motuum, &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 objectives, but 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 nutation, Clairaut's on the motion of the Lunar node.

1750. Mayer first uses equations of condition. Boscovich measures an arc at Rimini.

1751. Lacaille goes to observe at the Cape of Good Hope. 

1752. Dollond makes his double object-glass micrometer. Mayer's first idea of the repeating circle.

1754. Chappes publishes the solar and lunar tables of Halley. Clairaut's Lunar Tables.

1756. D'Alembert's researches on the figure of the earth; Euler's on the variation of the elements of elliptic orbits. Mayer's catalogue of sidereal stars. Clairaut's researches on the perturbations of comets.

1757. Lacaille's Astronomiae Fundamenta.


1759. Lalande publishes Halley's Planetary Tables.


1762. Euler and Clairaut's researches on the perturbations of comets.

1763. Lacaille's catalogue of southern stars.

1764. Lacaille confirms Mayer's observations of libration. Lagrange's prize essay on libration, containing the first application of the principle of vertical velocities. Mason and Dixon begin the measurement of an arc in Pennsylvania.

1765. Harrison gains the parliamentary reward for his chronometer.


1767. First Nautical Almanac.

1768. Beccaria measures an arc in Piedmont, and Liesganig in Hungary.

1769. Transit of Venus.

1770. Mayer's and Lalande's Solar Tables.

1771. Bailly's further researches on Jupiter's satellites.

1772. Bode's law of the distances of the planets.

1773. Lagrange's researches on the attraction of spheroids. Laplace on the secular inequalities of the solar system.

1774. Maskelyne's observations on local attraction at Schehallien.

1780. Mason's Lunar Tables.

1781. Herschel discovers the new planet now called Uranus. Messier's catalogue of Nebulae.

1782. Laplace finds the elements of the orbit of Uranus. Laplace's researches on the attraction of spheroids.

1783. Nouet's tables of Uranus.


1786. Lagrange gives the differential equations for the variations of the elliptic elements.


1788. Lagrange's Mecanique Analytique.

1789. Herschel measures the rotation of Saturn, and discovers the first and second satellites of Saturn. Delambre's tables of Jupiter and Saturn.

1790. Herschel determines the rotation of Saturn's ring, and discovers two more satellites of Uranus. Delambre's tables of Uranus. Maskelyne's catalogue.


1793. Laplace on the satellites of Jupiter and figure of the Earth. Schröter determines the rotation of Venus.

1794. Herschel discovers the fifth and sixth satellites of Uranus. No one, except Sir W. Herschel, has ever seen all the satellites of Uranus. Herschel has very lately determined some elements of the first and second, which accord very closely with those given by his father. He has not found the rest, which may arise from the unfavourable southern position of the planet.

1795. Herschel's observations on variable stars, and separation of the milky way into stars.

1796. Establishment of the French Institute. Herschel gives strong presumptions that the rotation of Jupiter's satellites are of the same duration as their orbital revolutions. Orion in the perturbations of Mercury.
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1797. Delambre's observations on refraction. Laplace's theory of tides.

1798. Cavendish demonstrates and measures the mutual attraction of metal balls.


1801. Lalande's catalogue. Piazza discovers the planet Ceres. Swankberg begins the measurement of an arc in Lapland.

1802. Others discover 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. Piazza 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. Piazza's catalogue of 7646 stars, the best and largest extant.


1818. Delambre's Tables of Jupiter's Satellites. Bessel's Fundamenta Astronomiae. Pons discovers a comet of short period, now called by the name of Encke.


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 planet Uranus (an unsolved 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:

Greenwich.
Turin.
Berlin.
Oxford.
Cambridge.
London.
Edinburgh.
Bologna.
Dublin.
Modena.
Aix.
Naples.
Armagh.
C. of Good Hope.
Palermo.
Paramatta.
Abo.
Madras.
Altona.
Bombay.
Brussels.
St. Helena.
Christiania.
Paris.
Derpat.
Petersburg.
St. Petersburg.
Marseilles.
Copenhagen.
Grenada.
Lisbon.
Brussels.
Königsberg.
Pond.
Copenhagen.
Kiev.
Geneva.

There is no public observatory in America. We find in Lalande (Bibliographie, &c.) notices of the following, not mentioned in the above list, and, we presume, extinct:—St. Petersburgh, Malta, Daalwig, Labon, and Welsenburg. That of St. Petersburgh is about to be re-established. There is much information on different observatories in Bernoulli's Lettres (Berlin, 1777), and in Quetelot'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 our modest limits. Undoubtedly, the principal actual access 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, for which the world is principally indebted to Sir J. Herschel and Professor Struve, my new connected system is as yet imperfect, 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 Stars [Double].)

The enormous masses of observations 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 in progress, we shall, in various succeeding articles, probably be able to afford some; and there are some channels which we hope will become open to us during the course of this work.

Among the subjects which we have touched on slightly, we must refer to COMETS, PENDULUM, GEODYN.

Works on the History of Astronomy.—Sherburne's edition of Manlius (London, 1875) 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 Bibliog.

graphie 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 1718 to 1802. Arndt's Historia Astronomiae (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 has not much mathematics. It is well spoken of by Lalande. Ball's Histories—1. Of Antient Astronomy (Paris, 1775); 2. Of Modern Astronomy up to 1720 (Paris, 1778); 3. Of Modern Astronomy from 1730 to 1761 (Paris, 1792); 4. Of Indian and Oriental Astronomy (Paris, 1797)—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 Times (Paris, 1821); 4. Of the Eighteenth Century (posthumous) (Paris, 1827)—contain a full description and discussion in order of persons, not of time, which render them difficult of reference, but still they are the best works of the kind. The historians of mathematics—Vossius, Montucla, Boscovich, 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'Astronomie (Paris, 1821), which is also to be found in his Systeme du Monde, is delightfully written; and there is also much information in the historical chapters of the fifth volume of the Mécanique Céleste, and occasionally in the other volumes. Lalande's Astronomy was called La Glose Gazette by a rival, on account of the rapid historical formation which it contains. Hutton's Dictionary, and Martin's Biographia Philosopha, 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 Verrier, Histoire, etc., depuis 1751 jusqu’à 1811, which contains an interesting account of the discoveries and measures of the earth; but it is very imperfect in dates. There is a tract on the history of astronomy by Dominic Cassini, published in 1693, which we have not seen. For a further list of works in this and similar branches, the reader 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.

In referring to the several collections of loges published by the Academy of Sciences, which are to be found in their Mémoires; to the two separate collections of loges by D’Alembert and Condorcet; to the Annual Reports of the Royal Society, Chemical Society, and several other associations. John OHN, 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 1703. In 1766, being then only twenty-two years of age, he began to teach medicine in the same university, acting as substitute to Chirac, one of its professors, who had been forced to attend the French army. In 1710 Astruc obtained by competition the chair of anatomy and medicine in the University of Toulouse, which he held for the whole of his life. The reputation, however, which he now acquired caused him to be soon recalled to Montpellier, where he occupied a medical chair from 1716 to 1728, when he returned to Paris, chiefly urged, in 1717, by D’Alembert, who had long wished to have such men as Astruc to illustrate his hypothesis, by showing on the one hand that traces of syphilis have occurred in Europe in 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 discovery of America, 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 Burrowby, M.D., London, 1737, 2 vols. 8vo.

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 Faculté de Montpellier, Paris, 1757, and also Haran, Mémoires des grands médecins et chirurgiens de Paris, (Paris, 1785) p. 256; and the Biographie Médicale, tom. i.

ASTURIAS, Principality of, a province of Spain, situated between 4° 58’ and 5° 30’ N. lat., and 6° 30’ and 8° 30’ 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 by the Bay of Biscay. It is bounded by the Ebro and the Tagus. This province, however, is composed of many districts, 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 a large circuit of Sierra de Gredos, and the Ebro, which is at an elevation of 5700 feet above the level of the sea; Sierra de Alba, 6960; Sierra de Pajares, 8278; Sierra de Peñaranda, 11,031; Sierra de Peñamelera or Peñamelara, 9485. To this last point, the range bears the name of Montaña de Asturias, the Mont Ventosa of Ptolomy. It then branches out in different directions, and crossing the province of Leon, Galicia, and the north of Portugal, abuts on the ocean at the points of Cape Oregal, Pinastres, and Bille, near the mouth 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, and covered with a sort of sand-stone used for grinding stones, are also found, as well as copper, succinim or mineral amber, though not of the purest kind, ebinbar, iron, zinc, lead, and silver. The whole mass is about 70 miles long, and 40 miles wide. The mountains of the Minho, 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 flows out of a calcareous rock. At the place called Oviedo, is a market-stall being there said to be a ruinous castle built of limestone, in which a sort of inferior amethyst is found imbedded, erroneously taken for diamonds by Caesal in his Historia Natural y Médica de Asturias. Below the mountain which has been referred to, the province is 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 bounds out of the chestnut
trees without entirely destroying them. Don Mariano Lagasa says, that he saw several of these trees, of the trunk of which had been sawed off in this manner, and still continued to thrive for several years, to produce abundant fruit, without presenting any outward appearance of decay. These forests abound with bears, wolves, foxes, and other species of wild animals. There are likewise several medicinal plants, among which is the heliotrope; six species of the erica or heath family, are included in the Flora Asturiana, and the clover, has been made known by the celebrated botanist just quoted, Don M. Lagasa.

The hills are covered with brush-wood, cistus, and furze, which the inhabitants use for fuel. This is the same use of, or at least, the same material as that, which is carried back by foreign vessels that visit the Spanish ports on the Mediterranean. Among the other vegetable productions, the parsnip may be mentioned as indigenous in Asturias.

Both the sea, and the rivers of this province produce the most delicate fish in the peninsula, which is sent to the market of Madrid both fresh and pickled.

Asturias is divided into concejos, or commons, of which there are 118. The superintendence of these districts is distributed among fifty-six towns: they contain 668 parishes, 3655 villages, and 23 convenants for both sexes. The population, according to the census of 1808, amounted to 364,238 souls, upon a surface of about 2148 English square miles; but the product of the land is calculated at 34,222 chil. Lopes, which are far from correct. Bory St. Vincent says, that Asturias is forty leagues long, and from ten to twelve wide. Milano allows it thirty-six leagues in length and nineteen in breadth. Galicia is the most fertile province of Spain, the harbours of Ribadesella and Cudillero are safe and commodious; and the former has good docks capable of receiving ships of forty guns.

The Nelson has its source on the northern slope of the Asturian mountains (43° N. lat., and 5° 24' W. long.), and flows W.N.W. by Oviedo, forming, as it empties itself into the sea, the ria of Pravia. Its affluent are the Caudal, the Trubia, and the Narcea, all on the left bank. The Narcea rises in the province of Leon, and in the district known as Zervcro, and flows through the beautiful valleys of Somiedo, and on the west, and flowing almost due north forms the ria to which it gives the name. The course of these two rivers cannot exceed sixty miles.

The valleys are tolerably fertile, and afford pasture 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 asperities, which the farmers use as manure, and which the sea-eaters are ever ready to supply for them.

On some of these rocks, the roques and rocks, or true drays, orchul or anch, 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 commodious town of Temia, and produces some wine, called Candalasino: in both places a sort of light and agreeable wine is made for home use, far superior to the chassil of Biscaia. There is however a deficiency of this article, which is abundantly compensated for by the excellent cider, or dry wine, produced in the province.

Of all the cereals, wheat is the most important, but the wheat is not generally cultivated here; not however, as Antillon says, on account of the dampness and cold of the climate, but because the Asturians prefer the escudos or spell-wheat, and the Indian corn, to any other sort of grain. The best species of common wheat is raised in great perfection; but the escudos is better adapted to the climate, and the species cultivated in Asturias is so much esteemed by the natives, that in many districts the inhabitants provide for the payment of the rent in kind, contain a stipulation that no sort of corn shall be offered in payment except escudos. Besides the excellent quality of the bread made from escudos, it is observed that it keeps moist and fresh much longer than that made from any other sort of grain. The Indian corn being planted much thinner than any other sort of corn, leaves sufficient space between the rows for the growth of pumpkins. The Asturian farmers also plant their corn near each other, so as to have three kinds of produce growing together on the same ground. The stem of the Indian corn affords a nutritious food to cattle; with it they make broths; and with it they also feed their fowls and pigs; the car or head they use for fuel after the corn has been thrashed out.

The climate of Asturias is exceedingly damp and cold in the mountainous parts; but in the valleys, and particularly on the sea-coast, it is so mild and temperate, that orange and lemon trees grow in the open air. In the seventeenth century great quantities of this delicious fruit were exported from Asturias to the northern countries of Europe; but since an English channel was opened, and the ports of the Mediterranean has been established, the raising of those trees has been abandoned in Asturias, the fruit of that principality not being able to compete in its abundance and quality with that produced in the provinces which is carried back by foreign vessels that visit the Spanish ports on the Mediterranean. Among the other vegetable productions, the parsnip may be mentioned as indigenous in Asturias.

The government is very interesting, and the subjects of the government, called the Pueblos, are very industrious. The first object of the government consists in the raising of the food of the people of the country, and in the improvement of the districts in which they reside. The government consists of the mayor, and the Pueblos, which perform the duties of the municipal government.

A military governor, an intendant, and an audiences, or a civil and criminal high court of law, reside respectively over the military, fiscal or financial, and judicial affairs of the principality. The internal administration is directed by the common council of the respective concejos. There is also an ecclesiastical tribunal and one bishop. For the administration of justice there is a sort of high court, or the Superior Court, which tries the more important cases. It is called the Tribunal of Justice.

The only manufactures of Asturias are, a royal manufactory of fire-arms at Trubia, a few others belonging to private individuals for the fabrication of copper and earthenware, jet trinkets, some tanneries, and looms for common woollen and linen stuffs, principally for home consumption. With these exceptions, its manufactures are not in a more advanced state than in the rest of the peninsula. The real cause of this deficiency is the want of inland communication between the coast and the interior. Madrid, a great road for carriages 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 Valencia, is called the Royal Road, and has been recently made. There is also another road between Oviedo and Grado, about twelve miles N.N.W. of Oviedo. The principal puerto, or passages across the mountain, are, reckoning from coast to coast, Tarma, Piedrefita, Pajares, Somiedo, Leitarigues, Cerredo, and Peñamelleres.

According to the historian Garibay, a Celtio tribe called Asturacos, or Asturacos, in early days, was driven into Spain, and settled in the north and north-west districts. They inhabited a territory much more extensive than the modern Asturias, for it reached to the banks of the Duero. Their chief town was Asturica, now Astorga, in Leon. They were but very imperfectly known by the Romans, who often confounded them with their neighbours, the Gallicani. For a long period they lived unknown in their valleys, without exciting either the envy or jealousy of the adjoining nations. The Asturacos made no resistance to those who invaded 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 Tarik and Muza overran the Gracchi, they passed through the Asturias. The Moors, who escaped the sword of the infidel, 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 PEYTO, dared alone to defy the power of the victorious Crescent. Alxaman SEPULVED,
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 to the Church is attributed to St. Peter, 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 Honorius. The asylums thus established eventually spread throughout all Christendom, to be still 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, were made places of refuge and sanctuary. 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 this eventually, crime was the frequent subject of such 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. But, as soon as the courts of law, and the law 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 unnecessary, but dangerous. It was a long and hard struggle in defence of its old supremacy; and in the face of the stand thus made, and in opposition to antient habits, and the popular superstition by which they were guarded, it was only very cautiously that attempts could be made to mitigate it. 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 1657, in the reign of Charles II., by 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 their place of shelter, they might be taken out by the king's officers. It was only by an Act of Parliament passed in 1654, after the Reformation, that persons accused of treason were debarred 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 around London, as well as in many parts of the kingdom, were thrown open as places of shelter to debtors. At length, in 1697, 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 were open as 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 Arthurs 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 palace; but it is singular to see how the only place in this country which possesses a corpus of debtors is the property, at least in the occupation, of private individuals, and therefore open to the public generally.

In England, a legal asylum, or privileged place, is called a sanctuary; and this use of the word sanctuary appears to be peculiar to the English language. Both in this country and in America, the name of asylum is commonly given to benevolent institutions intended to afford shelter, protection, or education, to the destitute. The particular description of the mercy assemble is unknown. Thus there are in London,—The Asylum for Recovery of Health, Asylum for the Deaf and Dumb Children of the United Kingdom, Asylum for English Orphans under the care of the Society of the Church of England, Asylum for the Care of Sick Indigent Seamen, Licensed Victuallers, 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 itself for the shelter of persons who had violated 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 unrighteously. Hence some doubt existed as to whether the term was to be understood in a strict sense; if the venger of blood pursue after him, then they shall not deliver the slayer up into his hand; because he smote his neighbour unwittingly, and hated him not beforehand. And he shall dwell in that city, until he stand before the congregation for judgment, and until the death of the high priest that shall be in those days; then shall the slayer return, and come unto his own city, and unto his own house, unto the city from whence he fled. (Joshua xx. 5, 6.) This institution may be regarded as an ingenious device for protecting, as the one hand, the guiltless author of the homicide from the popular resentment, which his unfortunate act would have been likely to draw upon him; and, cherishing, on the other, the public mind, that natural horror at the shedding of human blood, which, in such a state of society, it would have been so dangerous to suffer to be weakened. We see the same principle in the deodand awarded by our law in the case of the accidental destruction of life by any animate object.

One of the most curious instances of the privilege of sanctuary, is that long enjoyed in Scotland by the descendants of the celebrated Macduff, Thane of Fife, the dethroner of the usurper. It is said that he met the vessel which had been sent at the conclusion of the battle of the Boyne by Prince James, on his recovery of the crown of his ancestors soon after the middle of the eleventh century. By this grant it was declared that any person, being related to the chief of the clan Macduff within the tenth degree, who should have committed homicide without premeditation, should have his punishment remitted for a fine, on flying to Macduff’s Cross, which stood near Lindores, in Fife-shire. Although this, however, is the account of the old Scottish historians, it is probable that the privilege only conferred upon the offender a right of being exempted from all other courts of jurisdiction, except that of the Earl of Fife. Sir Walter Scott, in his “Antiquities of the Scottish Border,” has printed a Latin document of the date of A.D. 1291, in which the privilege to this latter extent is pleaded in favour of an Alexander de Moravia, an ancestor of the present Mr. Morsy of Abercromby. The original deed will exist. Of Macduff’s Cross only the pedestal now remains, the cross itself having been destroyed at the Reformation. It bore a metrical inscription, in a strange half-Latin jargon, the varying copies of which, still preserved, have given much occupation to the antiquaries. (See Sibbald’s “History of Fife,” particularly the second edition, 8vo. Cupar-Fife, 1802; Cunningham’s “Essay upon Macduff’s Cross; and Camden’s Britannia, by Gough.)

ASYMPTOTE (ἀσύμπτωτος, a compound Greek word signifying which does not fall within, if taken literally with respect to two lines, it would mean that they do not meet one another. But it is used only in speaking of two lines (one of which at least must be curved) which continually approach each other, but never meet; so that the distance between them diminishes without limit, or they may be brought to any degree of nearness, without ever actually meeting. This appears a paradox to beginners in geometry, who are generally unable to imagine it possible that two lines should continue to approach one another for ever, without absolute contact. But this arises from their confounding the straight line with a curved line in practice (which is not a straight line, but a thin streak of black lead or ink, as the case may be) with the straight line of geometry, which has neither breadth nor thickness, but only length. And they also imagine that if two lines might be asymptotic, the fact might be made visible; which is impossible, unless the eye could be made to distinguish any distance, however small. But if the unassisted eye cannot detect a white space between two black lines, unless that space be a thousandth of an inch in breadth, which is about the truth, it is evident that two geometrical surfaces with asymptotic boundaries, such as A B C, D E C would appear to coincide from the point between them is about the thousandth 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 L 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 by which means 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, and the density of the vessel be proportioned so that there may be a bottom C; 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 the end B M moves to the right, the curve M V W, &c., mark out the position of the bottom 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 towards it. Hence the curve M V 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 circles P, Q, R, S, &c. From A 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 arcs Q R, R S, &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 one parallel to the other. But as the radius is extended, the arcs P 1, V 3, &c., become more and more nearly parallel to the arcs Q R, R S, &c., some 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 who have written upon this subject have found 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-informed mathematician. If the equation of the curve is y = f(x), and if the function φ(x) can be separated into two others, say ψ(x) and χ(x), of which χ(x) diminishes without limit either when x is increased without limit, or made to approach without limit a given quantity; then the curve whose equation is y = ψ(x) + χ(x) is an asymptote to the curve whose equation is y = ψ(x) or χ(x) + χ(x). For the difference of the ordinates of the two curves (to a common value of x) is χ(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.

ASZOD, a well-built market-town of Lower Hungary, in a circle of Watzen, and on the road 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. Its inhabitants are remarkably industrious, meek, and peaceable, and carry on considerable trade, as well in cloaks lined with alseepskin, 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. Aszod has two synagogues, and nearly 5000 inhabitants. 47° 39' N. lat., 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 Abulcasim explains it (Ann. Mosl. L iii. p. 256, ed. Reinsch), 'a father.' According to the same author, the first chief honoured with the title of Atabek was Nisan-al-Mulk, the vizir of the third Seljuk sultan, Malek-shah, who at the same time gave himself as the own of Tus and received 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, were esteemed so after that they had made themselves the almost independent masters of certain provinces, 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 Irak), those of Azerbaijan, those of Persia, and those of Karistan.

Atabeks of Syria and Irak.—The founder of the first dynasty of Atabeks was Kazim-saddaulah Aksanark, originally a Turk or slave, but afterwards became an Atabek to a station of great influence at the Seljuk court. Sultan Malek-shah, the son of Alp Arsalan, yielding to the request of the nobles, who were jealous of the power of Aksanark, in order to get rid of his presence at court, appointed him governor of the towns of Haleb, Hama, Manbej, and Laodicea (a.d. 1086). After Malek-shah's death, Aksanark, instead of taking the part of his children, became the supporter of Tutush, another Seljuk prince in Syria. But Tutush, so far from rewarding the services which Aksanark had rendered him, deprived him of a portion of his previous government, and finally of his life (a.d. 1094). Emad-eddin Zenghi, the son of Aksanark, who was only ten years old when his father was executed by order of Tutush, and was afterwards pardoned by military services in several Seljuk armies, and in a.d. 1122 received Basa' as a fief from the Seljuk sultan Mahmoud, besides which he was appointed governor of Bagdad. In consequence of the then alarming ascendency of the Christian kingdom established in the crusades, and in Palestine, Emad-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 thenceforward ruled as an independent sovereign. European chroniclers of the history of the crusades call him Sanguin, which is a corruption of Zenghi. After his death (a.d. 1143) a dissension arose between his two sons, Sefid-eddin Ghazi and Nureddin Mahmoud: they agreed at last that Sefid-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. 1187: To the dowry of the Atabeks of Haleb, which was put by Saladin, a.d. 1183; who, however, allowed a side-branch of this dynasty to continue in the cities of Sanjar and Nisibin till a.d. 1219.

Atabeks of Azerbaijan.—Ildeghiz, 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 Atabek, and at the same time appointed governor of Azerbaijan and Karistan. He kept a large army of a thousand horse and 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 1225, when they were obliged to yield to the power of Jelal-eddin, sultan of Khwarazm.

Atabeks of Persia.—A line of Atabeks descended from Shiraz. It is a Tartar race, ruling over Fars, or Persia Proper, from A.D. 1148 till 1264. The first of these Atabeks was Moarak-eeddin, and he was followed by ten others, the reigns of some of whom were, however, of very short duration. The name of Quoq was last of this dynasty. His character was Ayashe Khanet, 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 successor, Sulgar, these Atabeks of Persia are sometimes named after him.

Atabeks of Luristan.—Abu Taher, an officer of the Atabeks of Persia, had been sent with an army into Luristan, a province on the north-east side of the Persian Gulf. He was thus in a strong position to menace the king, when he assumed the independent dominion over it, and took the title of Atabek. Takla, the grandson and third successor of Abu Taher, was reigning over Luristan when Hulagu invaded the country, who deposed and killed him, but allowed his son, Shams-eddin Ali Argun, to succeed him in the government. By the permission, and with the support, of the Mogul emperors, Yussuf Shah, the son of Ali Argun, followed next, and he was succeeded by his son Ali Rokn-eddin, both by consent of the people, and also by the order of the emperor. On his death, his son, Ali Rokn-eddin, was elected to succeed him. He was called Ataghul, and is supposed to have reigned over Luristan and Persia, from the eleventh to the sixteenth century, and, it is said, had a son named Atabeks. But these statements cannot be considered as correct, as they are taken from a very corrupt and inaccurate text, which is extremely difficult to understand. The description of the country which these Atabeks once possessed, is very imperfect. It is uncertain what part of the coast they held, though the most extended part of their possessions, seems to have been that which separates it from Persia, 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 200 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, which lies on the N.E. within the chain of the Andes, and contains some fertile valleys, in which the waters precipitate the snow and snow-waves, and Sierras are cultivated. The surrounding mountains contain mines of gold and silver, but they are not worked, and are inhabited by numerous herds of vicunias, which the Indians barter in the trade with Chili. The valleys are rounded and 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 dark brown, and in some places quite black sand, with here and there a brick of white. Oanges, up to the rise of the high ridges and a few immense rounded knolls; 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 towns, and a few fertile valleys extend, and, in which the waters precipitate the snow and snow-waves, and soil producing bananas, cotton, figs, vines, and other fruits. The most considerable of these rivers is the Cocha, at the mouth of which is a good harbour and a small town, the inhabitants of which are principally occupied with fishing for corogs, 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 pole, is very plentiful, and the inhabitants are so acclimatized with fishing for corogs, which they salt and export to the interior and to other ports, that this town is now called Puerto de la Mar. In other parts of the coast a species of cod, called pole, is very plentiful, and the inhabitants are so accustomed to it as to appear to derive all their sustenance from it. The interior districts contain veins of crystal of various colours, of Jasper, talc, opal, blue vitrili, and amethyst. No rain ever falls on this coast, but in a few places the soil is occasionally refreshed by mists and dews. In the desert, sand-spouts are of frequent occurrence. (Alcedo, Captain Basil Hall, Humboldt.)

Atahuallpa, the son of Huayna Capac, the eleventh Inca of Peru, by a princess of Quitis, or Quito. According to the laws of Peru the inca was only allowed to marry his sisters, or some other female of his own family: every other union was considered unlawful, and the fruit of such an union illegitimate, unless the united parties could produce the account, success his father. Huayna Capac, who loved him passionately, considering, moreover, the rank of his mother, was desirous that Atahuallpa should succeed him in the throne of his kingdom, and, if necessary, to force his son to reign. 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 Garcilasso, took place in 1523, Atahuallpa ascended the throne of Quicua. The history of Huascar is not so clear. He seems to have been left undisturbed in the possession of his kingdom, on condition that he should not make any new conquests on his own territory, and that he should render him homage as his father's heir. After the death of Huascar, Atahuallpa asked his brother's 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 assemble 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 served under his father. These preparations were calculated to make a profound impression in the minds of some of the old governors of the province, who acquainted Huascar with their fears. But before the inca had time to prepare himself, more than 20,000 men arrived from the north, all of whom were either 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 them battle in a plain six miles from Cuzco. The battle was obstinate and bloody, and at last victory fell to the favour of Atahuallpa. Huascar attempted to escape with a thousand men, but was taken prisoner. A messenger was sent to his brother, who was at Quito, or Jauja, to acquaint him with the news of the battle. The inca was to be kept in chains, and summoned all the individuals of the inca's 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, that he might possess the throne without fear of being disturbed. Atahuallpa accordingly gave orders to his general, who caused more than 300 of the inca's family to be put to death, without sparing either age or sex. Some were beheaded, others hanged from the tops of rocks, women were hanged 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, Ya-

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both they and their king were either tyrants, who went about the world plundering and usurping the kingdoms of others, or a servitude imposed 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 none, or rather to him, and not to the Spaniards only, but to prevail, the Spaniards would not suffer the incas to finish his discourse. The cavalry fell upon the unarmed multitude that had assembled, attracted by the novelty of the sight, satirizing and deriding the presence of their horses, 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 seizing Atahualpa, and Indian women and children, 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, and in a few days, with the assistance of his brother Huascar, he saw two officers of Pizarro, and again implored their interference in his behalf. This circumstance having reached the ears of Atahualpa, he ordered him to be put to death. The unfortunate Huascar, instead of being depriving of my king's existence by a tyrant, but he will not enjoy long his usurped power.

A Peruvian renegade, called Philiberto, 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 Spanish officers, whose brother had been murdered, were found guilty of the injustice of such proceedings, and endeavored to prove to those who were of a contrary opinion that they would disgrace the Spanish character by their ungrateful behaviour 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 by their emperor. Although Atahualpa had 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 being alive on false and baseless charges, 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 strangelf. It is said that he exhibited 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 verify this, he asked one of them to write the name Dios (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; but on putting the question to Francisco Pizarro, and finding that he was unable to answer it, he discovered that it was a science acquired. From that moment he formed so mean an idea of Pizarro, that he treated him with the greatest contempt.

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(Taco Garciasso), Comentarios Reales de los Incas, part i, book 9, chap. 2 to the end; part ii, book 10, chap. 17, folio edition, Madrid, 1723.

ATA-MELIK, or with his complete name, ALA-EDDIN Ahmad, was born (probably a.d. 1226 or 1227) in the district of Khorassan, in which country his father Boha-eddien successively filled several offices of importance under the Mogul government. Ata-Melik received a careful education; but at an early age political employments withdrew his attention from literary pursuits. Argun, the governor of Khorassan, chose him for his companion on two journeys into Tartary, and in 1231 introduced him at the court of the Mogul emperor Hulagu, and made him a great present to the emperor. Ata-Melik remained for a considerable time, and began to write his great work on the history of the Moguls, on account of which he undertook several excursions into Mavarañihor, Transcian, and Asia, and was in the antient palaces of the Moguls at the time when the idea is not informed of the precise period at which Ata-Melik quitted Khorassan. But when Argun was, in a.d. 1255, again called to the court of Mangu Khan, he left his son Kersi-Melik, with Ata-Melik, in the camp of Sultan Hulaku, to accompany him, and in this time, Ata-Melik, with his brothers, was appointed governor to the province of Persia 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 Jowain, which had been destroyed by the Moguls when they first conquered Khorassan. He afterwards accompanied Hulaku in his expedition against the Abbaside caliph Mostassem; and after the capture of Bagdad by the Moguls (a.d. 1258), was appointed prefect 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 preceding pillage and the cruelty of the conquerors, was placed under the power of the 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, which were taken from him on the occasion the successor of Abaka Khan, relieved him from this distressing situation, and prevailed upon him, much against his will, to resume his former office. But soon after this Argun, the son of Abaka Khan, defeated Ahmed and made himself master of Bagdad; and it appears that the apprehension of a renewal of the former rigorous judicial proceedings against himself accelerated the death of Ata-Melik, which took place a few days after Argun's entry into Bagdad (a.d. 1259). He was succeeded by his son, named Jehan-Hussai (i. e. the conquer of the world), of whom the most esteemed Oriental writers (c. Abulfaraj, Mirkhound, &c.) referred to as the principal authority on that subject. A manuscript, said to contain the greater part of it, is preserved in the Royal Library at Paris. (See a Memoir on the life and writings of Ata-Melik, by Quatremaire, in the Mines of the Orient, vol. i. p. 220, &c.)

ATAULPHUS, brother-in-law of Alaric, king of the Vandals, and brother of his father. When Alaric's death, near Cozeina, 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 going against the 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 and defeated Jovinus, who was taken and put to death. 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 the year a.d. 414. Ataulphus appeared on the occasion dressed after the Roman fashion, and presented his bride with many vessels full of gold and jewels taken at the plunder of Rome in a.d. 410. Ataulphus afterwards passed into Spain, where he was received and treated by one of his relatives, a.d. 417. A child that he had by Placidia, and to whom he had given the name of Theodosius, died before him. Vallia, the successor of Ataulphus, restored Placidia to her brother Honorius, who gave her in marriage to the young Constantius. (Jernandes, Zosimus, Orosius, and Gibbon.)

ATBARA, a river of Nubia. [See Tacazz and Nile.]

ATCHAFALAYA (an Indian word, signifying lost sea) is the lower outlet of Lake Pontchartrain, and derives itself from the main stream on the right bank in 21° 30' N. lat., and 14° 47' W. long, from Washington. The Atchafalaya is here about 110 yards wide, and the Mississippi nearly half a mile. When the Mississippi is in flood, it runs toward New Orleans. A branch of the Atchafalaya into the Great River; but when the Mississippi is at its height, there is an immense mass of water sent down the Atchafalaya, and a
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 from the N.W., which comes from the billy 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 lake called Choctoimaches, and the other 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 the mouth of the bay flows a river, called 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 interlaced floating trees. 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 these interlaced trees have been observed, and the fact is confirmed by 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.)

A.CHEEN, or ACHEEN (properly ACHIEH), 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 Butas. The kingdom does not extend north of it, but is about fifteen miles broad. It stretches along the coast to the northward as far as the town of Barus, in 2° N. lat. and 98° 30’ E. long. On the northern coast the territory of Acheen reaches as far eastward as Karti, in 5° 10’ 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 Diego Diaz, made their first rendezvous at the coast of Suma-
tara, and anchored at Pedir, then a principal port on the north-west coast, within the kingdom of Acheen. Here the Portuguese found trading vessels from Pegu, from Bengal, and from other eastern countries: the first ship arrived in the year 1504, and the second in the year 1505; while 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 Acheen 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 1659, when the reigning queen of Acheen, having granted some additional privileges to the East India Company, a factory was established by that body in the capital of her dominions. This factory, how-
ever, was never very flourishing in this quarter, and may be said to have ceased upon the establishment of the Company’s settlement at Bencoolen, 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 Acheen, in April, 1819, by Sir Stamford Raffles, on behalf of the Governor-General of the East 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 His Highness likewise engaged ‘not to grant to any person, except the government of the said Board of the East 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 His Highness likewise engaged ‘not to grant to any person, except the government of the said Board of the East 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 His Highness likewise engaged ‘not to grant to any person, except the government of the said Board of the East 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 His Highness likewise engaged ‘not to grant to any person, except the government of the said Board of the East 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 His Highness likewise engaged ‘not to grant to any person, except the government of the said Board of the East 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.’
ATCHEEN, or ACHEEN, the capital of the kingdom of the same name in Sumatra, is situated at the northwestern extremity of the island in 5° 45' N. lat, and 95° 45' E. long.

The town stands on a river which empties itself by several channels near to Atcheen-head, and is about a league from the town. On the shipping lie two wharves, which are 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 excluded 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 like an amphitheatre by ranges 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 wealth of the inhabitants has occasioned the erection 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 high wall of strong posts. Next to the palace are a few 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 to the Sultan of Atcheen; 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 Mandan's «Voyage of Sumatra and Forrest's Voyage to the Mergui Archipælag.»

ATCHUJEFF, ATCHUK, or ATCHU, an island on the eastern shore of the Sea of Azof, 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 Atchujeff, the fortifications of the island, and wood; Kirjim, a famous branch of the Kuban, which was the most considerable place in this part of the world in the fourteenth century; and Cozadji, a small town on the Kuban-Kulin. The inhabitants, who are Cossacks of the Black Sea, consist wholly of fishermen, and the appearance of the particulars of sturgeons in a dried state, caviar, fish-fish, and isinglass, to Constantinople. It is comprised at present in the Russian government of Tauris.

Among the zoological productions of Sappojus, 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 quadrupeds. The most prominent characters of the genus consist in their long, attenuated, and very powerfully-prehensile tails; fore-hands either entirely deprived of thumbs, or having only a very small rudiment of that organ; and their dental system, which, like that of all the American quadrupeds, consists of two molar teeth in each jaw, one 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 genera; the second is shared with them only by the colobus, a small African genus, consisting only of two species, of which has been observed by any zoologist since the days of Pennant, and with whose other characters we are very imperfectly acquainted. The stoles are further distinguished by their small round heads, remarkably long slender limbs, which characteristics giving these animals much of the general appearance of a spider, have procured for them the appellation of spider-monkeys, by which they are always known. Of the species which exist in the wild nature of the new world, they are destitute of cheek pouches and callosities, 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 base of the nose. The nostrils open laterally, and are separated by a thick cartilage. 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, and lies in small downy tufts.

But the organs of locomotion chiefly distinguish the stoles. The anterior extremities, in particular, are by their length and the slenderness of their form out of all proportion with the other parts; they are in general, as more observed, the distinet feature of the stoles. The fingers, which 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, the thumb is infinitely longer; and if they be turned to the heel, and is completely opposite to the fingers. But these animals possess, in their long and muscular tail, an organ of prehension much more powerful than the other extremities; it executes, in fact, all the functions of 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 portion that the stoles are able to cling with great force to the branches, or swing itself from tree to tree with an ease and velocity almost incredible.

Their entire organization is adapted exclusively to an arboreal life. Their feet are so formed as to be peculiarly ad- ward and embarrassed by 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 tabs whilst 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 can more easily maintain their position. But in proportion to their embarrassment on a plain surface is their dexterity and agility among the trees of their native forests. Here they live in numerous troops mutually support one another in danger, avoid and expel the less favourably organized races in 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 food, yet they never neglect the principal branches of the trees, and the 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; are possessed of a marked and intimate 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 thumbs are infinitely stronger, and if they are without the amusing tricks of the monkeys, so likewise are they without their fickleness 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 chain being allowed to sink free, the protruding head of the animal at 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 animals at the lower end cast themselves 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 indeed as most of the other quadrupeds are esteemed as an article of food by the native Indians; and even Europeans, whose curiosity or necessity has induced to taste it, report their flesh to be white, juicy, and agreeable. The only thing disgusting to us is that it is very commonly eaten, 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 European sportsman, 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 atetes have been distinguished and characterised by naturalists and travellers:—

1. The Quata (A. paniculus, Geoff.), or, as the French write it, costea, 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 forehands entirely deprived of thumbs, the tail robust and powerful, the eyes and cheeks deeply sunk, and the face copper colour. On the back and outside of the limbs the hair is very long and thick, but the belly and groins are nearly naked, and the mammae 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 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 Cayou (A. niter, P. 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 cayou 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. Belzebub, 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.

although he was a good bibber of wine, yet he would never touch it till leave was given him.'

2. The Chuna (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 chuna 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 ocelot, 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,
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 slightly grey and brown, but this mixture gradually disappears as it grows towards maturity, till the adult animal presents the uniform black and white below, as already described.

5. The edmondi (Geoffr.), 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 fore-arms as far as the wrists, and the fore and hind legs, the under 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 ates 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 A. Arachnoidea, or Brown Quota, as it is called by Baron Cuvier, partakes, in fact, very much of the character and appearance of the common quota, 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 ates; 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 but sparingly covered with scattered hairs, of a longer and coarser quality than those on other parts; the root of the tail is rather thick and bushy, but it is generally attenuated 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 round the eyes; the forehead is 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 brows, 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 the hand underneath is a distinct shade of a bright reddish-brown 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 listless apathy of characters which distinguish the ates 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 d. a. Arachnoidea, resembles very closely the following species, and appears, indeed, to intermediate between it and the common quota.

7. The mono, or miriki (A. hypoxanthus, Kuhl) inhabits the forest of Brazil, and, as has just been observed, approaches very nearly to the A. Arachnoidea, 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 ates hitherto described, by the presence of a small rudimentary thumb on the fore-hands. The face also

![Ateles Hypozoanthus](image)

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 hairy 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 chameck (A. subpentadactylus, Geoffroy), 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 nail, and in other respects the two animals are sufficiently distinguished by their difference of colour and habitat. The chameck indeed approaches more nearly in external form and appearance to the quota than to any other of its congener, being furnished with a similar coat of long dense hair, of an intense and uniform black colour; but it may be readily distinguished from that species by the presence of the rudimentary thumb on the anterior members, as well as by its
size, which considerably exceeds that of the quata. It has a 
protuberant muzzle, and its lips, like those of the quata, 
are supported by a bristle, which is called a 'tuig'; the black 
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 very long and 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 
with long hairy hair, which is attenuated towards the 
point, where it is more sparsely furnished with shorter 
hair, and entirely naked underneath.

This species inhabits Guyana and some of the neigh-
bouring provinces of Brazil. Von Sack, in his Voyages to
South America (1817), notes the following account of the 
nature of the quata, with which species its general appear-
ance probably causes it to be frequently confounded. 'The 
quata,' 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 garderns; and they knew well the 
usual hour of dinner at their master's, when they would 
come to the gallery, look in at the windows, though without 
attending to the master's command; as soon as he had 
left a liberty not allowed them; they therefore patiently 
waited for their dinner on the outside.'

A TEMPO, music (ital, in time), signifies, that after 
any change in motion, by retardation or acceleration, 
the original movement is to be restored.

ATH or AATH, a handsome town in the kingdom of 
Holland and the province of Zuid-Holland (SOUTH Hol-
land, an affluent of the Schelde, 50° 36' N. lat., 3° 46' E. long., and 32 miles W.S.W. of Brussels.

This town was enlarged and strengthened by Albert of 
Holland, in the last of whom it became a county.

In 1568, after 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 admired. Ath has a new arsenal, seven 
public schools, and a hospital.

At present, a school of design, a school for poor children 
of both sexes, and eight private schools: it has also an hos-
pital, a theatre, and an establishment for orphans. The 
people are famous for their gipsies, who are noted for 
bleaching, and asbestos cloth. It carries on some trade 
in grain, and in the produce of the neighbouring 
country, among which are tobacco, poppies, and rape. The 
popu-
ATHABASCA, or ATHAPSCOW, the name of a river and lake in the north-western territory of America.

The Athabasca river, which is also called the Elk river, has its sources near the Rocky Mountains, but has not yet been sufficiently explored to admit of its course being minutely described. It flows generally in a northerly direction, but sometimes runs due east, and in its windings receives the waters of the lesser Slave Lake by its outlet, the lesser Slave River; it also joins the Pembina, Red-Deer, Clear-Water, and Red Willow Rivers. Athabasca River falls into the lake of the same name by several channels, the principal one of which is at the south-western extremity of the lake nearly opposite to Fort Chipewyan and Fort Wood-burn, which are trading stations established by the North-West and Hudson's Bay Companies, during the last fifteen years. In its course from its sources to its confluence with Clear-Water river, the Athabasca is likewise known under the name of Rivière à la Biche.

Athabasca Lake, frequently called the Lake of the Hills, is situated about 170 miles south-west of the great Slave Lake, and is an elongated lake, lying in a direction nearly east and west. It is nearly 200 miles long, but its general width, which gradually decreases towards its eastern extremity, does not exceed fourteen or fifteen miles. The northern shore of this lake is high and rocky; and to this circumstance it owes its title of Lake of the Hills. The rocks here mentioned are composed of sienite, over which a thin soil is spread, which is sufficient for the support of a variety of trees and shrubs, as well as many shrubs, lichens and mosses. The south shore of the lake, near to the forts is quite level, and consists of alluvial soil. Lying between the different mouths of the Elk River, it is marshy in many parts and subject to be flooded. Advancing towards the east, the shore rises into barren sandy hills, incapable of supporting vegetable life; and still further in the same direction, near the mouth of Stone River, the soil is composed of primitive rocks. Fort Chipewyan, which, as already stated, is on the south-western extremity of the lake, was observed by Franklin to be situated in 58° 45' N. lat., and 111° 18' W. long.

This establishment is conveniently situated for communicating with the Slave and Peace Rivers, from whence the varied combination of poetic and antique interests of the region. In the spring they bring the collection of furs that has been made at the different out-ports during the winter; and in the autumn they receive a supply of stores for the equipment of the Indians during the hunting season.

The residents of the two establishments at Athabasca Lake depend for subsistence almost entirely upon the fish which it supplies. The kinds which are most abundant are trout, carp, pike, greyling, and arthias. These are usually taken in sufficient abundance throughout the winter at a distance of eighteen miles from the stations. On the thawing of the ice, the fish remove into smaller lakes and the rivers on the south shore, where they are nearer to the forts; but the mode of transport by water being less certain than over the ice, it sometimes happens that the residents are kept without a supply of food for two or three days together.

The traders are also supplied with the flesh of the buffalo and moose deer by the hunters, who find these animals at some distance from the forts, and convey the meat there in a dried or pounded state.

(See Franklin's Journey to the Shores of the Polar Sea; Boucicaut's Statistical Survey; McGregor's British America.)

ATHAHILAH. The name Ḥṭylḥ, Ḥṭylḥ, or Ḥṭylḥ, means whom the Eternal remembered.

Athaliah is considered to be the daughter of Ahab, king of Samaria (for she did envy all that were before him), and of his wife Jezebel, the daughter of Bithsoth, 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 evident that she was the daughter of Ahab, and granddaughter 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 bought that which was evil in the eyes of the Lord, in that she caused her son to die in the year b.c. 885, and the kingdom devolved upon Ahaziah his youngest son. Athaliah reigned one year. Athaliah, who possessed much influence in the government of her son, used it for public purposes. On the untimely death of Ahaziah, 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 imbruing 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 b.c. 864, and reigned during six years. In the seventh year of her reign, a child was born, and 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 great consternation, a son of Ahaziah with whom she had been secretly joined upon the back of Judah by the assembled multitude. Jehoash, the daughter of Jehoram, king of Judah, sister of Ahaziah (2 Kings xi. 2) and wife of Jehoash the high-priest, had reared 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 Joash had attained the age of seven years, Jehoash assembled the priests and soldiers, and producing Joash before them, asserted 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 Jehoash gave instant orders that she should be removed from the sacred inclosure and slain. The command was immediately obeyed, b.c. 878. (See 2 Kings ix. 25; xi. 2 Chron. xxv. 5, 7—12; xxii. 2—10; xxiii.) The discovery of Joash is the subject of a fine comedy of Racine, written by him in 1679, called La Fille de Madame de Maintenon, and performed before Louis XIV. by young ladies of well-reputed families, educated in the seminary established by Madame de Maintenon at St. Cyr. The tragedy was composed for the express purpose of affording a combination of poetic and antique interest and of pungent moral sentiment and the inculcation of religious instruction.

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, defeated and killed Agila, near Seville, a.d. 584. Athanagilde was then proclaimed king of the Goths in Spain. He afterwards quarrelled with his Roman allies, whom he endeavoured, but not successfully, to drive out of 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 daughters, one of whom, by her marriage to Chilperic, the French king of Soissons; and the other, Brunehaut, married Siegfried, king of Mevis, or Austrasia, and became famous in French history. (See BERNHART.) Athanagilde died at Toledo in 547 and in his History of Spain, mentions a village near Guitamaens, in Portugal, which was still in his time called Athanagilde, having been built during the reign of this king.